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Print

Record 1 of 243

Title: Design of a flexible waterproof antenna for Internet of Things applications

Author(s): Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Al-Ghamdi, AA (Al-Ghamdi, Ahmed A.); Dishovsky, NT (Dishovsky, Nikolay T.); Atanasov, NT (Atanasov, Nikolay T.); Atanasova, GL (Atanasova, Gabriela L.)

Source: JOURNAL OF ELECTROMAGNETIC WAVES AND APPLICATIONS **DOI:** 10.1080/09205071.2020.1865208 **Early Access Date:** DEC 2020

Abstract: We propose a new broadband flexible waterproof antenna suitable for Internet of Things applications. The antenna is comprised of three components: radiating elements fed by a 50-ohm coplanar waveguide transmission line and two layers from an elastomer composite (used as a substrate and top encapsulation) which completely covers the antenna's radiating elements to provide water and dust resistance. An antenna prototype is fabricated and tested. Experimental and numerical results show that the proposed antenna has broad bandwidth (|S-11| <= -10 dB) over the frequency range of 0.83-2.52 GHz, high radiation efficiency of about 92% and good radiation patterns. The antenna was also immersed into water for 10 s, 10, 30 and 60 min, respectively and reflection coefficient magnitudes were measured, to verify its waterproof capability. The durability and flexibility tests were performed on the antenna prototype. Results show that there is no significant degradation in the antenna performance.

Accession Number: WOS:000604718700001

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ISSN: 0920-5071

eISSN: 1569-3937

Record 2 of 243

Title: Assembly of efficient Ag/n-Si/Cu2CdSnS4/Au for photovoltaic cell utilities star

Author(s): El Saeedy, HI (El Saeedy, Halemah, I); Yakout, HA (Yakout, Hanan A.); Mahmoud, M (Mahmoud, Mona); Abdelaal, SA (Abdelaal, Said A.); El Sayed, MT (El Sayed, Mardia T.)

Source: EUROPEAN PHYSICAL JOURNAL-APPLIED PHYSICS **Volume:** 92 **Issue:** 3 **Article Number:** 30302 **DOI:** 10.1051/epjap/2020200207 **Published:** DEC 17 2020

Abstract: Assembly of earth-abundant and cheap kesterite thin films is significant to produce inexpensive photovoltaic cells. Here, uniform, crystalline Cu2CdSnS4 (CCTS4) thin films were deposited on commercial glass substrate by spray pyrolysis method with thickness (215, 246, 328 and 385) at 450 degrees C. The structural, optical, electrical, and photovoltaic studies of the deposited CCTS4 films were tested by different analysis. The various values of structural constants of CCTS4 films were examined with film thickness. The XRD experiments appeared that the CCTS4 films prove a polycrystalline nature and tetragonal shape. The CCTS4 films observed a direct optical transition and decreased with film thickness increased. The thickness 385 nm of CCTS4 thin film was selected to fabricate the Ag/n-Si/CCTS4/Au Hetero-Junction because it exhibits high values of absorption coefficient and optical conductivity. The fabricated CCTS4/n-type Si Hetero-Junction showed efficiency about 4.1%.

Accession Number: WOS:000599488200001

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ISSN: 1286-0042

eISSN: 1286-0050

Record 3 of 243

Title: Investigation on microstructural and opto-electrical properties of Zr-doped SnO2 thin films for Al/Zr:SnO2/p-Si Schottky barrier diode application

Author(s): Ravikumar, K (Ravikumar, K.); Agilan, S (Agilan, S.); Raja, M (Raja, M.); Marnadu, R (Marnadu, R.); Alshahrani, T (Alshahrani, T.); Shkir, M (Shkir, Mohd); Balaji, M (Balaji, M.); Ganesh, R (Ganesh, R.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 599 **Article Number:** 412452 **DOI:** 10.1016/j.physb.2020.412452 **Published:** DEC 15 2020

Abstract: Herein, the fabrication of novel pure and Zr-doped SnO2 (Zr@SnO2) films via sol-gel spin coating process for Schottky barrier diode (SBD) application has been reported. Phase and size analysis were carried out through X-ray diffraction and Scherrer rule was used to determine crystallite size, which is noticed between 2 and 6 nm. The SEM study reveals that the fabricated films contain very fine sphere-like grains. The optical transmittance of Zr@SnO2 thin films reveals that the grown films possess high transmittance which is good for optoelectronics. The values of energy gap for all Zr@SnO2 films were estimated between 3.90 and 3.96 eV. The dc conductivity analysis showed that SnO2 films possess higher electrical conductivity at 8 wt% of Zr. The barrier heights (phi(B)) and ideality factor (n) of the fabricated SBDs were calculated from both J-V and Cheung's method. Better performance was noticed for Zr (8 wt%):SnO2/p-Si SBD.

Accession Number: WOS:000583242900003

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Balaji, Murugan		0000-0002-6699-6360

ISSN: 0921-4526

eISSN: 1873-2135

Record 4 of 243

Title: Chemosynthesis and physical vapor deposition of acanthite thin films: Characterization and electrochemistry explorationwe

Author(s): Ahmad, KS (Ahmad, Khuram Shahzad); Zafar, A (Zafar, Aimen); Jaffri, SB (Jaffri, Shaan Bibi); Alamgir, MK (Alamgir, Muhammad Khalid); Sohail, M (Sohail, Manzar); Mehmood, RF (Mehmood, Rana Farhat); Rehman, MU (Rehman, Misbah ur); Ali, D (Ali, Daoud)

Source: RESULTS IN PHYSICS **Volume:** 19 **Article Number:** 103647 **DOI:** 10.1016/j.rinp.2020.103647 **Published:** DEC 2020

Abstract: Current work reports the diethyl-ammonium dithiocarbamate based metallic chalcogenide semiconductor complexes of Ag2S-(dtc)(2) [where dtc = dithiocarbamate], BaS-(dtc)(2) and Ba:Ag2S-(dtc)(2) in an in situ chemosynthetic route for first time. Current work is also the first investigation reporting the physical vapor deposition of pristine [Ag2S-(dtc)(2)]/SnO2 and doped [Ba:Ag2S-(dtc)(2)]/SnO2 thin films was carried out in a resistive heating unit. Synthesized complexes and thin films expressed remarkable crystalline, vibrational, optical, morphological and elemental compositional characteristics revealed from different analytical tools. X-ray diffraction disclosed the acanthite type orientation for the pristine and doped thin films with average crystallite sizes of 43.23 and 38.11 nm, respectively. Fourier transform infra-red spectroscopy supported a myriad of functional groups, bond types and molecular arrangements in the single source precursor synthesized complexes. The optical analysis via ultra-violet visible spectrophotometry expressed an alleviation in the both direct and indirect bandgaps from 3.9 to 3.7 eV and 3.8 to 2.7 eV determined from Tauc's plot for the doped [Ba:Ag2S-(dtc)(2)]/SnO2 thin films showing the tailoring power of barium doping. Tightly packed thin films with presence of agglomerated particles were expressed by microstructural analysis done via scanning electron microscopy. Elemental profiling and thin film thickness measurement via Rutherford back scattering spectrometry supported strong signals for Ag, S and Ba with film thickness of 275 nm acquired for [Ba:Ag2S-(dtc)(2)]/SnO2 thin films. Profound electrochemical functionality was expressed by cyclic voltammetry, linear sweep voltammetry and chronoamperometry showing the suitability of fabricated films for a wide range of optoelectronic and photovoltaic devices. Current work can be extended to achieving further improvement in the optoelectronic aspects of the synthesized films before they can be practically used in different photovoltaic contraptions.

Accession Number: WOS:000604212700003

ISSN: 2211-3797

Record 5 of 243

Title: Bimodal Approach for the Use of Co Doped Magnetite as MRI Contrast Agent and Potential Antitumor

Author(s): El-Shahawy, AAG (El-Shahawy, Ahmed A. G.); GadelHak, Y (GadelHak, Yasser); Zahran, HY (Zahran, H. Y.); Yahia, IS (Yahia, I. S.); El-Dek, SI (El-Dek, S., I)

Source: JOURNAL OF MAGNETICS **Volume:** 25 **Issue:** 4 **Pages:** 106-112 **DOI:** 10.4283/JMAG.2020.25.4.540 **Published:** DEC 2020

Abstract: Cobalt doped magnetite Co0.12+Fe0.92+Fe23+O4 nanocrystals were synthesized chemically using simple one step coprecipitation in the absence and presence of the magnetic field. The nanocrystals were characterized by transmission electron microscopy (TEM), X-ray diffraction (XRD), magnetization studies by vibrational spectroscopy magnetometer (VSM). The signal intensity of the prepared nanoparticles was measured by magnetic resonance imaging (MRI). The cytotoxicity of the two samples versus W138 normal lung cells and AS49 lung cancer cells was investigated by MTT assay, in vitro. The TEM images showed non-spherical and aggregated nanoparticles, heterogeneously dispersed with 100 nm average size. The XRD and selected area electron diffraction of the two samples revealed good crystallinity for both samples. The room temperature magnetization curves demonstrate the general ferrimagnetic trend with a clear difference in the coercivity and the remanence keeping the saturation magnetization nearly stable. The measured MR signal intensity was well-matched with the result of the M-H loops where the sample prepared in the absence of the field was a promising T2 contrast agent. Both samples have low cytotoxicity compared to Doxorubicin.

Accession Number: WOS:000607449900015

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ISSN: 1226-1750

eISSN: 2233-6656

Record 6 of 243

Title: Photonic band gap properties of one-dimensional photonic quasicrystals containing Nematic liquid crystals

Author(s): Trabelsi, Y (Trabelsi, Y.); Ben Ali, N (Ben Ali, N.); Segovia-Chaves, F (Segovia-Chaves, Francis); Posada, HV (Vinck Posada, Herbert)

Source: RESULTS IN PHYSICS **Volume:** 19 **Article Number:** 103600 **DOI:** 10.1016/j.rinp.2020.103600 **Published:** DEC 2020

Abstract: Reflectance spectra of one-dimensional periodic multilayered stacks with anisotropic defect layer built according to the Generalized Thue Morse sequence is investigated by the theoretical transfer matrix method for both polarized waves. The main hetero-layers of the structure are made up using SiO2 and Bi4Ge3O12 materials. The photonic quasicrystal reveal an interesting reflectance spectra for specific generation (m = n, n) of the Generalized Thue Morse sequence and layers thicknesses. Upon increasing the deformed thicknesses a significant enhance of the photonic band gap is shown and an improvement of the optical properties of the photonic crystal slab is observed. By applying homogeneously Nematic Liquid Crystal as defects into the photonic quasicrystals, a tunable resonant transmission can be notably opened and it is very sensitive to the thicknesses of incorporated Nematic Liquid Crystal. These results may be useful for tunable quasi-photonic Bragg reflectors.

Accession Number: WOS:000604224200015

ISSN: 2211-3797

Record 7 of 243

Title: Structural and shielding properties of NiO/xCo(3)O(4) nanocomposites synthesized by microwave irradiation method

Author(s): Ali, AM (Ali, Atif Mossad); Issa, SAM (Issa, Shams A. M.); Zakaly, HMH (Zakaly, Hesham M. H.); Pyshkina, M (Pyshkina, Mariia); Somaily, HH (Somaily, H. H.); Algarni, H (Algarni, H.); Rashad, M (Rashad, M.); Saif, M (Saif, M.); Sidek, HAA (Sidek, H. A. A.); Matori, KA (Matori, K. A.); Zaid, MHM (Zaid, M. H. M.)

Source: RESULTS IN PHYSICS **Volume:** 19 **Article Number:** 103488 **DOI:** 10.1016/j.rinp.2020.103488 **Published:** DEC 2020

Abstract: In the present study, nanocomposites with different ratios of NiO and Co3O4 (x = 0.3, 0.5, and 0.7) have been prepared via microwave oven and characterized using XRD. FLUKA code has been used to estimate the values of the mass attenuation coefficient (mu m) for all samples. From the measurement, we found that when the thickness of the samples increases, the gamma transmission values decrease. Besides, the mu m values increase as the Co3O4 content increase from 0.3 to 0.7%. At selected photon energy, the HVL, TVL, and MFP values decrease with increasing Co3O4 concentrations. At low energies (0.1-0.5 MeV), the linear decreasing trend in MAC values indication that photoelectric effect (PEA) (proportional to 1/E-3.5) dominance over this

region. Afterward, at medium energy regions (0.5-1.33 MeV), the decrements in MAC values are insignificant as the Compton scattering (CS) (proportional to 1/E) phenomenon dominates. As a conclusion, CoNi3 has superior effectiveness as a shielding material.

Accession Number: WOS:000604225100004

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ISSN: 2211-3797

Record 8 of 243

Title: Exploring optoelectronic properties of ZnO monolayers originated from NaCl- and GeP-like polymorphs: A first-principles study

Author(s): Ul Haq, B (Ul Haq, Bakhtiar); AlFaify, S (AlFaify, S.); Alshahrani, T (Alshahrani, Thamraa); Ahmed, R (Ahmed, R.); Tahir, SA (Tahir, S. A.); Amjed, N (Amjed, Nouman); Laref, A (Laref, A.)

Source: RESULTS IN PHYSICS **Volume:** 19 **Article Number:** 103367 **DOI:** 10.1016/j.rinp.2020.103367 **Published:** DEC 2020

Abstract: Exploring the cost-effective and environment-friendly two-dimensional materials for miniaturized portable device applications has received remarkable attention in recent years. In this article, we explore two new atomically thin polymorphs of ZnO derived from the pressure-driven rock salt (NaCl) and GePPhases. These 2D ZnO structures are originated from the 110-facet of NaCland GeP-like ZnO polymorphs employing a vacuum 20 angstrom separation. The energy stability, structural parameters, electronic structure, and optical spectra of these 2D ZnO polymorphs have been comprehensively studied from first-principles calculations. The two monolayers of ZnO exhibited energetic stability as large as their bulk counterparts. Similarly, following their bulk counterparts, both monolayers are found semiconductors of indirect bandgap nature with Eg of 1.06 and 2.55 eV as estimated theoretically for NaCl-and GeP-types of ZnO monolayers, respectively. The two monolayers demonstrated optical absorption as high as 35.61 x 10(4) cm(-1) and 30.26 x 10(4) cm(-1) for NaCl-ZnO and GeP-ZnO respectively. Moreover, NaCl-ZnO yields transparency over infrared, visible, and UV light regions below the energy of 8.0 eV, whereas GeP-ZnO possesses transparent nature below similar to 12 eV of the electromagnetic spectrum. Overall, these ZnO monolayers exhibit relatively small optical reflection, considerable refraction, and significant absorption indicating that a large portion of incident UV light is absorbed by these monolayers. This study is believed to unveil the potential of these two monolayers of ZnO for nanoscale electronic, optoelectronic, and photovoltaic applications. \

Accession Number: WOS:000604196000005

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Ul Haq, Bakhtiar		0000-0001-9058-2080

ISSN: 2211-3797

Record 9 of 243

Title: An Investigation on the Synthesis of Molybdenum Oxide and Its Silica Nanoparticle Composites for Dye Degradation

Author(s): Kamoun, O (Kamoun, Olfa); Gassoumi, A (Gassoumi, Abdelaziz); Kouass, S (Kouass, Salah); Alhalaili, B (Alhalaili, Badriyah); Vidu, R (Vidu, Ruxandra); Turki-Kamoun, N (Turki-Kamoun, Najoua)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 12 **Article Number:** 2409 **DOI:** 10.3390/nano10122409 **Published:** DEC 2020

Abstract: The molybdenum oxide (MoO3) and MoO3@SiO2 nanoparticles were successfully prepared using the chemical bath deposition (CBD) method. The photocatalytic activities of molybdenum oxide (MoO3), SiO2, and MoO3@SiO2 nanoparticles composite have shown a synergistic photocatalytic effect of SiO2 combined with MoO3. The first-order degradation rate constants for MoO3, SiO2, and MoO3@SiO2 nanocomposite were 10.3 x 10(-3) min(-1), 15.1 x 10(-3) min(-1), and 16.3 x 10(-3) min(-1), respectively. The MoO3@SiO2 composite showed degradation efficiencies in the methylene blue solution close to 100% after 60 min of UV irradiation. The X-ray diffraction (XRD) showed that the MoO3 powder has a hexagonal crystal structure and the silica is the tridymite type of SiO2. The crystallite size was about 94 nm, 32 nm, and 125 nm for MoO3, silica, and MoO3@SiO2, respectively, as calculated by the Scherrer equation. The scanning electron microscopy (SEM) images revealed that the MoO3 powder consisted of a uniform hexagonal structure; the silica showed a rod-like micro-flake morphology and the MoO3@SiO2 composite had the appearance of coral-like structures.

Accession Number: WOS:000602318100001

PubMed ID: 33276515

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eISSN: 2079-4991

Record 10 of 243

Title: Investigation of samarium-doped PbS thin films fabricated using nebulizer spray technique for photosensing applications

Author(s): Paulraj, K (Paulraj, K.); Ramaswamy, S (Ramaswamy, S.); Chidhambaram, N (Chidhambaram, N.); Algarni, H (Algarni, H.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 148 **Article Number:** 106723 **DOI:** 10.1016/j.spmi.2020.106723 **Published:** DEC 2020

Abstract: Lead sulfide (PbS) and samarium-doped (1, 3, and 5 wt%) PbS thin film layers were coated facilely on glass slides using the nebulizer spray procedure. To investigate the doping effect on the crystal structure, morphology, light absorption, and emission features of the deposited films X-ray diffraction, Raman, Scanning electron microscope, UV-Visible absorption, and photoluminescence spectroscopic analyses were carried out. A Keithley source meter was used to study the electrical characteristics of the thin film coatings. All the prepared films reveal the fcc lattice structure of PbS. Additional diffraction peaks related to the Sm2O3 phase are observed when 5 wt % of Sm was added to PbS. From Raman analysis, the peaks observed at 192, 235, and 465 cm(-1) confirm the presence of the PbS phase. The scanning electron micrograph of the PbS thin film reveals that it has tightly packed grains of spherical

shape. In the case of Sm-doped PbS films, the mean grain size increases with the Sm doping concentration. The energy dispersive X-ray analysis shows the existence of Pb, S, and Sm which authenticates the presence of the Sm element in the PbS matrix. The optical studies reveal that the 5 wt% Sm-doped PbS thin film has lower transmittance and higher absorption value. Moreover, the optical band gap value is decreased from 2.15 to 1.58 eV when Sm doping concentration increases from 0 to 5 wt%. The highest photocurrent is observed for the 3 wt% Sm-doped PbS thin film sample. The photocurrent enhancement due to the samarium doping with PbS makes it a potential candidate for the photosensor applications.

Accession Number: WOS:000596158500009

Author Identifiers:

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ISSN: 0749-6036

Record 11 of 243

Title: Triple convective flow of micropolar nanofluids in double lid-driven enclosures partially filled with LTNE porous layer under effects of an inclined magnetic field

Author(s): Mansour, MA (Mansour, M. A.); Ahmed, SE (Ahmed, Sameh E.); Aly, AM (Aly, Abdelraheem M.); Raizah, ZAS (Raizah, Zehba A. S.); Morsy, Z (Morsy, Z.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 68 **Pages:** 387-405 **DOI:** 10.1016/j.cjph.2020.10.001 **Published:** DEC 2020

Abstract: In this paper, free, forced and Marangoni convective flows within an open enclosure partially filled with a porous medium under impacts of an inclined magnetic field are investigated. The forced convection is due to the movement of the side walls, the free convection induces from the heated part in the bottom wall and the Marangoni convection is a responsible on the thermal interaction at the free surface (top wall). The flow domain is partially heated from below and partially filled by a porous medium. The local thermal non-equilibrium model (LTNEM) is used to represent the thermal field in the porous layer (bottom layer) while the two-phase model is used to simulated the micropolar nanofluid behavior. Two cases based on the direction of the movement of the side walls are considered, namely, assisting flow (downward lid motion) and opposing flow (upward lid motion). Numerical analysis based on the finite volume method is conducted and the obtained are presented in terms of the streamlines, isotherms, angular velocity, and the cup-mixing temperature theta(cup), the bulk-averaged temperature theta(ave) and the average Nusselt numbers. The controlling parameters, in this situation, are the Darcy number Da, the Marangoni number Ma, the Nield number H, the vortex viscosity Delta, the Biot number Bi and the Hartmann number Ha. The results revealed that the increase in the Nield number enhances the cup-mixing temperature theta(cup) and bulk-averaged temperature theta(ave) regardless the direction of the side walls motion. Also, the average Nusselt number is boosted as the Marangoni number is grown.

Accession Number: WOS:000599429400001

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ISSN: 0577-9073

Record 12 of 243

Title: Nanosized Magnesium doped Copper Chromites Spinel Particles Synthesis and Characterization

Author(s): Batool, K (Batool, Kiran); Rani, M (Rani, Malika); Younus, A (Younus, Ayesha); Mehmood, A (Mehmood, Arshad); Azam, S (Azam, Sikander); Ul Haq, B (Haq, Bakhtiar Ul); Shafique, R (Shafique, Rubia); Akhtar, N (Akhtar, Naseem); Khan, W (Khan, Wilayat); Alshahrani, T (Alshahrani, Thamraa)

Source: ECS JOURNAL OF SOLID STATE SCIENCE AND TECHNOLOGY **Volume:** 9 **Issue:** 12 **Article Number:** 126005 **DOI:** 10.1149/2162-8777/abce00 **Published:** DEC 1 2020

Abstract: Magnesium doped copper chromites spinel nanoparticles (Cu1-xMgxCr2O4) where x = 0.2, 0.4, 0.6, and 0.8 is synthesized by sol-gel method and characterized by different techniques like EDS, SEM, Raman spectroscopy, and Photoluminense. Various parameters affecting the sample techniques like temperature and Concentrations. The crystal phase of CuCr2O4 is tetragonal having a space group is 121/amd. We calcined at 750 degrees C temperature. Its lattice parameters are 6.0341 and 7.7888, which is very close to the reported ones. XRD tells us about the crystal size and dislocation density of samples. Four peaks observed in UV spectra of CuCr2O4 that occurs at different regions, bandgap obtained for the parent sample is 5.02 eV, and when we doped Magnesium then the bandgap changes and becomes 4.17 eV. Similarly, SEM results show that pure copper chromite structure is tetragonal and after doping the other compounds the structure changes according to characteristics of Nanoparticles. In PL spectra four peaks are obtained one at 347 nm, 380 nm, 500 nm and the other is at 600 nm. According to Raman, shift property two peaks are obtained with different wavelengths like 1306 cm(-1) and 1465 cm(-1). ED's results clearly show that copper chromites Nanoparticles successfully synthesized and when we doped Magnesium in copper chromite, the best results are observed.

Accession Number: WOS:000598023600001

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ISSN: 2162-8769

eISSN: 2162-8777

Record 13 of 243

Title: An effect of precursor concentrations on the photodetection capabilities of CdS thin films for high-efficiency visible-light photodetector applications

Author(s): Devi, MD (Devi, M. Dharani); Juliet, AV (Juliet, A. Vimala); Prasad, KH (Hari Prasad, K.); Alshahrani, T (Alshahrani, T.); Alshehri, AM (Alshehri, A. M.); Shkir, M (Shkir, Mohd.); AlFaify, S (AlFaify, S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 12 **Article Number:** 960 **DOI:** 10.1007/s00339-020-04067-3 **Published:** DEC 2020

Abstract: Photo-conducting CdS films were coated on glass at 450 degrees C using cadmium chloride and thiourea as Cd and S sources, respectively, with different concentrations. The sprayed CdS films are crystallized in the hexagonal structure and orienting along (0 0 2) plane with good adherence. All the

films have high optical absorption in the visible region showing optical bandgap values in the range of 2.39-2.43 eV. The variation of precursor alters the surface morphology of the films. The formed grains are uniformly spread over the substrate and highly agglomerated at 0.15 M concentration. Band to band emission and defect-related emission are reported using photoluminescence (PL) measurements. The CdS device shows relatively high photosensitivity of 0.4 A/W, detectivity of 8.46 x 10(10) Jones, external quantum efficiency (EQE of 140%) with a rise time about 0.2 s and decay time about 0.3 s. These results propose that the CdS thin films are potential candidates for the visible photo-detector applications prepared using an easy and low-cost fabrication method.

Accession Number: WOS:000596040700001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kamatam, Hari Prasad	AAA-5523-2020	0000-0002-0913-5361

ISSN: 0947-8396

eISSN: 1432-0630

Record 14 of 243

Title: First-principles investigations of structural parameters, electronic structures and optical spectra of 5-5-and BeO-type of ZnO1-xSx alloys

Author(s): Shabbir, S (Shabbir, Saira); Shaari, A (Shaari, A.); Ul Haq, B (Ul Haq, Bakhtiar); Ahmed, R (Ahmed, R.); AlFaify, S (AlFaify, S.); Ahmed, M (Ahmed, M.); Laref, A (Laref, A.)

Source: MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS **Volume:** 262 **Article Number:** 114697 **DOI:** 10.1016/j.mseb.2020.114697 **Published:** DEC 2020

Abstract: Due to the multifunctionality of the ZnO and its physical robustness, substantial research is focused on its alloying with different materials. Here, we investigate the optoelectronic properties of mutual alloying of 5-5 type and BeO type of ZnO with ZnS (such as ZnO1-xSx for x = 0, 0.25, 0.50, 0.75, and 1). By using density functional theory (DFT), calculations for the structural, electronic, and optical properties of 5-5 type and BeO type ZnO1-xSx are carried out. We have noticed that the incorporation of S atom in 5-5 type ZnO1-xSx has reduced its bandgap from 3.12 eV to 2.63 eV. On the other hand, a remarkable improvement from 2.85 eV to 3.75 eV in the bandgaps of BeO type ZnO1-xSx has been observed which makes the BeO type ZnO1-xSx more favorable for the future optoelectronic applications. Furthermore, the valence band maximum of 5-5 type ZnO1-xSx is strongly affected by the S composition, as a result, the nature of the bandgap has been transformed from direct to indirect bandgap at x = 0.50 composition. The imaginary part of the dielectric function, the onset of the absorption spectrum, and conductivity are found to experience a redshift. Whereas the static dielectric constants and static refractive indices are found to be increased with S content in both types of ZnO1-xSx alloys. Our results show that BeO type ZnO1-xSx alloys are relatively promising candidates for optoelectronic devices.

Accession Number: WOS:000588335000003

Author Identifiers:

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ISSN: 0921-5107

eISSN: 1873-4944

Record 15 of 243

Title: Synthesis and emission characteristics of lead-free novel Cs4SnBr6/SiO2 nanocomposite

Author(s): Santhana, V (Santhana, Vedi); Greenidge, DC (Greenidge, Darius C.); Thangaraju, D (Thangaraju, Dheivasigamani); Marnadu, R (Marnadu, R.); Alshahrani, T (Alshahrani, T.); Shkir, M (Shkir, Mohd)

Source: MATERIALS LETTERS **Volume:** 280 **Article Number:** 128562 **DOI:** 10.1016/j.matlet.2020.128562 **Published:** DEC 1 2020

Abstract: Lead-free Cs4SnBr6 nanostructures were synthesized using the high-temperature wet chemical method with as prepared cesium oleate and oleylammonium bromide. A new type of the SiO2 layer formation method was followed using TEOS and m-cresol. Phase stability of the Cs4SnBr6 and Cs4SnBr6/SiO2 aged samples was analyzed by the X-ray diffraction method. Transmission electron microscopy micrographs show that the hexagonally shaped particles covered with a thin SiO2 layer for Cs4SnBr6/SiO2 and were verified with TEM-EDS spectra. Synthesized particles showed a bright orange colour fluorescence emission under UV light and were confirmed with fluorescence emission spectroscopy.

Accession Number: WOS:000579357500011

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PSGitech, Research	AAR-9645-2020	

ISSN: 0167-577X

eISSN: 1873-4979

Record 16 of 243

Title: Elucidating the impact of PbI2 on photophysical and electrical properties of poly(3-hexythiophene)

Author(s): Almohammedi, A (Almohammedi, Abdullah); Khan, MT (Khan, Mohd Taukeer); Benghanem, M (Benghanem, M.); Aboud, SW (Aboud, Salman Walid); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 120 **Article Number:** 105272 **DOI:** 10.1016/j.mssp.2020.105272 **Published:** DEC 2020

Abstract: Owing to high absorption coefficient, controlled morphology and high charge carrier mobility, poly (3-hexylthiophene) (P3HT) is a well-known donor material for organic solar cells, but device efficiency is still average compared to other conjugated polymers such as PDCBT, PB3T, P12 etc. The present research aims to enhance the optoelectrical properties of P3HT thin films through the incorporation of PbI2 in P3HT. Herein, novel P3HT/PbI2 hybrid thin films fabricated and the effect of different PbI2 doping levels on structural, spectroscopic and electrical properties of P3HT was elucidated. Incorporation of PbI2 in P3HT matrix was confirmed through the observation of characteristic peaks of PbI2 in XRD and Raman spectra of P3HT. Surface morphology of fabricated films were investigated by SEM and reveals that the morphology of hybrid film entirely changed for higher PbI2 concentration. Fabricated films

were then characterized through a number of spectroscopic techniques including: UV-Visible absorption, fluorescence and ellipsometer spectroscopy. The optical parameters: dielectric constant (epsilon(r)), dielectric loss (epsilon(i)), extinction coefficient (k) and refractive index (n) were extracted from the fitting of Ellipsometer data by using mathematical models. It was found that the incorporation of PbI2 in P3HT leads to decrease of the optical band gap from 1.94 eV to 1.79 eV and increases of the refractive of P3HT thin films. The effective life time of charge carrier was found to be decreases from 106 ps for pristine P3HT to 15.6 ps for P3HT/PbI2. Hall Effect measurement shows enhancement in carrier concentrations from 7.62 x 10(14)cm(-3) (pristine P3HT) to 4.51 x 10(18) cm(-3) (P3HT/PbI2), decrease of electrical resistivity from 3.68 x 10(4) Omega cm (pristine P3HT) to 1.00 x 10(4) Omega cm (P3HT/PbI2) and decrease in carrier mobility from 2.23 x 10(-1) (pristine P3HT) to 1.38 x 10(-3) cm(2)/Vs (P3HT/PbI2).

Accession Number: WOS:000571790800006

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ISSN: 1369-8001

eISSN: 1873-4081

Record 17 of 243

Title: Investigation of dielectric, electrical and optical properties of copper substituted Mn-Zn nanoferrites

Author(s): Sharma, A (Sharma, Anjana); Batoo, KM (Batoo, Khalid Mujasam); Aldossary, OM (Aldossary, Omar M.); Jindal, S (Jindal, Shilpi); Aggarwal, N (Aggarwal, Nupur); Kumar, G (Kumar, Gagan)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 32 **Issue:** 1 **Pages:** 313-322 **DOI:** 10.1007/s10854-020-04782-w **Early Access Date:** NOV 2020 **Published:** JAN 2021

Abstract: Transition metal such as Copper substituted Mn-Zn magnetic nano ferrite with general formula Mn0.5Zn0.5CuxFe2-xO4 (x = 0.0, 0.1, 0.2, and 0.3) were fabricated by solution combustion method and expose how significant properties of the samples are modified accordingly by dopant concentration. By FTIR spectroscopy various functional group present in Mn-Zn ferrites is studied. The optical plots revealed bandgap energy reduced from 2.42 to 1.82 eV although the electrical study shown the highest conductivity of synthesized nano ferrite is 1.93 x 10(-8)Scm(-1). The dielectric constant as well as dielectric loss behavior recorded at room temperature and were analyzed with increasing temperature; both dielectric constant and loss tangent upsurge however with increasing frequency both are observed to reduce. Doping with Cu has the potentiality of accumulative dielectric constant and conductivity of Mn0.5Zn0.5CuxFe2-xO4 thereby improving its application for electromagnetic devices.

Accession Number: WOS:000592167900009

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ISSN: 0957-4522

eISSN: 1573-482X

Record 18 of 243

Title: The effect of Ce3+ doping on structural, optical, ferromagnetic resonance, and magnetic properties of ZnFe2O4 nanoparticles

Author(s): Alshahrani, B (Alshahrani, B.); ElSaeedy, HI (ElSaeedy, H. I.); Fares, S (Fares, S.); Korna, AH (Korna, A. H.); Yakout, HA (Yakout, H. A.); Maksoud, MIAA (Maksoud, M. I. A. Abdel); Fahim, RA (Fahim, Ramy Amer); Gobara, M (Gobara, Mohamed); Ashour, AH (Ashour, A. H.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 32 **Issue:** 1 **Pages:** 780-797 **DOI:** 10.1007/s10854-020-04856-9 **Early Access Date:** NOV 2020 **Published:** JAN 2021

Abstract: Herein, we used the ultrasound irradiation to assist the sol-gel method for the synthesis of spinel ZnCexFe2 - xO4 nanoparticles. The patterns obtained from energy dispersive x-rays (EDX) analysis and elements mapping demonstrate the appropriate elemental stoichiometry and spatial distribution in the prepared samples. The Rietveld refinement patterns revealed the successful synthesis of the cubic-structured ZnFe2 - xCexO4 without any secondary phases. The crystallite size of ZnFe2 - xCexO4 ranged from 7 to 11 nm. Also, the optical bandgap for ZnFe2 - xCexO4 decreased from 2.1 eV to 1.77 eV. Electron paramagnetic resonance (EPR) spectroscopy was used to study the ferromagnetic resonance (FMR) characteristics of the ZnFe2 - xCexO4 samples. The resonance field was increased from 3362.65 Gauss to 3401.76 Gauss, while the line width decreased from 598.90 to 455.72 Gauss. The saturation magnetization was enhanced from 2.43 emu/g for x = 0.00 to 9.38 emu/g for x = 0.02. In addition, the values of coercivity (Hc) and remanence magnetization (Mr) were significantly lowered. The great value of saturation magnetization together with low values of Hc and Mr of Ce3+-substituted Zn ferrites makes them potential candidates for the microwave absorption field.

Accession Number: WOS:000590023900004

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ISSN: 0957-4522

eISSN: 1573-482X

Record 19 of 243

Title: Energy storage performance of CoNiSe2 nanostructures

Author(s): Vidhya, MS (Vidhya, M. Sangeetha); Ravi, G (Ravi, G.); Yuvakkumar, R (Yuvakkumar, R.); Thambidurai, M (Thambidurai, M.); Dang, C (Dang, Cuong); Pannipara, M (Pannipara, Mehboobali); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Velauthapillai, D (Velauthapillai, Dhayalan)

Source: MATERIALS LETTERS **Volume:** 279 **Article Number:** 128485 **DOI:** 10.1016/j.matlet.2020.128485 **Published:** NOV 15 2020

Abstract: Electrode material potential evolution is a proficient and vast challenge to deliver improved electrochemical performance in supercapacitors. This work reports a combination of ternary selenide (CoNiSe2) electrode performance. Different surfactant effect seems to boost up prepared electrode performance. Hexagonal structured CoNiSe2 revealed sharp XRD peak at 33.4 degrees (101) plane and explored crystalline phase purity. FTIR uphold functional O-H group and a metal complex. The sharp band at 476 cm(-1) ascribed to Se bonding with the obtained product. PEG-1000 influence on ternary selenide elucidates charge transfer kinetics between energy levels among CTAB and HMTA. The electrode shows outstanding energy storage capacities with 99% of cyclability long-lasting even after 5000 cycles. The ternary selenide using PEG 1000 assisted surfactant experiences enhanced stability with an improved capacitance of 365 Fg(-1) at 1 Ag-1. Among surfactants, PEG 1000 assisted CoNiSe2 showed excellent performance and proves the product is well suitable for the storage applications. (C) 2020 Elsevier B.V. All rights reserved.

Accession Number: WOS:000576753600011

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ISSN: 0167-577X

eISSN: 1873-4979

Record 20 of 243

Title: Magnetic and electrical properties of Ba2Co2Fe12O22/PANI composites prepared by insitu polymerization

Author(s): Bhatti, MA (Bhatti, M. Abuzar); Siddiqa, A (Siddiqa, Aisha); Azam, S (Azam, Sikander); Vu, TV (Vu, Tuan V.); Islam, MU (Islam, M. U.); Rani, M (Rani, Malika); Muhammad, S (Muhammad, Shabbir)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 597 **Article Number:** 412410 **DOI:** 10.1016/j.physb.2020.412410 **Published:** NOV 15 2020

Abstract: Y-type hexaferrite with nominal composition Ba2Co2Fe12O22 was synthesized by sol-gel method. The synthesized hexaferrite filler was mixed in 5 wt%, 15 wt% and 25 wt% respectively with Polyaniline (PANI) by insitu polymerization method to get hexaferrite-PANI composites. The synthesized samples were characterized by DC resistivity, XRD, VSM and dielectric measurements. The X-ray diffraction of polyaniline exhibit amorphous nature, whereas Ba(2)Co(2)Fe(12)O(22)exhibit single phase Y-type structure. Room temperature resistivity of the composites increased with increasing hexaferrite filler from 2.29 x 10(1) to 2.59 x 10(4) Omega-cm. Dielectric constant and complex dielectric constant measured in the frequency range of 1 Hz to 1 MHz. Both the real and imaginary parts of dielectric constant decreased with the increase of hexaferrite contents. AC conductivity was decreased with increasing Co2Y hexaferrite contents in PANI matrix and increased with increasing frequency following Maxwell-Wagner model. The saturation magnetization was observed to increase significantly with increasing hexaferrite filler, as it depends on volume fraction of magnetic particles and demagnetizing field produced by non-magnetic particles. Coercivity on average decreased with increasing hexaferrite filler which was due to the decrease in the inter particle distance and hence magneto static interactions enhanced amongst the particles. These composite materials are considered useful for applications of these materials in EMI shielding in low frequency range with added advantage of flexibility.

Accession Number: WOS:000569853200003

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ISSN: 0921-4526

eISSN: 1873-2135

Record 21 of 243

Title: Facile synthesis and comparative study for the optical performance of different TiO2 phases doped PVA nanocomposite films

Author(s): Morad, I (Morad, Ibrahim); Alshehri, AM (Alshehri, A. M.); Mansour, AF (Mansour, A. F.); Wasfy, MH (Wasfy, M. H.); El-Desoky, MM (El-Desoky, M. M.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 597 **Article Number:** 412415 **DOI:** 10.1016/j.physb.2020.412415 **Published:** NOV 15 2020

Abstract: TiO2/PVA nanocomposites film was assembled using a solution casting technique, whereas the synthesis of TiO2 nanoparticles was achieved by the Sol-gel method. The control in TiO2 phases nanoparticle from Anatase, mix, and Rutile was taken place only by controlling the time and temperature of the calcination process, which belief as a new technique for that purpose. TiO2 nanoparticles with different phases employed as a filler and PVA as a host matrix. The established of TiO2 with different phases were examined by X-ray diffraction (XRD). At the same time, the shape and the approximate crystal size carried out by Transmission electron microscope (TEM), the XRD reveals the existence of anatase, rutile and mixed TiO2 phases with average crystallites size (D) of 7 nm 78 nm and 42 nm for anatase, rutile, and mix phases, respectively. TEM of TiO2 nanoparticles indicates the spherical shape of the rutile phase, and the tetragonal shape appears clearly in anatase, and the impact of the calcination process on crystal size was considerable. The grain size noted in the TEM image has a good agreement with the XRD results estimated by applying Scherrer's equation. The optical properties of TiO2/PVA composite films have been examined. The red-shifted of the direct optical band gap is achieved from 3.25 to 2.63 eV for phase transformation from anatase to rutile. The refractive index (n) dispersion was analyzed by applied the Wemple- Didomenico single oscillator model, and the dispersion parameters (E-o and E-d) were determined. Besides the photo-stability investigation of TiO2/PVA nanocomposite with the anatase phase of TiO2, which considers the characteristic phase.

Accession Number: WOS:000569853200006

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ISSN: 0921-4526

eISSN: 1873-2135

Record 22 of 243

Title: Enhanced room temperature ammonia gas sensing properties of strontium doped ZnO thin films by cost-effective SILAR method

Author(s): Devi, KR (Devi, K. Radhi); Selvan, G (Selvan, G.); Karunakaran, M (Karunakaran, M.); Raj, ILP (Raj, I. Loyola Poul); Ganesh, V (Ganesh, V); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 119 **Article Number:** 105117 **DOI:** 10.1016/j.mssp.2020.105117 **Published:** NOV 15 2020

Abstract: In this present work, pure and Sr doped ZnO films were systematically coated SILAR method is debated. The influence of Sr doping content on microstructure, surface morphology, elemental composition, photoluminescence and ammonia vapor sensing properties of these coated films were analyzed before and after incorporation of Sr. The effect of Sr doping revealed a change in crystal orientation from the (0 0 2) to the (1 0 1). SEM analysis reveals the formation of flower-like morphology formed by a number of nanowires with doping concentration. With the increase in Sr concentration, the bandgap values are increased from 3.02 to 3.20 eV. The addition of Sr also induces a rapid response towards ammonia gas sensing.

Accession Number: WOS:000562679400011

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Author	Web of Science ResearcherID	ORCID Number
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ISSN: 1369-8001

eISSN: 1873-4081

Record 23 of 243

Title: Unraveling the enhanced photocatalytic decomposition efficacy of the Al-doped ZnO nanoparticles@graphene sheets

Author(s): Chidhambaram, N (Chidhambaram, N.); Valanarasu, S (Valanarasu, S.); Ganesh, V (Ganesh, V); Gobalakrishnan, S (Gobalakrishnan, S.)

Source: JOURNAL OF PHYSICS D-APPLIED PHYSICS **Volume:** 53 **Issue:** 46 **Article Number:** 465111 **DOI:** 10.1088/1361-6463/abaa6f **Published:** NOV 11 2020

Abstract: This study reports thein situwet chemical synthesis of Al-doped ZnO nanoparticle hybridized graphene (ZnO_Al/G) nanocomposite for the photocatalytic decomposition of methylene blue dye. The graphene-amalgamated Al-doped ZnO sample evidences a more enhanced photocatalytic decomposition performance than the pristine and Al-doped ZnO nanoparticles. Powder x-ray diffraction study reveals the addition of Al and graphene with the ZnO does not alter the hexagonal wurtzite phase of ZnO. Surface morphological results of the ZnO_Al/G nanocomposite obtained from scanning electron microscopy and transmission electron microscopy show that the Al-doped ZnO nanoparticles are fastened firmly to the graphene sheets. The Al and graphene inclusion does not alter the absorption onset of the ZnO, except for an enhanced light absorption in the visible region. The ZnO_Al/G nanocomposite imparts a higher photocatalytic decomposition rate constant (k) of about 0.0214 m(-1), while the values of pristine and Al-doped ZnO nanoparticles are about 0.0143 and 0.0129 m(-1), respectively. A plausible decomposition mechanism for the augmented photocatalytic performance of the ZnO_Al/G nanocomposite has been discussed in detail.

Accession Number: WOS:000565749700001

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ISSN: 0022-3727

eISSN: 1361-6463

Record 24 of 243

Title: Gamma-ray/neutron shielding capacity and elastic moduli of MnO-K2O-B2O3 glasses co-doped with Er3+ ions

Author(s): Rammah, YS (Rammah, Y. S.); Mutuwong, C (Mutuwong, C.); Yousef, ES (Yousef, El Sayed); Alraddadi, S (Alraddadi, Shoroog); Al-Buriahi, MS (Al-Buriahi, M. S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 12 **Article Number:** 929 **DOI:** 10.1007/s00339-020-04097-x **Published:** NOV 9 2020

Abstract: Gamma-ray/neutron shielding capacity and mechanical properties of erbium-doped potassium manganese borate glasses with the chemical form of (1 - x)MnO-29K(2)O-70B(2)O(3)-xEr(2)O(3): x = 0-1 mol% coded as E-0-E-5 via bond compression model, XCOM software, and PHITS simulations have been investigated. The bulk modulus (K-B.C) values increased from 90.19 for E-0 glass sample with free Er2O3 to 101.24 GPa for E-5 glass sample with Er2O3 = 1 mol%. The Young's modulus (E-B.C) increased from 102.68 GPa to 115.38 GPa, while the longitudinal modulus (L-B.C) increased from 142.31 GPa to 159.81 GPa for E-0-E-5 glasses. Poisson's ratio (sigma(B.C)) decreased from 0.310261 to 0.310065 with the increase of Er3+ ions in the investigated glasses. Hardness of E-0-E-5 glasses was increased from 4.96 GPa to 5.58 GPa. The mass attenuation coefficient (mu/rho) values were the highest at the least energy of 0.284 MeV with values of 0.1080, 0.1096, 0.1113, 0.1129, 0.1145, and 0.1161 cm(2) g(-1) for E-0, E-1, E-2, E-3, E-4, and E-5, respectively. Moreover, radiation protection efficiency (RPE) of the E-0-E-5 glasses was estimated using PHITS simulation code. The highest RPE was observed for E-5 glass with a thickness of 5 cm. Finally, the neutron shielding capacity of E-0-E-5 glasses was evaluated in terms of the fast neutron removal cross section (FNRCS). The values of FNRCS increased by adding Er2O3 content and a sharp increase was observed at xEr(2)O(3): x = 0.8 mol%. Generally, one can conclude that the E-5 glass sample with the highest Er2O3 (1 mol%) concentration is the best sample as radiation shield among all the studied glasses.

Accession Number: WOS:000587643200001

ISSN: 0947-8396

eISSN: 1432-0630

Record 25 of 243

Title: Tm3+ ions-doped phosphate glasses: nuclear shielding competence and elastic moduli

Author(s): Rammah, YS (Rammah, Y. S.); Mahmoud, KA (Mahmoud, K. A.); El-Agawany, FI (El-Agawany, F., I); Tashlykov, OL (Tashlykov, O. L.); Yousef, E (Yousef,

E.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 12 **Article Number:** 927 **DOI:** 10.1007/s00339-020-04109-w **Published:** NOV 7 2020

Abstract: Photon and neutron shielding factors and elastic moduli of phosphate glass doped with Tm3+ ions (abbreviated as PPKANT glasses) have been analyzed. MCNP-5 simulation code, and Phy-X/PSD software have been utilized to estimate the gamma rays and neutron shielding capacity. Furthermore, Makishima and Mackenzie's theory has been performed to calculate elastic moduli. Young's modulus, bulk modulus, and shear modulus have been varied from 40.71 to 43.62 GPa, 28.01 to 30.65 GPa, and 16.18 to 17.27 GPa, respectively. Poisson's ratio changed from 0.257 for PPKANT0.1 glass to 0.263 for PPKANT4 glass. At low gamma photon energy (0.015 meV), the LAC increased with the increase of Tm3+ content (LAC = 155.54 and 170.18 cm(-1) for glass samples PPKANT0.1 and PPKANT4, respectively). At high energy (15 MeV), the LAC changed from 0.118 to 0.124 cm(-1) for PPKANT0.1 to PPKANT4. The highest values of the HVL decreased from 5.734 to 5.570 cm. The trend of MFP was like the HVL trend. At 15 MeV, the values of the EBF and EABF were rapidly increased with the increase in the penetration depth (PD), especially for PD > 20 mfp. The lowest n-ary sumation (R) was achieved for glasses PPKANT4 with 4 mol % Tm2O3, where n-ary sumation (R) = 0.02561 cm(2)g(-1). The investigated PPKANT glasses can be considered good neutron and photon shields compared to some traditional radiation shielding materials.

Accession Number: WOS:000591054100003

ISSN: 0947-8396

eISSN: 1432-0630

Record 26 of 243

Title: Variations in the band gap of semiconducting glassy chalcogenides with composition

Author(s): Neffati, R (Neffati, R.); Boukhris, I (Boukhris, Imed); Kebaili, I (Kebaili, Imen); Dahshan, A (Dahshan, A.)

Source: PHILOSOPHICAL MAGAZINE **Volume:** 101 **Issue:** 4 **Pages:** 450-467 **DOI:** 10.1080/14786435.2020.1840642 **Early Access Date:** NOV 2020 **Published:** FEB 16 2021

Abstract: Semiconducting glassy chalcogenides (ChGs) have broad technological applications owing to the ability to tune their band gap through composition change. However, there is a lack of theoretical models predicting the band gap in ternary and quaternary compounds of these amorphous materials which are the most industrially used. After a critical review of some existing models concerning mainly binary compounds, we propose new possible ways of predicting the band gap depending on the proportion of existing bonds and the overall compound electronegativity difference estimated by the chemical bond approach (CBA). Confrontation with published experimental data of about 40 compounds is then given. In the analysed compounds, we find that the frequently used equation based on the band gaps of the constituent elements is not predictive unless corrected by the overall electronegativity difference. However, a newly proposed equation based on the contribution of existing bonds predicts well the band gaps in networks with relatively high rigidity. Furthermore, an added correction taking into account the contribution of the overall electronegativity difference provides an explanation of the observed bowing in the curve of band gap versus composition. In all the studied compounds, the theoretical estimation of band gaps has an error of less than 10%.

Accession Number: WOS:000586908800001

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ISSN: 1478-6435

eISSN: 1478-6443

Record 27 of 243

Title: Freezing, melting and dynamics of supercooled water confined in porous glass

Author(s): Neffati, R (Neffati, R.); Judeinstein, P (Judeinstein, P.); Rault, J (Rault, J.)

Source: JOURNAL OF PHYSICS-CONDENSED MATTER **Volume:** 32 **Issue:** 46 **Article Number:** 465101 **DOI:** 10.1088/1361-648X/abaddd **Published:** NOV 4 2020

Abstract: The freezing, melting and dynamics of supercooled water at different hydration of controlled porous glass with mean pore sizes 10 nm, 30 nm, 50 nm and 70 nm are studied using differential scanning calorimetry and deuteruim nuclear magnetic resonance (H-2-NMR). For saturated samples, the melting temperature follows the Gibbs-Thomson relation despite a clear linear decrease of the melting enthalpy when the transition is shifted due to confinement. For partially filled porous glasses the crystallization and melting temperatures as well as enthalpies are lower than for the saturated samples.H-2-NMR confirms the existence of a non-crystallizable part of water adsorbed on the surface of pores. At room temperature, spin-lattice relaxation rate (1/T-1) is proportional to the inverse of the mean pore size indicating that the relaxation is governed by a surface limited process. At low temperature relaxation rate follows the Vogel-Fulcher-Tammann (VFT) relation.

Accession Number: WOS:000566398800001

PubMed ID: 32841209

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ISSN: 0953-8984

eISSN: 1361-648X

Record 28 of 243

Title: Improvement of Gamma Radiation Shielding Features for Fluorophosphate Glasses Doping with Sm2O3 (PZBKNA)

Author(s): Almohiy, H (Almohiy, H.); Saad, M (Saad, M.); AbouDeif, YM (AbouDeif, Y. M.); Grelowska, I (Grelowska, Iwona); Reben, M (Reben, M.); Yaha, IS (Yaha, I. S.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 15 **Issue:** 11 **Pages:** 1374-1380 **DOI:** 10.1166/jno.2020.2858 **Published:** NOV

2020

Abstract: This research reported on the radiation safety characteristics of doped fluorophosphate glasses with heavy rare earth lanthanide (Sm2O3) in the composition 40P(2)O(5)/30ZnO/20BaF(2)/3.8K(2)TeO(3)/1.2Al(2)O(3)/5.0Nb(2)O(5)/30000 ppm Sm2O3 and 40P(2)O(5)/30ZnO/20BaF(2)/3.8K(2)TeO(3)/1.2Al(2)O(3)/5.0Nb(2)O(5)/40000 ppm Sm2O3 in mol%. The parameters for shielding like that mass attenuation coefficient, MAC, linear attenuation coefficient, LAC, tenth value layers, TVL, half-value layers, HVL, effective atomic number, (Zeff), mean free path, MFP, electron density, Neff, electronic cross-sections, ECS, and total atomic cross-sections, ACS, were calculated between 0.015 and 15 MB of preparation glasses. The protection parameters of the current glasses are good in comparison to industrial materials used for nuclear shieldings, such as glass RS 253, ordinary concrete (OC), hematite serpenite (HS), or basalt magnet (BM). From the above mention results, the prepared glasses can be used as radiation safety materials.

Accession Number: WOS:000612858800004

ISSN: 1555-130X

eISSN: 1555-1318

Record 29 of 243

Title: Raman Spectroscopy Imaging of Exceptional Electronic Properties in Epitaxial Graphene Grown on SiC

Author(s): Trabelsi, AB (Trabelsi, A. Ben Gouider); Kusmartsev, FV (Kusmartsev, F., V); Kusmartseva, A (Kusmartseva, A.); Alkallas, EH (Alkallas, E. H.); AlFaify, S (AlFaify, S.); Shkir, M (Shkir, Mohd)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 11 **Article Number:** 2234 **DOI:** 10.3390/nano10112234 **Published:** NOV 2020

Abstract: Graphene distinctive electronic and optical properties have sparked intense interest throughout the scientific community bringing innovation and progress to many sectors of academia and industry. Graphene manufacturing has rapidly evolved since its discovery in 2004. The diverse growth methods of graphene have many comparative advantages in terms of size, shape, quality and cost. Specifically, epitaxial graphene is thermally grown on a silicon carbide (SiC) substrate. This type of graphene is unique due to its coexistence with the SiC underneath which makes the process of transferring graphene layers for devices manufacturing simple and robust. Raman analysis is a sensitive technique extensively used to explore nanocarbon material properties. Indeed, this method has been widely used in graphene studies in fundamental research and application fields. We review the principal Raman scattering processes in SiC substrate and demonstrate epitaxial graphene growth. We have identified the Raman bands signature of graphene for different layers number. The method could be readily adopted to characterize structural and exceptional electrical properties for various epitaxial graphene systems. Particularly, the variation of the charge carrier concentration in epitaxial graphene of different shapes and layers number have been precisely imaged. By comparing the intensity ratio of 2D line and G line-"I-2D/I-G"-the density of charge across the graphene layers could be monitored. The obtained results were compared to previous electrical measurements. The substrate longitudinal optical phonon coupling "LOOPC" modes have also been examined for several epitaxial graphene layers. The LOOPC of the SiC substrate shows a precise map of the density of charge in epitaxial graphene systems for different graphene layers number. Correlations between the density of charge and particular graphene layer shape such as bubbles have been determined. All experimental probes show a high degree of consistency and efficiency. Our combined studies have revealed novel capacitor effect in diverse epitaxial graphene system. The SiC substrate self-compensates the graphene layer charge without any external doping. We have observed a new density of charge at the graphene-substrate interface. The located capacitor effects at epitaxial graphene-substrate interfaces give rise to an unexpected mini gap in graphene band structure.

Accession Number: WOS:000594673300001

PubMed ID: 33187068

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eISSN: 2079-4991

Record 30 of 243

Title: Terahertz Optical Bistability in the Metal Nanoparticles-Graphene Nanodisks-Quantum Dots Hybrid Systems

Author(s): Tohari, MM (Tohari, Mariam M.)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 11 **Article Number:** 2173 **DOI:** 10.3390/nano10112173 **Published:** NOV 2020

Abstract: We theoretically investigate the optical bistability in the metal nanoparticles-graphene nanodisks-quantum dots hybrid plasmonic system in the infrared regime of the electromagnetic radiation. The quantum dot is considered to be a three-level atomic-like system of Lambda type interacting with probe and control fields. By using the standard model of the optical bistability where a nonlinear medium is situated in an optical ring cavity, we numerically solve the equation of motion for the density matrix elements that describe the dynamics of the system in steady-state conditions along with the boundary conditions of the cavity to analyze the optical bistability of the system. The effect of the geometrical features of the system and the parameters of the interacting fields including the strength and detuning of the fields on the optical bistability behavior are investigated. Our proposed hybrid plasmonic system shows an ultralow-threshold controllable optical bistability, providing a promising platform for optical bistable devices at the terahertz, such as all-optical switches and biosensors.

Accession Number: WOS:000593781200001

PubMed ID: 33143277

eISSN: 2079-4991

Record 31 of 243

Title: Nickel Cobaltite Functionalized Silver Doped Carbon Xerogels as Efficient Electrode Materials for High Performance Symmetric Supercapacitor

Author(s): Wasfey, MA (Wasfey, Madlin A.); Abdelwahab, A (Abdelwahab, Abdalla); Carrasco-Marin, F (Carrasco-Marin, Francisco); Perez-Cadenas, AF (Perez-Cadenas, Agustin F.); Abdullah, HH (Abdullah, H. H.); Yahia, IS (Yahia, I. S.); Farghali, AA (Farghali, Ahmed Ali)

Source: MATERIALS **Volume:** 13 **Issue:** 21 **Article Number:** 4906 **DOI:** 10.3390/ma13214906 **Published:** NOV 2020

Abstract: Introducing new inexpensive materials for supercapacitors application with high energy density and stability, is the current research challenge. In this work, Silver doped carbon xerogels have been synthesized via a simple sol-gel method. The silver doped carbon xerogels are further surface functionalized with different loadings of nickel cobaltite (1 wt.%, 5 wt.%, and 10 wt.%) using a facile impregnation process. The morphology and textural properties of the obtained composites are characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), and nitrogen physisorption analysis. The silver doped carbon xerogels display a higher surface area and larger mesopore volume compared to the un-

doped carbon xerogels and hierarchically porous structure is obtained for all materials. The hybrid composites have been utilized as electrode materials for symmetric supercapacitors in 6 M KOH electrolyte. Among all the hybrid composites, silver doped carbon xerogel functionalized with 1 wt.% nickel cobaltite (NiCo1/Ag-CX) shows the best supercapacitor performance: high specific capacitance (368 F g(-1) at 0.1 A g(-1)), low equivalent series resistance (1.9 omega), high rate capability (99% capacitance retention after 2000 cycles at 1 A g(-1)), and high energy and power densities (50 Wh/Kg, 200 W/Kg at 0.1 A g(-1)). It is found that the specific capacitance does not only depend on surface area, but also on others factors such as particle size, uniform particle distribution, micro-mesoporous structure, which contribute to abundant active sites and fast charge, and ion transfer rates between the electrolyte and the active sites.

Accession Number: WOS:000589313200001

PubMed ID: 33142879

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eISSN: 1996-1944

Record 32 of 243

Title: Size and Structure Dependence of the Anomalous Bulk Modulus for FCC Metallic Nanoparticles

Author(s): Abdul-Hafidh, EH (Abdul-Hafidh, Esam H.); Alsadi, KS (Alsadi, Khalid S.)

Source: INDIAN JOURNAL OF PURE & APPLIED PHYSICS **Volume:** 58 **Issue:** 11 **Pages:** 812-817 **Published:** NOV 2020

Abstract: The purpose of this work is to develop a theoretical model to calculate the bulk moduli of FCC nanoparticles that account for their size and structure. The bulk modulus for spherical nanoparticles has been derived from the cohesive energy which had been calculated by summing up the potential energy function of every pair of atoms of these metallic nanoparticles. The ab initio pair potential energy function has been formed by inverting the cohesive energy function proposed by (Rose et al., 1981), using the Chen-Mobius method. The results show that, as the size decreases, the bulk modulus decreases for spherical nanoparticles, which agrees with previous experimental and theoretical predictions. The results also predicted an "amorphous" structure for ultra-small nanoparticles and were consistent with previous experimental work.

Accession Number: WOS:000587356600005

ISSN: 0019-5596

eISSN: 0975-1041

Record 33 of 243

Title: Effect of the biphase TiO2 nanoparticles on the dielectric and polaronic transport properties of PVA nanocomposite: Structure analysis and conduction mechanism

Author(s): Morad, I (Morad, Ibrahim); Ali, HE (Ali, H. Elhosiny); Wasfy, MH (Wasfy, M. H.); Mansour, AF (Mansour, A. F.); El-Desoky, MM (El-Desoky, M. M.)

Source: VACUUM **Volume:** 181 **Article Number:** 109735 **DOI:** 10.1016/j.vacuum.2020.109735 **Published:** NOV 2020

Abstract: Polymeric composite films with tunable electrical and dielectric performance have several uses in electronics based on organic materials. This paper reports the fabrication and the role of TiO2 NPS (nanoparticles) on the dielectric and nanocomposites' conduction of pristine polyvinyl alcohol (PVA). The nanopowder of biphase TiO2 and the nanocomposites of different NPS weight percentages have been fabricated via the sol-gel and casting methods. Structure of the synthesized NPS and nanocomposites were analyzed via PXRD (Powder X-ray diffraction), HR-TEM (High-resolution microscopy of transmission electron), and FTIR (Fourier transform-IR). The average size of the biphase TiO2NPS crystallite is around 52 nm, as calculated from Scherer law. Frequency and temperature dependence of dielectric properties have been studied in a wide range. The dielectric constant of the host matrix has been enhanced by adding TiO2NPS. AC conductivity increases with the further addition of TiO2NPS contents, and its frequency dependence follows the universal power law. The nano composite with 6.6 wt% of TiO2NPS shows higher conductivity as compared to other concentrations. The exponent power (s) has values in the range of 0.2-0.9, indicating that the conduction mechanism is correlated with barrier hopping (CBH). The dependence of the DC conductivity on absolute temperature has been studied and obeys Arrhenius relation. Three discrete sections were recognized from the AC conductivity spectra. In light of polaronic hopping conduction models, the electrical conductivity data were analyzed. The analysis shows that the high-temperature conductivity is well explained by the polaronic model, while at an intermediate temperature, the Greaves VRH (variable-range hopping) model is appropriate. Also, the non-adiabatic conduction was established in the nanocomposite system via the application of different suggestions. The values of the decay constant and the density of states confirmed the presence of the localized states. Finally, a small polamn coupling constant (gamma(p)) is more significant than four, which indicates a strong electron-phonon interaction.

Accession Number: WOS:000580600700060

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Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0042-207X

eISSN: 1879-2715

Record 34 of 243

Title: Nonlinear rarefactive isothermal ion acoustic waves in magnetized ultrarelativistic degenerate plasmas

Author(s): El-Shamy, EF (El-Shamy, Emad F.); Selim, MM (Selim, Mustafa M.); El-Depsy, A (El-Depsy, Alya); Mahmoud, M (Mahmoud, Mona); Al-Hagan, O (Al-Hagan, Ola); Al-Mogeeth, A (Al-Mogeeth, Abdulaziz)

Source: ZEITSCHRIFT FUR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES **Volume:** 75 **Issue:** 11 **Pages:** 921-932 **DOI:** 10.1515/zna-2020-0192 **Published:** NOV 2020

Abstract: Nonlinear rarefactive isothermal ion-acoustic periodic travelling waves (RIIAPTWs) are examined in a magnetized ultrarelativistic degenerate

plasma, containing warm fluid ions and ultrarelativistic degenerate inertialess electrons as well as positrons and immobile heavy negative ions. In the linear regime, the excitation of an isothermal ion-acoustic mode and its evolution are investigated. The physical behavior of nonlinear rarefactive isothermal ion-acoustic waves (RIIAWs) in this plasma model is governed by a Zakharov-Kuznetsov (ZK) equation. The analytical solutions for the nonlinear rarefactive isothermal ion-acoustic solitary waves (RIIASWs) and RIIAPTWs are performed by the bifurcation analysis. A careful discussion demonstrates the excitations of RIIASWs and RIIAPTWs are amplified (i.e., the amplitudes become deeper), as the chemical potential (or the Fermi energy at zero temperature) of electrons is decreased. It is found physically that the presence of the ultrarelativistic degenerate positrons and stationary heavy negative ions have strong effects on features of nonlinear RIIASWs and RIIAPTWs. The implications of the present finding in compact astrophysical objects, such as white dwarf stars, have been discussed.

Accession Number: WOS:000586419000003

ISSN: 0932-0784

eISSN: 1865-7109

Record 35 of 243

Title: Optical Parameters of Both As2S3 and As2Se3 Thin Films from Ultraviolet to the Near-Infrared via Variable-Angle Spectroscopic Ellipsometer

Author(s): Abdel-Wahab, F (Abdel-Wahab, F.); Ashraf, IM (Ashraf, I. M.); Ahmed, FBM (Ahmed, F. B. M.)

Source: SEMICONDUCTORS **Volume:** 54 **Issue:** 11 **Pages:** 1430-1438 **DOI:** 10.1134/S1063782620110020 **Published:** NOV 2020

Abstract: In the UV-visible-near infrared regions from 245 to 1000 nm, variable-angle spectroscopic ellipsometer (VASE) was used to investigate optical functions of As2S3 and As2Se3 thin films. In the entire measured spectral range, data were analyzed by assembly from several dispersion models. These assemblies comprise individual Tauc-Lorentz supplemented by several Lorentz (TL-group) or single Cody-Lorentz with several Lorentz (CL-group) models. For As2S3 and As2Se3 thin films, the optical parameters were quantified. The model parameters, such as the Lorentz amplitude, resonance frequency, oscillator width, extinction coefficients, refractive indices, and Urbach and optical band energy of both films were obtained. The band gap energy E-g was experimentally determined using the obtained data of CL-group from (alpha h nu)(1/2) vs. h nu plots. It is found that the band gap energies of As2Se3 and As2S3 were 1.796 and 2.349 eV, respectively. The E-g values for the films were theoretically investigated by the bond statistics of the random covalent network model (CRNM) with the aid of Manca's relation. Plausible agreement between the experimental and calculated E-g values for both samples was obtained.

Accession Number: WOS:000584489500010

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ISSN: 1063-7826

eISSN: 1090-6479

Record 36 of 243

Title: Low cost preparation technique for conductive and transparent Sb doped SnO2 nanocrystalline thin films for solar cell applications

Author(s): Abdel-Galil, A (Abdel-Galil, A.); Hussien, MSA (Hussien, Mai S. A.); Yahia, IS (Yahia, I. S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 147 **Article Number:** 106697 **DOI:** 10.1016/j.spmi.2020.106697 **Published:** NOV 2020

Abstract: The spray pyrolysis, as a non-vacuum cost-effective technique was used to develop high-quality thin films of SnO2 and Sb-doped SnO2 on Soda-lime glass substrates as transparent conductive oxides (TCOs). The surface morphology of the thin films under study was checked by the atomic force microscope. The average particle size and surface roughness of SnO2 and Sb-doped SnO2 thin films mainly depend on the Sb doping level. The structural identification of the as-deposited thin films has been investigated by the X-ray diffraction technique (XRD). XRD patterns have confirmed that the as-deposited thin films have a nanocrystalline structure with the tetragonal phase for all thin-film samples. The optical distribution of the transmittance and absorbance has been studied in a wide range of the wavelength (200-2500 nm). The absorption coefficient, optical band gap, and refractive index have been obtained by using the Swanepoel model. The optoelectronic properties for the thin films under study have been evaluated as TCOs films for photovoltaic applications. The sheet resistance and optical conductivity also have been determined for the thin film under investigation depending on the Sb doping level.

Accession Number: WOS:000582803100013

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ISSN: 0749-6036

Record 37 of 243

Title: Improved optoelectronic properties of Terbium co-doped CdO:Zn thin films coated by nebulizer spray pyrolysis method

Author(s): Babu, RS (Babu, R. Sarath); Murthy, YN (Murthy, Y. Narasimha); Prasad, KH (Prasad, K. Hari); Ganesh, V (Ganesh, V); AlFaify, S (AlFaify, S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 147 **Article Number:** 106685 **DOI:** 10.1016/j.spmi.2020.106685 **Published:** NOV 2020

Abstract: Terbium co-doped CdO:Zn thin films have been coated by the facile and an efficient spray pyrolysis technique on the substrate of glass to tune its optical and electrical properties. From XRD analysis, all the diffraction peaks strongly exhibit polycrystalline nature with perfect cubic structure followed by preferential orientation was changed from (111) plane to (200) plane. The nature of the crystal structure and crystallite size is reduced from 20.4 to 16.5 nm by increasing Tb doping concentration due to defects in the lattice. The atomic force microscope AFM mages clearly show that the film's grain size decreases with the Tb dopant. The elements such as Cd, Zn, O, and Tb exists in the elemental mapping and EDS spectra. The transmittance is varied from 70, to 82% at 800 nm, and the maximum bandgap of 3.06 eV is observed for 1.5 wt.% degenerate doping concentration. PL emission at 435 nm shows a high intense peak attribute to the crystalline quality of the film. The electrical property of the film has been greatly improved with doping concentration, which is useful for optoelectronic devices. The TCO based on the 1.5 wt.% Tb co-doped CdO:Zn film shows an improved performance (higher transmission of 82%, lowest

resistivity of 7.48 x 10(-4) Omega cm, the highest carrier concentration of 11.3x10(20) cm(-3)). These results propose a much simpler route to achieve high-quality Terbium co-doped CdO:Zn thin films for TCO applications.

Accession Number: WOS:000582803100004

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ISSN: 0749-6036

Record 38 of 243

Title: EMHD flow of non-Newtonian nanofluids over thin needle with Robinson's condition and Arrhenius pre-exponential factor law

Author(s): Mabood, F (Mabood, Fazle); Muhammad, T (Muhammad, Taseer); Nayak, MK (Nayak, M. K.); Waqas, H (Waqas, Hassan); Makinde, OD (Makinde, O. D.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 11 **Article Number:** 115219 **DOI:** 10.1088/1402-4896/abc0c3 **Published:** NOV 2020

Abstract: Many researchers and scientists are devoting their time to scrutinize nanofluids nature and characteristics for heat transfer enhancement. The scrutiny of nanoliquids is important in the large scale thermal management systems via evaporators, advanced cooling systems, heat exchangers, micro/nano-electromechanical devices and industrial chilling applications. Nanoliquids are very momentous even in the natural process via different fields like chemistry, chemical engineering, physics and biology. Nanoliquids can be utilized in various fields of engineering such as different chemical procedures, cooling of electronic equipment and heat exchangers. The main aim of current article is to scrutinize electromagnetohydrodynamic flow of micropolar-Casson-Carreau nanoliquids over thin needle with Robinson's conditions and Arrhenius pre-exponential factor law. Double stratification effects are also taken into account. The reverent partial differential equations are reformulated into the system of ordinary differential expressions by implementing appropriate transformations. Such obtained equations subject to boundary constraints are computed numerically by considering Runge-Kutta-Fehlberg method. Behaviour of numerous interesting parameters on flow fields is deliberated. The outcomes of flow fields are delineated through graphs and tabular data.

Accession Number: WOS:000581584800001

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Mabood, Fazle	AAE-5840-2021	

ISSN: 0031-8949

eISSN: 1402-4896

Record 39 of 243

Title: New Strategy against COVID-19: L-Serine Doped QDs for Fast Detection of COVID-19 and Blocking of S-Protein

Author(s): Nasr, S (Nasr, Samia); Hidouri, T (Hidouri, Tarek); Zouidi, F (Zouidi, Ferjeni)

Source: ECS JOURNAL OF SOLID STATE SCIENCE AND TECHNOLOGY **Volume:** 9 **Issue:** 10 **Article Number:** 106002 **DOI:** 10.1149/2162-8777/abbb9e **Published:** NOV 1 2020

Abstract: To detect COVID-19, the reverse transcription-polymerase chain reaction (RT-PCR) is usually used but there is a number of faulty tests or an inexact diagnostic, especially in the primordial period of infection. In this regard, the optical response of hybrid quantum dots (QDs): L-serine is presented for the first time as a new and rapid method of detection. QDs were further conjugated with anti-infectious viruses' antibodies. The detection of a target analyte is increased due to the fact that the final formed hybrid system is exposed to doses of L-serine optically active. QDs acts as L-Serine's host. This last will trap the virus and emerges less/high photoluminescence (PL) response depending on the L-serine, virus, and doping concentrations. Such rapid optical treatment will inform us of the infection state faster and more efficiently than ELISA tests. The fluorescence properties of the new hybrid system permit a control of coronavirus with a limit of detection LOD similar to 80 EID/50 mu l thanks to families of clusters induced by L-serine's molecules. Families of L-serine clusters with inhomogeneous densities can block the S-protein in COVID-19. Moreover, the detection can be issued by trapping the virus with the same dopant.

Accession Number: WOS:000578453200001

ISSN: 2162-8769

eISSN: 2162-8777

Record 40 of 243

Title: Noncrystalline films of gallium (III) phthalocyanine chloride evaporated on a flexible polymer substrate for flexible organic technology: optical spectroscopy and optical limiting

Author(s): El-Zaidia, EFM (El-Zaidia, E. F. M.); Darwish, AAA (Darwish, A. A. A.); Yahia, IS (Yahia, I. S.); Rashad, M (Rashad, M.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 11 **Article Number:** 115802 **DOI:** 10.1088/1402-4896/abbaa2 **Published:** NOV 2020

Abstract: Thin films of thermally evaporated gallium-phthalocyanine dichloride (GaPcCl) on a flexible polymer substrate have been studied. Structural as well as spectral optical properties of these films were investigated at a different film thickness of 45, 75, 100, and 150 nm. The structure of GaPcCl/polymer is found to be amorphous with a broad hump that is characterized by the polymer sheet. The absorption spectra recorded in the UV-vis region for these films showed two absorption bands, namely theQ- andB-bands. The absorption coefficient of the films has shown three indirect allowed transitions with energy gaps, which slightly changed with the effect of the thickness. The dispersion curve of the refractive index and the characterizing energy loss of high energy electrons such as volume energy loss function and surface energy loss function were calculated for the present films. The response of GaPcCl/polymer with different film thicknesses is studded by two types of laser with different input power as an optical limiter. The present results show that the response of GaPcCl films is highly reliable for the laser power attenuating of the green laser at 533 nm with low power of 16.3 mW. The result of GaPcCl/polymer can be extended to the optoelectronic devices.

Accession Number: WOS:000576069400001

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ISSN: 0031-8949

eISSN: 1402-4896

Record 41 of 243

Title: Impedance spectroscopy of monocrystalline silicon solar cells for photosensor applications: Highly sensitive device

Author(s): Bouzidi, A (Bouzidi, A.); Jilani, W (Jilani, W.); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 596 **Article Number:** 412375 **DOI:** 10.1016/j.physb.2020.412375 **Published:** NOV 1 2020

Abstract: In this study, the AC impedance measurements have been used to characterize the monocrystalline silicon solar cell device under dark and illumination conditions. AC impedance measurements in the illuminated conditions are analyzed to identify the electronic behavior through equivalent AC circuit representation in terms of lumped parameters obtained by fitting the measured impedance data. The angle impedance phase increases from negative to positive values with increasing illumination conditions. The real part Z' of the complex impedance value is typically higher at the dark light in the low-frequency region. It decreases gradually with increasing frequency reaching a plateau demonstrating independence on illumination at high frequencies. Nyquist plots exhibited a semicircle associated with the bulk single-crystalline body, and an additional spike is distinguishable at high frequency. The AC electrical conductivity is changed under dark and illumination conditions. Finally, the studied solar cell shows a highly sensitive light impedance response suggesting its suitability for use in photosensor applications.

Accession Number: WOS:000573285700002

ISSN: 0921-4526

eISSN: 1873-2135

Record 42 of 243

Title: Influence of Zn-Zr substitution on the crystal chemistry and magnetic properties of CoFe2O4 nanoparticles synthesized by sol-gel method

Author(s): Desai, SS (Desai, S. S.); Shirsath, SE (Shirsath, Sagar E.); Batoo, KM (Batoo, Khalid Mujasam); Adil, SF (Adil, Syed Farooq); Khan, M (Khan, Mujeeb); Patange, SM (Patange, S. M.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 596 **Article Number:** 412400 **DOI:** 10.1016/j.physb.2020.412400 **Published:** NOV 1 2020

Abstract: The Zn-Zr co-substituted cobalt ferrite nanoparticles (CoZnxZrxFe2-2xO4, x = 0.0-0.4) were synthesized by sol gel auto combustion route. The formation of cubic phase of Co ferrite was revealed from the X-ray diffractograms of the powder samples. The additional alpha-Fe2O3 and ZrO2 phases were occurred for >= 20% Zn-Zr substitution. The lattice parameters obtained by extrapolating Nelson-Riley function shows increase in its values with the Zn-Zr substitution. The particle size shows increasing trend with the Zn-Zr substitution. The cation distribution obtained from the Rietveld refinement of XRD estimate the equal preference of Zn ons preferred tetrahedral A site whereas most of the Zr ions occupy octahedral B site. The decrease in Fe ions with the Zn-Zr substitution resulted in the decrease in coercivity and saturation magnetization of the ferrites. Zero field cooled and field cooled magnetization plots of the ferrites reveals the ferromagnetic behaviour of the prepared ferrite samples. The blocking temperature does not vary significantly with the varying Zn-Zr substitution. The Mossbauer study confirms the weakening of the magnetic linkages between cations at A and B sites, due to the substitution of nonmagnetic Zn-Zr ions for magnetic Fe ions. The decrease in coercivity with moderate saturation magnetization could make this material suitable for electronic devices.

Accession Number: WOS:000573286000001

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ISSN: 0921-4526

eISSN: 1873-2135

Record 43 of 243

Title: An in-depth study on physical properties of facilely synthesized Dy@CdS NPs through microwave route for optoelectronic technology

Author(s): Chandekar, KV (Chandekar, Kamlesh, V); Shkir, M (Shkir, Mohd); Khan, A (Khan, Aslam); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 118 **Article Number:** 105184 **DOI:** 10.1016/j.mssp.2020.105184 **Published:** NOV 1 2020

Abstract: Structural analysis of Dy@CdS quantum dots (QDs) were investigated by the XRD and TEM/HRTEM. The particle size of Dy@CdS QDs was varies from 7.3 +/- 0.8 to 6.6 +/- 0.08 nm for 0.3% and 1.2% of Dy contents respectively. The vibrational spectra of pristine and Dy@CdS QDs exhibit the longitudinal phonon modes at 293 and 587 cm(-1). Optical band gap of 2.5 eV was optimized at 0.6% Dy doped CdS sample and found to be decreased on further increasing the Dy3+ content from 0.9 to 1.2%. The peaks at 414 and 466 nm are attributed to excitonic and trapped emission in the photoluminescence (PL) spectra of Dy@CdS samples respectively. The red shifts in PL spectra were observed for Dy3+ content more than 0.6% in Dy@CdS QDs. The frequency dependent char-acteristics of dielectric constant, dielectric loss, tangent and ac conductivity of Dy@CdS QDs were investigated at 300 K. It was founded that lower frequency range is dominated by the space charge polarization whereas orientational polarization is dominant at higher frequencies by increasing the dielectric constant. The variation of ac electrical conductivity was carried out linearly in the frequency range 15 kHz-10 MHz. The easy way of repeatability, tenability and scalability of Dy@CdS QDs are attributed for optoelectronics application.

Accession Number: WOS:000552273700004

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ISSN: 1369-8001

eISSN: 1873-4081

Record 44 of 243

Title: Electronic polarizability, dielectric and gamma-ray shielding features of PbO-P2O5-Na2O-Al2O3 glasses doped with MoO3

Author(s): Ali, AM (Ali, Atif Mossad); Sayyed, MI (Sayyed, M. I.); Somaily, HH (Somaily, H. H.); Algarni, H (Algarni, H.); Rashad, M (Rashad, M.); Alshehri, AM (Alshehri, Ali M.); Rammah, YS (Rammah, Y. S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 24 **Pages:** 22075-22084 **DOI:** 10.1007/s10854-020-04709-5 **Early Access Date:** OCT 2020 **Published:** DEC 2020

Abstract: Electronic polarizability, dielectric constants, and the capability of using (24-x)PbO-47P(2)O(5)-23Na(2)O-6Al(2)O(3): x = 0.0, 0.5, 1.0, and 3.0 mol% MoO3 as gamma-rays shielding materials were investigated. The linear refractive index of glasses changed from 2.059 to 2.514. The molar polarizability was directly proportional to molar refraction. The mass attenuation coefficients varied between 0.1850- 0.0401 and 0.1762- 0.0399 cm(2)/g for Mo0.0 and Mo3.0 glasses between 0.284 and 2.506 MeV. The replacement of PbO by MoO3 is found to decrease the attenuation ability of the tested samples. The maximum linear attenuation values for all samples occur at 0.284 MeV and equal to 0.684, 0.661, 0.626, and 0.546 cm(-1) for Mo0.0, Mo0.5, Mo1.0, and Mo3.0 glasses, respectively, which suggested that the tested Mo0.0-Mo3.0 samples have better attenuating behavior at lower energies. The effective atomic number decreases in the order Mo0.0, Mo0.5, Mo1.0, and Mo3.0. Mo0.0 glass showed the highest effective atomic number among the tested glasses, which revealed that Mo0.0 has better attenuation features among the investigated glasses. The minimum effective atomic number was found at 1.33 MeV and equal to 12.45, 12.42, 12.39, and 12.26 for the Mo0.0, Mo0.5, Mo1.0, and Mo3.0 samples. The Phys-X software was applied to determine the half value thickness for the investigated glasses between 0.284 and 2.506 MeV. The usage of different percentage of PbO and MoO3 in the chosen glasses had been found to notably affect the half value thickness of the glasses. The half value thickness values are small at low energy and then increase with increasing the energy of the photon and reach the maximum values at 2.506 MeV. At 2.506 MeV, the half value thickness varied between 4.678 and 5.601 cm.

Accession Number: WOS:000583114200004

Author Identifiers:

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ISSN: 0957-4522

eISSN: 1573-482X

Record 45 of 243

Title: Optical model analysis of alpha particle scattering

Author(s): Ibraheem, AA (Ibraheem, Awad A.); Aygun, M (Aygun, M.)

Source: INDIAN JOURNAL OF PHYSICS **DOI:** 10.1007/s12648-020-01903-3 **Early Access Date:** OCT 2020

Abstract: The angular distributions of differential cross sections for alpha + Ar-36 elastic and inelastic scattering at E-lab = 40, 48, and 54 MeV have been examined in terms of the current theoretical approaches. Therefore, the elastic scattering data have been obtained by using three different theoretical approaches, namely the single-folding cluster model, the doublefolding model with CDM3Y6 effective interaction, and the phenomenological Woods-Saxon model. The inelastic scattering data have been obtained from coupled-channel calculations with the fitted parameters for elastic scattering. Both elastic and inelastic results have provided a successful description of the experimental data. Finally, the deformation lengths obtained from coupled-channel calculations are found to be consistent with the values determined from electromagnetic measurements and those reported in the previous studies. Also, the potential parameters, cross sections, volume integrals, and chi(2) values have been given for each theoretical approach.

Accession Number: WOS:000582827500005

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Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0973-1458

eISSN: 0974-9845

Record 46 of 243

Title: Radiative Width of the Hoyle State from gamma-Ray Spectroscopy

Author(s): Kibedi, T (Kibedi, T.); Alshahrani, B (Alshahrani, B.); Stuchbery, AE (Stuchbery, A. E.); Larsen, AC (Larsen, A. C.); Gorgen, A (Gorgen, A.); Siem, S (Siem, S.); Guttormsen, M (Guttormsen, M.); Giacoppo, F (Giacoppo, F.); Morales, AI (Morales, A., I); Sahin, E (Sahin, E.); Tveten, GM (Tveten, G. M.); Garrote, FLB (Garrote, F. L. Bello); Campo, LC (Campo, L. Crespo); Eriksen, TK (Eriksen, T. K.); Klintefjord, M (Klintefjord, M.); Maharramova, S (Maharramova, S.); Nyhus, HT (Nyhus, H-T); Tornyi, TG (Tornyi, T. G.); Renstrom, T (Renstrom, T.); Paulsen, W (Paulsen, W.)

Source: PHYSICAL REVIEW LETTERS **Volume:** 125 **Issue:** 18 **Article Number:** 182701 **DOI:** 10.1103/PhysRevLett.125.182701 **Published:** OCT 27 2020

Abstract: The cascading 3.21 and 4.44 MeV electric quadrupole transitions have been observed from the Hoyle state at 7.65 MeV excitation energy in C-12, excited by the C-12(p, p') reaction at 10.7 MeV proton energy. From the proton-gamma-gamma triple coincidence data, a value of Gamma(rad)/Gamma = 6.2(6) x 10(-4) was obtained for the radiative branching ratio. Using our results, together with Gamma(E0)(pi)/Gamma from Erikson et al. [Phys. Rev. C 102, 024320 (2020)] and the currently adopted Gamma(pi)(E0) values, the radiative width of the Hoyle state is determined as Gamma(rad) = 5.1(6) x 10(-3) eV. This value is about 34% higher than the currently adopted value and will impact models of stellar evolution and nucleosynthesis.

Accession Number: WOS:000582566900006

PubMed ID: 33196226

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Author	Web of Science ResearcherID	ORCID Number
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Sahin, Eda	B-9464-2018	0000-0003-0683-5140
Kibedi, Tibor	E-8282-2010	0000-0002-9205-7500
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ISSN: 0031-9007

eISSN: 1079-7114

Record 47 of 243

Title: Influence of Er3+-doped ions on the linear/nonlinear optical characteristics and radiation shielding features of TeO2-ZnO-Er2O3 glasses

Author(s): Rammah, YS (Rammah, Y. S.); Al-Buriahi, MS (Al-Buriahi, M. S.); Sriwunkum, C (Sriwunkum, C.); Shams, MS (Shams, M. S.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 23 **Pages:** 21431-21443 **DOI:** 10.1007/s10854-020-04657-0 **Early Access Date:** OCT 2020 **Published:** DEC 2020

Abstract: Effect of Er3+-doped ions on the mechanical, linear/nonlinear optical properties and radiation shielding features of [(TeO2)(0.7)(ZnO)(0.3)](100-x)(Er2O3)(x) at different molar fractions, x = 0 to 5 mol% (TZE-A to TZE-F) glasses were reported. Molar polarizability (alpha(Mol.)) increased from 7.796 x 10(-24) to 8.570 x 10(-24) cm(3), while the molar reflectivity (R-Mol.) increased from 19.647 to 21.598 (cm(3)mol(-1)) as the Er3+ ions content increased from 0 to 5 mol%. Metallization property (M-Cri.) varied from 0.235 to 0.192, while the transmission factor (T-Opt.) decreased from 0.644 to 0.589. The dielectric constant (epsilon(Sta.)) varied from 7.503 to 9.404, the nonlinear refractive index n(2)(Opt.) varied from 1.680 x 10(-10) to 4.187 x 10(-10) esu. Gamma/beta shielding features of the chosen glasses (TZE-A, TZE-B, TZE-C, TZE-D, TZE-E and TZE-F) were investigated. Gamma radiation studies were achieved for photons up to 1.275 MeV, while the beta radiation studies were achieved for electrons up to 0.723 MeV. The gamma shielding investigation was performed using FLUKA and XCOM platforms. The beta shielding study was carried out via ESTAR program by estimating TSP for all the chosen glasses. From the view of practical application, it is found that the half value layer (HVL) and mean free path (MFP) values of the chosen glasses are evidently lower than those of ordinary concrete and Schott RS-253-G18 commercial radiation shielding glass, while they are higher than those of Schott RS-360 commercial radiation shielding glass at low energies.

Accession Number: WOS:000581549200002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0957-4522

eISSN: 1573-482X

Record 48 of 243

Title: Novel NH2-MIL-125/p-Si metal-organic framework solar cell: electrical and photovoltaic properties

Author(s): Elsaeedy, HI (Elsaeedy, H. I.); El Radaf, IM (El Radaf, I. M.); Abdelhameed, RM (Abdelhameed, Reda M.); El Sayed, MT (El Sayed, Mardia T.)

Source: INDIAN JOURNAL OF PHYSICS **DOI:** 10.1007/s12648-020-01869-2 **Early Access Date:** OCT 2020

Abstract: In the current research paper, the hybrid organic-inorganic heterojunction device Au/NH2-MIL-125/p-Si/Al has been fabricated via an inexpensive spray pyrolysis technique. The electrical performance of the Au/NH2-MIL-125/p-Si/Al heterojunction has been investigated and analyzed by measuring the dark current-voltage at various ranges of the temperature range (303-403 K) and voltage (- 2 to 2 V). The important diode constants of the fabricated Au/NH2-MIL-125/p-Si/Al heterojunction like diode ideality factor (n), shunt resistance (R-sh), the series resistance (R-s), rectification factor (RF) and the effective barrier height (phi(b)) have been evaluated. Surprising findings appeared at room temperature, where the heterojunction presents a low series resistance of 17.14 k omega and ideality factor of 3.06. Moreover, the results demonstrated that the device under the light with an intensity of 250 mW cm(-2)produces a high short circuit current density (J(SC)) of 4.96 mA cm(-2)and a solar efficiency (eta) of 3.51%.

Accession Number: WOS:000579328600009

Author Identifiers:

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ISSN: 0973-1458

eISSN: 0974-9845

Record 49 of 243

Title: An impact of La doping content on key physical properties of PbS spherical nanoparticles facilely synthesized via low temperature chemical route

Author(s): Shkir, M (Shkir, Mohd.); Chandekar, KV (Chandekar, Kamlesh V.); Alshahrani, T (Alshahrani, T.); Kumar, A (Kumar, Ashwani); Khan, A (Khan, Aslam); AlFaify, S (AlFaify, S.)

Source: EUROPEAN PHYSICAL JOURNAL PLUS **Volume:** 135 **Issue:** 10 **Article Number:** 816 **DOI:** 10.1140/epjp/s13360-020-00740-x **Published:** OCT 13 2020

Abstract: Herein, we are reporting a facile chemical process to attain high-grade PbS spherical nanoparticles with diverse La doping contents at low temperature and named it as La@PbS SNPs. All the prepared La@PbS SNPs samples are of single-cubic phase with good crystalline nature confirmed from XRD and Rietveld refinement. Along with lattice constants several other structure-related parameters like size, dislocations, strain, stacking fault, density and specific surface area were calculated. EDX and SEM-e-mapping analyses confirm the presence of La in PbS with homogeneous distribution throughout the samples. For morphological investigation FESEM was employed, which approved the synthesis of SNPs of low dimensions at all La contents. FT-Raman analysis shows characteristics vibrational modes related to cubic-PbS and that is in good accordance with XRD outcomes. Energy gap values were determined through Kubelka-Munk procedure and noticed to lie between 1.01 to 1.103 eV (Delta E=0.093eV) Delta E = 0.093 \;{\text{eV}}) $$\end{document},

this shows a very minute shift in energy gap with La doping in PbS. Dielectric constant (epsilon '), loss tangent, dielectric loss and impedance values were assessed and stable values of epsilon ' were noticed in 20-50 range and 5.0 wt % La@PbS SNPs possesses highest value. The ac electrical conductivity analysis revealed enhancement with La content in PbS. The correlated barrier hoping mechanism was involved in the prepared La@PbS SNPs. Furthermore, the DC electrical properties were studied and discussed the impact of La content. Graphic abstract

Accession Number: WOS:000583163500001

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AlFaify, S	ABF-3895-2020	0000-0002-8920-5891
	P-3995-2018	0000-0002-0712-2778

ISSN: 2190-5444

Record 50 of 243

Title: Optical constants and dispersion parameters of amorphous Se65-xAs35Sbx thick films for optoelectronics

Author(s): Gadalla, A (Gadalla, A.); Anas, FA (Anas, F. A.); Qasem, A (Qasem, A.); Yousef, ES (Yousef, E. S.); Shaaban, ER (Shaaban, E. R.)

Source: INDIAN JOURNAL OF PHYSICS **DOI:** 10.1007/s12648-020-01848-7 **Early Access Date:** OCT 2020

Abstract: Optical properties of amorphous Se(65-x)As(35)Sb(x)thin films with different compositions (x = 0, 2, 4, 6, 8 and 10 at%) deposited by evaporation technique have been investigated by measuring transmission (T) and reflection (R) in the wavelength range 400-2500 nm. An optical characterization method for uniform films based on Swanepoel's method has been employed to extract the refractive indexnand film thicknessd, with high precision (better than 1%). The calculated thickness for all thin films was about 1 mu m. In addition, the absorption coefficient was evaluated in the strong absorption region ofTandR. The possible optical transition in these films is found to be allowed indirect transition with energy gap E-g(opt) decreases from 1.72 to 1.53 eV with increasing Sb content at expense of Se. The chemical bond approach has been applied to explain the decrease of the optical gap with increasing Sb content. The dispersion and oscillator energies were analyzed using the concept of the single oscillator by Wemple and Di-Domenico. The nonlinear refractive index was calculated and found to be increase with increasing Sb content.

Accession Number: WOS:000576370800001

Author Identifiers:

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ISSN: 0973-1458

eISSN: 0974-9845

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Page 2 (Records 51 -- 100)
[1 | 2 | 3 | 4 | 5]

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Record 51 of 243

Title: The role of flash auto-combustion method and Mn doping in improving dielectric and magnetic properties of CoFe2O4

Author(s): Henaish, AMA (Henaish, A. M. A.); Hemeda, OM (Hemeda, O. M.); Alqarni, A (Alqarni, A.); El Refaay, DE (El Refaay, D. E.); Mohamed, S (Mohamed, Sh); Hamad, MA (Hamad, Mahmoud A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 11 **Article Number:** 834 **DOI:** 10.1007/s00339-020-04030-2 **Published:** OCT 7 2020

Abstract: In this work, we prepared Co1-xMnxFe2O4 (CMFO) ferrites at different levels of doping x=0.0, 0.1, 0.3, 0.5 and 0.7 using flash auto-combustion method, aiming to obtain promising results more than CoFe2O4 ferrite prepared by other methods. The results show an increase in lattice constant of CMFO with Mn content. In addition, there are many intra-granular pores and significant fusion of the small grains into larger grains. The dielectric properties of CMFO ferrites are enhanced with Mn content. Furthermore, saturation magnetization (M-S) and remanent magnetization (M-r) of CMFO are improved slightly with Mn content up to x=0.1 and then decrease with higher Mn content. The coercivity (H-C) of CMFO ferrite decreases with Mn content until it reaches minimum value of 971 Oe for level of Mn substitution x=0.5; on further Mn content (X=0.7), it is observed that H-c increases to 1249 Oe. In comparison to previous works, H-C (x=0) and M-S and M-r for our sample (x=0.1) are significantly more than corresponding values obtained for CoFe2O4 ferrite prepared by other methods.

Accession Number: WOS:000578487000002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Henaish, Ahmed Maher	R-9849-2018	
Hamad, Mahmoud	N-1538-2015	0000-0002-1863-0276

ISSN: 0947-8396

eISSN: 1432-0630

Record 52 of 243

Title: Recent Advances of Graphene-Derived Nanocomposites in Water-Based Drilling Fluids

Author(s): Ikram, R (Ikram, Rabia); Jan, BM (Jan, Badrul Mohamed); Vejpravova, J (Vejpravova, Jana); Choudhary, MI (Choudhary, M. Iqbal); Chowdhury, ZZ (Chowdhury, Zaira Zaman)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 10 **Article Number:** 2004 **DOI:** 10.3390/nano10102004 **Published:** OCT 2020

Abstract: Nanocomposite materials have distinctive potential for various types of captivating usage in drilling fluids as a well-designed solution for the petroleum industry. Owing to the improvement of drilling fluids, it is of great importance to fabricate unique nanocomposites and advance their functionalities for amplification in base fluids. There is a rising interest in assembling nanocomposites for the progress of rheological and filtration properties. A series of drilling fluid formulations have been reported for graphene-derived nanocomposites as additives. Over the years, the emergence of these graphene-derived nanocomposites has been employed as a paradigm to formulate water-based drilling fluids (WBDF). Herein, we provide an overview of nanocomposites evolution as engineered materials for enhanced rheological attributes in drilling operations. We also demonstrate the state-of-the-art potential graphene-derived nanocomposites for enriched rheology and other significant properties in WBDF. This review could conceivably deliver the inspiration and pathways to produce novel fabrication of nanocomposites and the production of other graphenaceous materials grafted nanocomposites for the variety of drilling fluids.

Accession Number: WOS:000586904300001

PubMed ID: 33050617

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Vejpravova, Jana	G-1895-2014	0000-0002-6308-9992

eISSN: 2079-4991

Record 53 of 243

Title: Microwave-assisted synthesis of Mg:PbI2 nanostructures and their structural, morphological, optical, dielectric and electrical properties for optoelectronic technology*

Author(s): Shkir, M (Shkir, Mohd); Khan, ZR (Khan, Ziaul Raza); Alshahrani, T (Alshahrani, T.); Chandekar, KV (Chandekar, Kamlesh, V); Manthrammel, MA (Manthrammel, M. Aslam); Kumar, A (Kumar, Ashwani); AlFaify, S (AlFaify, S.)

Source: CHINESE PHYSICS B **Volume:** 29 **Issue:** 11 **Article Number:** 116102 **DOI:** 10.1088/1674-1056/aba60e **Published:** OCT 2020

Abstract: This work reports the cost-effective growth of Mg:PbI2 nanostructures with 0, 1, 2.5 and 5.0 wt.% Mg doping concentrations. Structural, vibrational, morphological properties are analyzed using x-ray diffraction (XRD), Raman spectroscopy and scanning electron microscopy (SEM). XRD and Raman studies confirm the monophasic hexagonal system of Mg:PbI2, and no additional impurity peaks are detected. The Scherrer formula is used to determine sizes of crystallites to be in the range of 47-52 nm. EDX/SEM e-mapping analyses confirm the incorporation of Mg in PbI2 matrix and its uniform distribution throughout the sample. The hexagonal nanosheet- and nanoplate-like morphologies are detected in SEM images for pure and Mg-doped PbI2. An optical band gap of nanostructures is obtained from Tauc's relation to be in the range 3.0-3.25 eV. Dielectric and electrical properties are found in significant enhancement as Mg doping in PbI2 matrix, also the conduction mechanism is discussed.

Accession Number: WOS:000585785000001

Author Identifiers:

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ISSN: 1674-1056

eISSN: 1741-4199

Record 54 of 243

Title: Nanocomposites of ZnO Nanorods In-Situ Grown on Graphitic Carbon Nitride for Ethanol Sensing

Author(s): Meng, FL (Meng, Fanli); Meng, XY (Meng, Xinyou); Chang, YL (Chang, Yuanlong); Yuan, ZY (Yuan, Zhenyu); Zhang, H (Zhang, Hua); Ibrahim, M (Ibrahim, Medhat); Elhaes, H (Elhaes, Hanan); Yahia, I (Yahia, Ibrahim); Gao, HL (Gao, Hongliang)

Source: IEEE SENSORS JOURNAL **Volume:** 20 **Issue:** 19 **Pages:** 11097-11104 **DOI:** 10.1109/JSEN.2020.2997788 **Published:** OCT 1 2020

Abstract: ZnO nanorods/graphitic carbon nitride nanocomposites were prepared using a two-step seed method. Characterizations including scanning electron microscopy, X-ray diffraction and Brunauer-Emmett-Teller analysis confirmed that a well-designed 1D ZnO on 2D g-C₃N₄ nanostructure was achieved. Gas sensing test of the synthesized ZnO/g-C₃N₄ nanocomposites concluded that g-C₃N₄ essentially increased the sensitivity. The ZnO/g-C₃N₄ nanocomposite tend to perform better to ethanol than other volatile organic compounds. The detection mechanism of the ZnO nanorods on g-C₃N₄ has been discussed in detail.

Accession Number: WOS:000582804900007

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Meng, Fanli	D-6133-2015	0000-0002-2477-1542

ISSN: 1530-437X

eISSN: 1558-1748

Record 55 of 243

Title: Elastic Constants and Related Mechanical Properties of YxIn1- N-x Ternary System

Author(s): Gassoumi, A (Gassoumi, Abdelaziz)

Source: PHYSICS OF THE SOLID STATE **Volume:** 62 **Issue:** 10 **Pages:** 1803-1806 **DOI:** 10.1134/S1063783420100078 **Published:** OCT 2020

Abstract: Using a pseudo-potential approach within the virtual crystal approximation, the elastic properties of YxIn1 - N-x semiconductor ternary alloys in the hypothetical zinc-blende phase have been investigated. The results obtained for InN show a reasonable agreement with data available in the literature. Other case, our findings are the first predictions for alloys in question. The composition dependence of all features being considered in the present contribution for the material of interest has been analyzed and discussed. Our results have shown that the elastic constants and their related parameters for YxIn1 - N-x decrease monotonically with increasing the yttrium concentrationx. The information derived from the present study may be useful for YxIn1 - N-x compositional characterization.

Accession Number: WOS:000576172200012

ISSN: 1063-7834

eISSN: 1090-6460

Record 56 of 243

Title: An in-depth investigation of physical properties of Nd doped CdS thin films for optoelectronic applications

Author(s): Chandekar, KV (Chandekar, Kamlesh, V); Shkir, M (Shkir, Mohd); Alshahrani, T (Alshahrani, T.); Khan, A (Khan, Aslam); AlFaify, S (AlFaify, S.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 67 **Pages:** 681-694 **DOI:** 10.1016/j.cjph.2020.08.007 **Published:** OCT 2020

Abstract: The different contents (0 wt.%, 1 wt.%, 3 wt.% and 5 wt.%) of Nd @CdS films were casted using spray pyrolysis deposition procedure. The preferential orientation of crystallites along (002) for all films was noted by XRD profiles. The mean crystalline size (D-avg), strain (E-avg) and dislocation density (delta(avg)) have also been evaluated using XRD results and discussed. The spherical shape morphology of nanoscale particles of Nd@CdS films were analyzed by FE-SEM, exhibits the increased grain sizes with Nd doping concentration. The optical band gaps (2.4-2.36 eV) were found to be decreased with increasing Nd doping content upto (3 wt.%) and increased at 5 wt.% The PL profile displays a stout intensity peak observed at 532 nm and week emission band at 638 nm. The dielectric constant, loss and loss tangent of pristine and Nd@CdS thin films were investigated by dielectric measurements. The optimum values of non-linear refractive index 1.06 x 10(-10), 4.41 x 10(-11), 3.44 x 10(-11) and 1.85 x 10(-10) were observed for Nd content varies from pristine to 5 wt.% respectively. Furthermore, optimum non-linear susceptibility values 7.31 x 10(-12), 1.079 x 10(-12), 4.53 x 10(-13) and 1.36 x 10(-11) were observed for 0, 1, 3 and 5 wt.% of Nd contents respectively in CdS. Such type of characteristics of Nd doped CdS thin films can be useful for optical devices.

Accession Number: WOS:000575386800006

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	P-3995-2018	0000-0002-0712-2778

ISSN: 0577-9073

Record 57 of 243

Title: Analytic solutions for vibrational energy levels of the pseudoharmonic potential

Author(s): Maiz, F (Maiz, F.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 10 **Article Number:** 105403 **DOI:** 10.1088/1402-4896/abbaa6 **Published:** OCT 2020

Abstract: The non-relativistic analytic solutions of a quantum mechanical system have been calculated for the case of pseudoharmonic potential by using the Whittaker functions approach. A diatomic quantum system is placed in a Pseudoharmonic potential and perturbed by an external magnetic field. The

resulting Schrodinger's equation has been solved exactly to obtain the analytic expressions of vibrational energy levels and associated wave functions. In this work, we have compared the results of six diatomic molecules with those available in the literature.

Accession Number: WOS:000575673300001

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ISSN: 0031-8949

eISSN: 1402-4896

Record 58 of 243

Title: Significance of activation energy and Wu's slip features in Cross nanofluid with motile microorganisms

Author(s): Khan, SU (Khan, Sami Ullah); Waqas, H (Waqas, Hassan); Muhammad, T (Muhammad, Taseer); Imran, M (Imran, Muhammad); Ullah, MZ (Ullah, Malik Zaka)

Source: COMMUNICATIONS IN THEORETICAL PHYSICS **Volume:** 72 **Issue:** 10 **Article Number:** 105001 **DOI:** 10.1088/1572-9494/aba250 **Published:** OCT 1 2020

Abstract: The current article investigates the impact of the bioconvection in an unsteady flow of magnetized Cross nanofluid with gyrotactic microorganisms and activation energy over a linearly stretched configuration. The analysis has been performed by utilizing the realistic Wu's slip boundary and zero mass flux conditions. The effects of nonlinear thermal radiation and the activation energy are also addressed. The governing flow equations are deduced to a dimensionless form by considering suitable transformations which are numerically targeted via a shooting algorithm. The physical visualization of each physical parameter governing the flow problem has been displayed graphically for distribution of velocity, temperature, concentration and motile microorganisms. The numerical treatment for the variation of skin friction coefficient, local Nusselt number, local Sherwood number and motile density number is performed in tabular forms.

Accession Number: WOS:000573462000001

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Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0253-6102

eISSN: 1572-9494

Record 59 of 243

Title: Facile synthesis, structure, AFM, thermal, and optical analysis of BiI3/PVAL nanocomposite films for laser CUT-OFF optical devices

Author(s): Ali, HE (Ali, H. Elhosiny); Khairy, Y (Khairy, Yasmin)

Source: VACUUM **Volume:** 180 **Article Number:** 109640 **DOI:** 10.1016/j.vacuum.2020.109640 **Published:** OCT 2020

Abstract: In the progress work, the facile microwave method has been used to synthesize BiI3 nanoparticles at low temperatures, while nanocomposite films based on polyvinyl alcohol (PVAL) filled with selective content of BiI3 nanoparticles (from 0 to 18.51 wt %) have been prepared by casting technique. The structural analysis has been analyzed by X-ray diffraction, EDX (energy dispersive analysis spectroscopy of X-rays), HR-TEM (High-resolution transmission electron microscope), and atomic force microscope (AFM) measurements. The thermal behavior such as DTG (derivative thermogravimetric) and TGA (thermogravimetric analysis) of BiI3/PVAL nanocomposite was also studied. At the same time, the optical performance of these films was measured using UV-Vis-NIR spectroscopy. The structure study shows significant incorporation between the two phases of PVAL and BiI3 in all films. The AFM images show an increase in surface roughness with the nanoparticle content. The BiI3 level has influenced optical parameters like the energy of the band tail, the energy gap, the absorption coefficient, and the dielectric loss of the PVAL matrix. 18.51 wt % BiI3/PVAL film has a direct transition with the lowest energy gap, while its higher absorbance is due to the increase of the influence of the crystalline phases of BiI3 in the polymeric matrix. The strong competence of the films to reduce the power of the two laser beams (632.8 nm & 533 nm) has been detected. Therefore, the results support that this nanocomposite is a fruitful material for commercial laser cut-off and optoelectronics.

Accession Number: WOS:000566764900001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Khairy, Yasmin	AAG-4248-2021	0000-0002-7293-2806

ISSN: 0042-207X

Record 60 of 243

Title: SnO2 nanocubes/bentonite modified SPEEK nanocomposite composite membrane for high performance and durable direct methanol fuel cells

Author(s): Ranjani, M (Ranjani, M.); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Pannipara, M (Pannipara, Mehboobali); Aziz, MA (Aziz, Md Abdul); Phang, SM (Phang, Siew-Moi); Ng, FL (Ng, Fong-Lee); Kumar, GG (Kumar, G. Gnana)

Source: SOLID STATE IONICS **Volume:** 353 **Article Number:** 115318 **DOI:** 10.1016/j.ssi.2020.115318 **Published:** OCT 2020

Abstract: Tin oxide nanocubes/sulfonated bentonite (SnO2/sBH) nanocomposite blended with acidified poly ether ether ketone (SPEEK) solid state electrolyte is developed for DMFCs. Morphological investigations reveal the existence of SnO2 nanocubes on sheet-like structure of sBH and the uniform dispersion of above composite on SPEEK matrix. The layered sheet-like structure of BH act as heat diffusion barrier and the ceramic feature of SnO2 further improves the thermal stability of a SPEEK membrane. The exposed large surface area of BH and tightly bound water molecules in SnO2 and -SO3H sites increase the water retention properties, which consequently enhance the ionic conductivity of SPEEK/sBH/SnO2 composite membrane. Furthermore, the high aspect ratio of sBH and methanol resistive characteristic of SnO2 lower the methanol diffusion channels in the sBH/SnO2 composite membrane. With the coalition of above significant electrochemical properties, SPEEK/sBH/SnO2 solid electrolyte demonstrates the high DMFC power density and excellent durability, which showers light on the viability of prepared membrane in high performance and durable DMFCs.

Accession Number: WOS:000561809100011

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
al-sehemi, Abdullah	AAM-4039-2020	
Al-Sehemi, Abdullah	J-9967-2012	
Ng, Fong Lee	V-2267-2017	
Al-Sehemi, Abdullah	AAK-5902-2020	
Phang, Siew Moi	A-7653-2008	
Aziz, Md. Abdul	B-5972-2015	0000-0002-1537-2785

ISSN: 0167-2738

eISSN: 1872-7689

Record 61 of 243

Title: Dielectric properties of red sand silver nanoparticles (vol 268, pg 127626, 2020)

Author(s): Awad, MA (Awad, Manal A.); Alkhulaifi, MM (Alkhulaifi, Manal M.); Alwehaibi, M (Alwehaibi, Moudi); Alshehri, J (Alshehri, Jamilah); Ortashi, K (Ortashi, Khalid); Qindeel, R (Qindeel, Rabia); Aldosari, N (Aldosari, Noura); Hendi, A (Hendi, Awatif); Aldakheel, H (Aldakheel, Hajar)

Source: MATERIALS LETTERS **Volume:** 276 **Article Number:** 128322 **DOI:** 10.1016/j.matlet.2020.128322 **Published:** OCT 1 2020

Accession Number: WOS:000554918200012

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Alwehaibi, Moudi	AAG-3757-2021	0000-0002-9011-1470

ISSN: 0167-577X

eISSN: 1873-4979

Record 62 of 243

Title: Fabrication of heterostructure solar cell using the optimized Sn incorporated PbS films via atomized nebulizer spray pyrolysis

Author(s): Rosario, SR (Rosario, S. Rex); Kulandaisamy, I (Kulandaisamy, I.); Arulanantham, AMS (Arulanantham, A. M. S.); Kumar, KDA (Kumar, K. Deva Arun); Awwad, NS (Awwad, Nasser S.); Ibrahium, HA (Ibrahium, Hala A.); Ramesh, K (Ramesh, K.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 117 **Article Number:** 105174 **DOI:** 10.1016/j.mssp.2020.105174 **Published:** OCT 2020

Abstract: Thin films of PbS doped with tin (2 <= Sn <= 8 wt.%) were deposited on glass substrates by cost- effective nebulizer spray method. X-ray diffraction studies confirm the polycrystalline nature with a face centered cubic structure along with the orientation of (200) plane. SEM/AFM studies reveal that the nano-sized spherical and granular shaped grains roofed the whole film surface and the grain shapes were changed with the change in Sn doping percentage. Bandgap was found to decrease from 1.98 eV to 1.66 eV with an increase in the doping concentration from 2 to 6 wt%. Hall Effect measurement confirmed p-type conducting nature for all the doped PbS films. The resistivity and carrier concentration values are found to be about 0.32 x 10(3) Omega cm and 6.78 x 10(13) cm(-3), respectively, for the optimized PbS:Sn film (6 wt%). The response of the heterostructured (FTO/n-CdS/p-PbS:Sn/Ag) solar cell with the optimal Sn doping (6 wt% Sn) was studied under dark and illuminated conditions.

Accession Number: WOS:000541163300014

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kumar, Karuppiah Deva Arun	V-1050-2019	

ISSN: 1369-8001

eISSN: 1873-4081

Record 63 of 243

Title: Eucalyptus Concoction Mediated Synthesis of Gold Nanoparticles and Its Bioactive Role Explored via Antimicrobial and Cytotoxic Studies

Author(s): Muthiah, B (Muthiah, Bavanilatha); Lovina (Lovina); Arthi (Arthi); Muthukrishnan, L (Muthukrishnan, Lakshmipathy); Lett, JA (Lett, J. Anita); Sagadevan, S (Sagadevan, Suresh); Kesavan, S (Kesavan, Sudha); Vennila, S (Vennila, Selvaraj); Khan, MA (Khan, M. Ajmal); Hegazy, HH (Hegazy, H. H.); Ahmad, N (Ahmad, Naushad)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 10 **Pages:** 6326-6333 **DOI:** 10.1166/jnn.2020.17897 **Published:** OCT 2020

Abstract: Biosynthesis of nanoparticles has now become a novel trend in addressing some of the environmental issues by adopting eco-friendly approaches in manoeuvring nanoparticles for various applications. Plants and micro-organisms have been the potential sources of the biological mode of synthesizing nanoparticles as part of their bioremediation process. This principle has been harnessed for synthesizing nanoparticles either extra or intracellularly. In this line of phyto-mediated synthesis, eucalyptus buds have been used for synthesizing gold nanoparticles (Au NPs) under optimized laboratory conditions. The UV-visible spectrum of the Au NPs showed typical surface plasmon resonance at 550 nm (lambda(max)) with a crystalline phase measuring <100 nm in size and monodispersed as revealed from XRD, FESEM, and AFM analyses. The biological role of phytochemical concoction in reducing and stabilizing the Au NPs was clearly identified from FT-IR studies. The antimicrobial effect of the Au NPs against clinically important pathogens viz. Staphylococcus sp., Pseudomonas sp., Bacillus sp. and E. coli determined using the disk diffusion method showed no significant antibacterial effect at all concentrations. Cytotoxicity studies were carried using Vero and HEp-2 cell lines and the 50% inhibition concentration (IC50) was determined to be 1.25 mg and 0.625 mg/mL respectively. Au NPs with potential antimicrobial and anti-proliferative effects could found profound implications in the field of nanomedicine once the toxicity in vivo has been investigated.

Accession Number: WOS:000532076600040

PubMed ID: 32384982

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Author	Web of Science ResearcherID	ORCID Number
M, LAKSHMIPATHY	AAU-5816-2020	
Ahmad, Naushad	ABC-8519-2020	
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ISSN: 1533-4880

eISSN: 1533-4899

Record 64 of 243

Title: Spray pyrolysis deposited K@CdS nanostructured films and their characterizations for optoelectronic and 3rd order nonlinear optical applications

Author(s): Khan, MT (Khan, Mohd Taukeer); Alshahrani, T (Alshahrani, T.); Anis, M (Anis, Mohd.); Shaikh, SS (Shaikh, S. S.); Almohammedi, A (Almohammedi, Abdullah); Sayed, MA (Sayed, M. A.); Raj, M (Raj, Marnadu); Shkir, M (Shkir, Mohd.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 22 **Pages:** 20101-20112 **DOI:** 10.1007/s10854-020-04532-y **Early Access Date:** SEP 2020 **Published:** NOV 2020

Abstract: Cadmium Sulfide (CdS) is an excellent semiconductor for photonic devices and its optical and electrical properties are greatly affected by single element doping. In the current manuscript, the effect of potassium ion (K+) doping on linear and nonlinear optical traits of spray pyrolysis deposited CdS films was investigated. The X-ray diffraction (XRD) spectra reveal the increase of defects, decrease of crystallinity and crystallite size also change in growth orientation with K(+)doping in CdS films. Moreover, the position of FT-Raman peaks was slightly blue shifted and morphology of films shows clusters of agglomerated CdS nanoparticles along with small size nanoparticles in the background as revealed from SEM images. The bandgap of K+-doped CdS films slightly broaden and shows improved transparency as compare to pure CdS films. The dielectric constants were found to be first decease for 2.5% wt. K(+)doping and thereafter slightly increase for 5.0% wt. CdS films whereas optical conductivity decrease for all K(+)doping concentrations. The photoluminescence intensity of CdS decreases and slightly blue shifted upon K(+)doping, also a new emission band appears at 630 nm, indicating formation of new trap states in the bandgap of semiconductor. The 3rd order nonlinear properties elucidated through Z-scan technique reveals the increase of n(2)and chi(3)whilst decrease of beta with increase of K(+)content in CdS thin films.

Accession Number: WOS:000574069800002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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Khan, Mohd Taukeer	D-4842-2013	0000-0002-6715-4501

ISSN: 0957-4522

eISSN: 1573-482X

Record 65 of 243

Title: Optoelectronic properties of PbSe monolayers from first-principles

Author(s): Ul Haq, B (Ul Haq, Bakhtiar); AlFaify, S (AlFaify, S.); Ahmed, R (Ahmed, R.); Laref, A (Laref, A.); Mahmood, Q (Mahmood, Q.); Algrafy, E (Algrafy, Eman)

Source: APPLIED SURFACE SCIENCE **Volume:** 525 **Article Number:** 146521 **DOI:** 10.1016/j.apsusc.2020.146521 **Published:** SEP 30 2020

Abstract: In recent years, the two-dimensional (2D) materials have received considerable attention for next-generation technological applications due to their unique physical properties. In this article, we explore the energetic stability, electronic, and optical properties of three different PbSe monolayers (such as alpha-, beta-, and gamma- types) for potential optoelectronic and photovoltaic applications. The results presented in this work are obtained from first-principles calculations within density functional theory. The formation and cohesive energies calculated for the PbSe monolayers have been found well-matching to that of stable 2D monochalcogenides which validates their energetic stability. Calculations of the electronic structures show all the three types of monolayers semiconductors in nature with indirect bandgaps of magnitude 0.45, 1.39, and 1.26 eV for alpha-, beta-, and gamma-PbSe respectively. The interband optical transitions taking place within these monolayers are identified from the orbital resolved electronic structures and dielectric functions. The beta-PbSe exhibited isotropic electronic structures and optical spectra whereas a significant degree of anisotropy is seen in the optical spectra of alpha- and gamma- types of PbSe monolayers. The refraction spectra show the transparent nature of these monolayers ranging from near-infrared to a broad range of the ultraviolet spectrum. Moreover, they show substantially low reflectivity and large optical absorption of the incident light. These features advocate effective applications of these novel PbSe monolayers in cutting-edge optoelectronic and photovoltaic devices.

Accession Number: WOS:000541415900003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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laref, amel	F-2689-2017	
Algrafy, Eman		0000-0002-5101-7297
Ul Haq, Bakhtiar		0000-0001-9058-2080

ISSN: 0169-4332

eISSN: 1873-5584

Record 66 of 243

Title: Pb(II) and Cd(II) removal, mechanical and morphological features of nanofibrous membranes of cellulose acetate containing fillers of hydroxyapatite, graphene oxide, and magnetite

Author(s): Ahmed, MK (Ahmed, M. K.); Afifi, M (Afifi, M.); Awwad, NS (Awwad, Nasser S.); Ibrahium, HA (Ibrahium, Hala A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 10 **Article Number:** 819 **DOI:** 10.1007/s00339-020-04006-2 **Published:** SEP 26 2020

Abstract: Heavy metal removal from polluted water is pivotal to keep the populations' health. In this issue, nanofibrous membranes of cellulose acetate (CA)

filled with different compositions of graphene oxide (GO), hydroxyapatite (HAP), and magnetite nanoparticles (MNPs) were fabricated via electrospinning technique. The obtained phases were investigated via XRD, whereas both morphological features and roughness behaviors were characterized via FESEM. The membranes were configured as a non-oriented network with a wide range of diameters about 1.17-7.1, 1.6-4.6, 1.4-3.6, 0.92-1.8, 0.6-2.9 mu m for CA, GO@CA, MNPs@CA, HAP@CA and MNPs/HAP/GO@CA, respectively. On the other hand, grains of MNPs and HAP were detected as scattered spheres adhered to fibers' surfaces with diameters about 0.8-2.2 and 0.9-2.5 mu m, respectively. The maximum height of the roughness grew from 383.2 to 621.8 nm for CA and MNPs/HAP/GO@CA, respectively. Moreover, the mechanical properties were carried out and showed that the fracture strength increased exponentially from 16.2 +/- 1.1 to 28.5 +/- 2.3 MPa for CA and MNPs/HAP/GO@CA, respectively. The effectiveness of these membranes to remove Pb(II) and Cd(II) from aqueous solutions was investigated upon the pH variation and contact time. The highest values of removal efficiency upon pH variation reached 82.1, 85.8, 91.2, 92.1 and 99.1% for Pb(II) and 92.7, 93.3, 96.0, 98.7 and 99.3% for Cd(II), while upon changing of contact time, it maximized after 24 h of exposure to be about 86.2, 87.4, 94.5, 96.4 and 98.4% for Pb(II) and 90.5, 95.3, 95.6, 96.9 and 99.8% in case of Cd(II) for CA, GO@CA, MNPs@CA, HAP@CA and MNPs/HAP/GO@CA, respectively.

Accession Number: WOS:000576607800005

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Afifi, Mohamed	W-1247-2019	0000-0002-4123-8379

ISSN: 0947-8396

eISSN: 1432-0630

Record 67 of 243

Title: Role of Rare Earth Metal Ions Doping on Structural, Electrical, Magnetic, and Dielectric Behavior of Spinel Ferrites: a Comparative Study

Author(s): Ikram, S (Ikram, Salma); Jacob, J (Jacob, Jolly); Mehboob, K (Mehboob, Khurram); Mahmood, K (Mahmood, Khalid); Amin, N (Amin, N.); Arshad, MI (Arshad, M. I.); Nabi, MAU (Ajaz Un Nabi, M.)

Source: JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM **DOI:** 10.1007/s10948-020-05688-8 **Early Access Date:** SEP 2020

Abstract: In current studies, we have compared the doping effect of different rare earth metal ions on structural, electrical, magnetic, and dielectric properties in three different series of spinel ferrites. The cubic spinel structure for all the synthesized nanoferrites had been confirmed by XRD scans and further with FTIR analysis. Crystallite size, grain size, and lattice constant are found significantly affected by nature of dopant RE(3+)ions and decrease with decreasing ionic radii of dopants. Lanthanum doping showed appearance of secondary phases at dopant concentration above 0.2 that was attributed to its larger ionic radii than cerium. The magnetic parameters for all the prepared samples were discussed by tracing hysteresis curves of all synthesized samples at room temperature. Decreasing crystallite size effected spin orders which associated with ionic radii of RE(3+)ions resulted in decrease in magnetization. Dopants having smaller ionic radii greatly reduced coercivity and improved initial permeability. In the temperature range 423 to 823 K, the composition-dependent DC resistivity and activation energy ranges between 10(9) to similar to 10(10)Omega cm and similar to 2.85 eV respectively. Both dielectric loss and dielectric constant decrease with decrease in frequency. The reported characteristics made these prepared nanoferrites suitable candidates for high-frequency and microwave absorber devices.

Accession Number: WOS:000572001200001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Jacob, Jolly	M-2806-2019	0000-0003-3549-8374

ISSN: 1557-1939

eISSN: 1557-1947

Record 68 of 243

Title: Mechanical and radiation-shielding properties of B2O3-P2O5-Li2O-MoO(3)glasses

Author(s): Shaaban, KS (Shaaban, Kh S.); Zahran, HY (Zahran, H. Y.); Yahia, IS (Yahia, I. S.); Elsaeedy, HI (Elsaeedy, H., I); Shaaban, ER (Shaaban, E. R.); Makhlouf, SA (Makhlouf, Sayed A.); Wahab, EAA (Wahab, E. A. Abdel); Yousef, E (Yousef, El Sayed)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 10 **Article Number:** 804 **DOI:** 10.1007/s00339-020-03982-9 **Published:** SEP 22 2020

Abstract: Amassed borophosphate lithium molybdate samples were synthesized by the melting classical technique. To check the conditions of these synthesized glasses, the X-ray diffractometer technique was applied. The density value of these samples was increased as well as the molar volume decreased. The mechanical characteristics were linked with Fourier-transform infrared spectrum results. The addition of MoO(3)increases the polymerization degree and changes the basic boring units from BO(3)to BO4, increases the polymerization degree of phosphate network and changes the negative non-bridging oxygen to positive charges. Ultrasonic velocities and elastic modulus (experimental and theoretical) are increased. This behaviour is correlated to the substitution of Li-O with Mo-O linkages. Mass attenuation coefficient of the prepared samples decreased with the energy increase and with the addition of MoO3. With the increase in photon energy and MoO(3)half value layer, the tenth value layer and the mean free path values increase. Hence, the increase of MoO(3)leads to a better attenuation of gamma radiation. Therefore, the glass under investigation had superior characteristics for radiation protection applications.

Accession Number: WOS:000574631800002

ISSN: 0947-8396

eISSN: 1432-0630

Record 69 of 243

Title: Thermodynamics and Screening in the Ising-Kondo Model

Author(s): Bauerbach, K (Bauerbach, Kevin); Mahmoud, ZMM (Mahmoud, Zakaria M. M.); Gebhard, F (Gebhard, Florian)

Source: PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS **Volume:** 258 **Issue:** 2 **Article Number:** 2000367 **DOI:** 10.1002/pssb.202000367 **Early Access Date:** SEP 2020 **Published:** FEB 2021

Abstract: A simplification of the symmetric single-impurity Kondo model is introduced and studied. In the Ising-Kondo model, host electrons scatter off a

single magnetic impurity at the origin whose spin orientation is dynamically conserved. This reduces the problem to potential scattering of spinless fermions that can be solved exactly using the equation-of-motion technique. The Ising-Kondo model provides an example for static screening. At low temperatures, the thermodynamics at finite magnetic fields resembles that of a free spin-1/2 in a reduced external field. Alternatively, the Curie law is interpreted in terms of an antiferromagnetically screened effective spin. The spin correlations decay algebraically to zero in the ground state and display commensurate Friedel oscillations. In contrast to the symmetric Kondo model, the impurity spin is not completely screened, i.e., the screening cloud contains less than a spin-1/2 electron. At finite temperatures and weak interactions, the spin correlations decay to zero exponentially with correlation length xi(T) = 1/(2 pi T).

Accession Number: WOS:000571250400001

ISSN: 0370-1972

eISSN: 1521-3951

Record 70 of 243

Title: Investigation of Electrical Conductivity of Gold Nanoparticles Scattered in Polyvinylidene Fluoride/Polyvinyl Chloride via Laser Ablation for Electrical Applications

Author(s): Tommalieh, MJ (Tommalieh, M. J.); Ismail, AM (Ismail, A. M.); Awwad, NS (Awwad, Nasser S.); Ibrahium, HA (Ibrahium, Hala A.); Youssef, MA (Youssef, Maha A.); Menazea, AA (Menazea, A. A.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 12 **Pages:** 7603-7608 **DOI:** 10.1007/s11664-020-08459-2 **Early Access Date:** SEP 2020 **Published:** DEC 2020

Abstract: The electrical characterization of polyvinylidene fluoride (PVDF)/polyvinyl chloride (PVC) composites after scattering by gold nanoparticles (AuNPs) has been studied by a one-way laser ablation process. AuNPs@PVDF/PVC nanocomposites were synthesized in films formed via traditional casting technique. The electrical conductivity of AuNPs@PVDF/PVC films was also studied. FT-IR indicated that adding AuNPs to PVDF/PVC confirmed the interaction and complexation between a PVDF/PVC composite and AuNPs. UV-Vis results confirmed the presence of surface plasmon resonance of AuNPs at 519 nm. The indirect optical bandgap was decreased by increasing the scattered AuNPs in the PVDF/PVC from 2.26 eV for pure PVDF/PVC to 1.61 eV for AuNPs@PVDF/PVC at 20 min ablation time. The addition of AuNPs to a PVDF/PVC composite enhances the conductivity due to the increase in the number of ions resulting from increasing ablation time.

Accession Number: WOS:000570460200001

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Author	Web of Science ResearcherID	ORCID Number
Anter, Abdelrhman		0000-0001-5547-6530

ISSN: 0361-5235

eISSN: 1543-186X

Record 71 of 243

Title: Thin films of nanostructured gallium (III) chloride phthalocyanine deposited on FTO: Structural characterization, optical properties, and laser optical limiting

Author(s): Darwish, AAA (Darwish, A. A. A.); Hamdalla, TA (Hamdalla, Taymour A.); El-Zaidia, EFM (El-Zaidia, E. F. M.); Hanafy, TA (Hanafy, T. A.); Issa, SAM (Issa, Shams A. M.); Yahia, IS (Yahia, I. S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 593 **Article Number:** 412321 **DOI:** 10.1016/j.physb.2020.412321 **Published:** SEP 15 2020

Abstract: Phthalocyanines are widely used in different fields of science, especially photodynamic therapy and solar cells. Gallium-phthalocyanine-chloride (PcGaCl) film has been deposited onto conductive Fluorine-doped tin oxide (FTO) substrates. The structural properties have been investigated using X-rays diffraction, which showed that PcGaCl films have an amorphous structure. The atomic force microscopy showed that surface morphology of PcGaCl films have high values of the roughness of 74-83 nm and average grain size of 86-130 nm. Both linear and nonlinear optical properties of nanostructured PcGaCl films with different thicknesses have been studied and explained based on the morphology investigation. The refractive and absorption indices of the films are calculated, and they depend on film material thickness. The high nonlinear optical values, as well as high laser optical limiting of nanostructured PcGaCl film deposited on FTO, indicated that it could be a candidate for various nonlinear optical applications such as laser filter.

Accession Number: WOS:000564645300011

Author Identifiers:

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Darwish, Ahmed Ali	K-9486-2019	0000-0002-7489-1892

ISSN: 0921-4526

eISSN: 1873-2135

Record 72 of 243

Title: Tunable high Tc superconducting photonic band gap resonators based on hybrid quasi-periodic multilayered stacks

Author(s): Trabelsi, Y (Trabelsi, Y.); Ben Ali, N (Ben Ali, N.); Aly, AH (Aly, Arafa H.); Kanzari, M (Kanzari, M.)

Source: PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS **Volume:** 576 **Article Number:** 1353706 **DOI:** 10.1016/j.physc.2020.1353706 **Published:** SEP 15 2020

Abstract: One-dimensional hybrid photonic quasicrystals made of superconductor (HgBa2Ca2Cu3O8+delta) and Dielectric (Si) materials are theoretically investigated by the Gorter Casimir two fluid model (GCTFM) and the transfer matrix method (TMM). The proposed quasicrystals super-lattices are built according the ternary configuration GF/GTM/GF. Where, GF and GTM are the generalized Fibonacci and Thue-Morse sequences, respectively. An interesting multi- photonic band gaps (m-PBGs) are achieved for suitable hybrid quasiperiodic system. The characteristic of these m-PBGs can be manipulated by the temperature of the superconductor and pressure of the system. The transmittance spectra exhibit tunable resonant peaks within the m-PBGs very sensitive to photonic system parameters. A superconducting resonator can be achieved by tuning the temperature, pressure, and thicknesses of the photonic system materials.

Accession Number: WOS:000562017000004

Author Identifiers:

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Ben Ali, Naim		0000-0001-6739-679X

ISSN: 0921-4534

eISSN: 1873-2143

Record 73 of 243

Title: Full Length Article BGaAs strain compensation layer in novel BGaAs/InGaAs/BGaAs heterostructure: Exceptional tunability

Author(s): Hidouri, T (Hidouri, Tarek); Nasr, S (Nasr, Samia); Mal, I (Mal, Indranil); Samajdar, DP (Samajdar, D. P.); Saidi, F (Saidi, Faouzi); Hamila, R (Hamila, Radhia); Maaref, H (Maaref, Hassen)

Source: APPLIED SURFACE SCIENCE **Volume:** 524 **Article Number:** 146573 **DOI:** 10.1016/j.apsusc.2020.146573 **Published:** SEP 15 2020

Accession Number: WOS:000540435800002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Samajdar, Dip Prakash	ABA-8156-2020	
MAL, INDRANIL	AAR-3345-2020	0000-0002-4729-1648

ISSN: 0169-4332

eISSN: 1873-5584

Record 74 of 243

Title: Role of 5d orbital of Re in ferromagnetism and thermoelectric characteristics of Cs2ReCl/Br-6 double-perovskites: a density functional theory study

Author(s): Mahmood, Q (Mahmood, Q.); Alshahrani, T (Alshahrani, Thamraa); Ul Haq, B (Ul Haq, Bakhtiar); Gulfam, QU (Gulfam, Qurrat-ul-Ain); Tahir, Y (Tahir, Yasmeen); Kattan, NA (Kattan, Nessrin A.); Fatima, M (Fatima, Mahvish); Laref, A (Laref, A.)

Source: EUROPEAN PHYSICAL JOURNAL PLUS **Volume:** 135 **Issue:** 9 **Article Number:** 727 **DOI:** 10.1140/epjp/s13360-020-00743-8 **Published:** SEP 14 2020

Abstract: The controlling of characteristics of electronic devices by the spin of the electrons is an integration field of new technology. The magnetic and thermoelectric properties of Cs2ReCl/Br-6 double-perovskites are explored by the Wien2k and BoltzTraP code. The comparison of energies released in ferromagnetic and paramagnetic states reveals the lower energy state is the ferromagnetic state. The challenge of stability in the FM state is solved by negative formation energy and tolerance factor in the cubic phase. The half-metallic ferromagnetism has been analyzed from band structures and the density of states. The mechanism of HM ferromagnetism is illustrated by the partial density of states in terms of p-d hybridization and the double exchange model. The Spin polarization factor and integer value of total magnetic moment confirm the 100% spin polarization. The thermoelectric response demonstrated by thermal to electrical conductivity ratios and figure of merit which increases the potential of studied materials for thermoelectric devices.

Accession Number: WOS:000573066300005

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
laref, amel	F-2689-2017	
Ul Haq, Bakhtiar		0000-0001-9058-2080

ISSN: 2190-5444

Record 75 of 243

Title: Effect of Cu(2+)doping on the structural, optical, and vapor-sensing properties of ZnO thin films prepared by SILAR method

Author(s): Devi, KR (Devi, K. Radhi); Selvan, G (Selvan, G.); Prasad, KH (Hari Prasad, K.); Karunakaran, M (Karunakaran, M.); Kasirajan, K (Kasirajan, K.); Ganesh, V (Ganesh, V.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 19 **Pages:** 16548-16560 **DOI:** 10.1007/s10854-020-04210-z **Early Access Date:** SEP 2020 **Published:** OCT 2020

Abstract: The Cu-doped ZnO thin films were fabricated on glass slides by a two-step SILAR coating method. The diffraction data revealed that the prepared ZnO:Cu films were in the phase of Wurtzite geometry, and the grain size decreases from 37 to 26 nm. The morphological studies revealed uniform distribution of nanograins as well as a nanoflower structure. The doping samples exhibited an increase in transmittance and an increase in the bandgap. A room temperature ammonia vapor-sensing performance of Cu-doped ZnO films is also studied, and sensitivity for sensing ammonia vapor is increased with doping concentration. The sensitivity was remarkably enhanced to 12,300% and it has a relatively fast response/recovery time of 37/8 s for 100 ppm NH(3)for the 5 wt% of ZnO:Cu film. Its high sensitivity and fast response make the ZnO:Cu film a good contender for high-quality gas sensor devices.

Accession Number: WOS:000568981100001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
AlFaify, S	ABF-3895-2020	0000-0002-8920-5891
Kamatam, Hari Prasad	AAA-5523-2020	0000-0002-0913-5361

ISSN: 0957-4522

eISSN: 1573-482X

Record 76 of 243

Title: Quantitative analysis of Ag-doped SnS thin films for solar cell applications

Author(s): Sebastian, S (Sebastian, S.); Vinoth, S (Vinoth, S.); Prasad, KH (Prasad, K. Hari); Revathy, MS (Revathy, M. S.); Gobalakrishnan, S (Gobalakrishnan, S.); Praseetha, PK (Praseetha, P. K.); Ganesh, V (Ganesh, V.); AlFaify, S (AlFaify, S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 10 **Article Number:** 783 **DOI:** 10.1007/s00339-020-03959-8 **Published:**

SEP 12 2020

Abstract: This work reports the changes in the properties of Ag-doped SnS thin films (SnS:Ag), and CdS/SnS solar cells with an Ag dopant concentration in the absorber varied from 0 to 6 wt.% in steps of 3 wt.% prepared by the nebulizer-assisted spray pyrolysis method (NSP). X-ray diffraction (XRD) studies confirm the SnS:Ag (3 wt.%) thin film has a higher crystallite size than the undoped and SnS:Ag (6 wt.%) thin film. An atomic force microscope (AFM) image shows SnS:Ag (3 wt.%) film possesses larger-sized grains than other samples. The energy-dispersive X-ray analysis (EDS) confirms the presence of the constituent elements in the SnS:Ag thin films. PL analysis revealed the films possess the band edge as well as the other defect-related emissions of SnS. The Ag doping facilitates the tunability in absorption and decreases in optical bandgap for the SnS:Ag (3 wt.%) film. Hall measurements provide the low resistivity of 3.31 Omega cm, the high charge carrier concentration of 1.56x10(17) cm(-3), and high mobility of 12.1 cm(2) V-1 s(-1) for 3 wt.% Ag-doped SnS film. The better photovoltaic conversion efficiency of 0.285% was observed for the device prepared with SnS:Ag (3 wt.%) thin film compared to other samples due to enhanced absorption, optimum bandgap, and better electrical properties.

Accession Number: WOS:000571780600004

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Sebastian, S	AAG-3910-2021	

ISSN: 0947-8396

eISSN: 1432-0630

Record 77 of 243

Title: Band structure and chemical bonding of GaP: pressure-induced effects

Author(s): Bouarissa, N (Bouarissa, N.); Algarni, H (Algarni, H.); Mezrag, F (Mezrag, F.); Khan, MA (Ajmal Khan, M.)

Source: PHASE TRANSITIONS **Volume:** 93 **Issue:** 10-11 **Pages:** 973-980 **DOI:** 10.1080/01411594.2020.1817452 **Early Access Date:** SEP 2020 **Published:** NOV 1 2020

Abstract: We present a theoretical study on electronic structure and chemical trends of zinc-blende GaP under compression up to 100 kbar obtained from a pseudopotential approach calculations. The influence of high pressure on the features of interest has been examined and reported. The dynamics of chemical bonds in the compound in question is investigated by analyzing the profiles of the electron charge densities. Our findings show generally a good accord with experiment. The present study can contribute in the understanding of the pressure effects on the electronic properties and chemical bonding of GaP material.

Accession Number: WOS:000567626800001

ISSN: 0141-1594

eISSN: 1029-0338

Record 78 of 243

Title: Effect of lead oxide on the optical properties and radiation shielding efficiency of antimony-sodium-tungsten glasses

Author(s): Boukhris, I (Boukhris, Imed); Kebaili, I (Kebaili, Imen); Al-Buriahi, MS (Al-Buriahi, M. S.); Sriwunkum, C (Sriwunkum, Chahkrit); Sayyed, MI (Sayyed, M. I.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 10 **Article Number:** 763 **DOI:** 10.1007/s00339-020-03932-5 **Published:** SEP 5 2020

Abstract: This paper reports the effect of lead oxide (PbO) on the optical properties and radiation shielding efficiency of Sb2O3-Na2O-WO3-PbO glasses. The optical properties of the glasses were tested by estimating molar refraction (R-m), molar polarizability (alpha(m)), metallization principle (M), optical transmission (T), dielectric coefficients (static and optical), and reflection loss (R-L). Additionally, the gamma radiation shielding efficiency of the glasses was evaluated via the Monte Carlo method (Geant4 simulations) and the XCOM program. The mass attenuation coefficient (mu/rho) and other related factors such as effective atomic number (Z(eff)), half-value layer (HVL), and mean free path (MFP) were calculated at the energy range of 0.25-1.25 meV. Furthermore, the dependence of radiation protection efficiency (RPE) on the thickness of glasses was discussed in detail. The results revealed that at 40 mol% of PbO, the optical transmission was 0.7774 and the reflection loss was 1.1997. A notable increase in RPE as the thickness of the glass changes from 0.5 to 2 cm. The gamma shielding efficiency of the glasses was compared with those of commonly used shields. The reported glasses showed superior properties to apply for radiation shielding applications.

Accession Number: WOS:000569865200001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 79 of 243

Title: Transmutation of the Crystalline Structure of beta-SiC Nanowires to an Amorphous Structure Through Cu Ion Shelling

Author(s): Khan, MR (Rashid Khan, M.); Aisida, SO (Aisida, Samson O.); Hussain, J (Hussain, Javed); Ahmad, I (Ahmad, Ishaq); Honey, S (Honey, Shehla); Jan, TR (Jan, Tariq); Khan, MR (Rauf Khan, M.); Mahmoud, A (Mahmoud, Arshad); Zhao, TK (Zhao, Ting-kai)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 11 **Special Issue:** SI **Pages:** 6671-6676 **DOI:** 10.1007/s11664-020-08448-5 **Early Access Date:** SEP 2020 **Published:** NOV 2020

Abstract: The amorphous structural study of silicon carbide nanowires (SiC-NWs) has drawn strenuous attention in recent years due to their worthwhile properties for wide applications, chiefly in optoelectronics. The facile transformation of crystalline SiC-NWs to amorphous defective SiC-NWs is a challenging task for their broad-scale applications. Herein, we report a fantastic strategy (by applying a 5UDH Pelletron accelerator, located at the National Centre for

Physics, Islamabad, Pakistan) for Cu ion implantation (fixed at 10 MeV) on the crystalline SiC-NWs to incorporate them into an amorphous structure. For the defects study, various dose rates of Cu+ ion ranging from 5x10(15) ions/cm(2) to 5x10(16) ions/cm(2) were bombarded on SiC-NWs, and a complete transmutation to the amorphous structure of SiC-NWs under a shelling dose of 8x10(16) ions/cm(2) was observed. This work will provide a better avenue for the structural deformation blueprints of the next-generation nanomaterials. Amorphous structural transformation is explained by collision cascade effects phenomena.
[GRAPHICS]
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Accession Number: WOS:000566301000002

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Author	Web of Science ResearcherID	ORCID Number
Honey, Shehla	AAA-4396-2021	

ISSN: 0361-5235

eISSN: 1543-186X

Record 80 of 243

Title: The effect of graphene nanoplatelets on technical properties of micro- and nano-sized TiO(2)matrix: a comparative research study on electrical and optical characteristics

Author(s): Guler, O (Guler, Omer); Ayhan, H (Ayhan, Hakan); Basgoz, O (Basgoz, Oykum); Yavuz, C (Yavuz, Cagdas); Albayrak, MG (Albayrak, M. Gokhan); Evin, E (Evin, Ertan); Safa, H (Safa, Hasan); Yahia, IS (Yahia, Ibrahim S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 20 **Pages:** 17511-17523 **DOI:** 10.1007/s10854-020-04307-5 **Early Access Date:** SEP 2020 **Published:** OCT 2020

Abstract: In this study, titanium dioxide (TiO2)-based graphene nanoplatelets (GNPs)-reinforced composite materials were produced and the electrical and optical properties of the composite materials were investigated. Graphene, which was used as a reinforcing material, was produced by using liquid-phase exfoliation method. While the TiO(2)used as matrix material was commercially available for the first group of samples, it was produced by using the sol-gel method for the second group of the samples. Different rates of graphene were added to the TiO(2)powders which were commercially available and produced by using sol-gel method. GNPs used as a reinforcing material were subjected to TEM analysis. The resulting composite materials were structurally examined in SEM and XRD. Then, the changes in electrical conductivity of these composites under the impact of temperature were measured. UV-Vis spectrometers of the samples were taken and their optical properties were determined. When temperature-based electrical examination of the produced composite materials was performed, an increase was observed on the electrical conductivity values in both groups of samples as a result of addition of the reinforcing element. In addition, TiO2-containing composites produced by using sol-gel method had lower electrical conductivity comparing with commercially purchased TiO2-containing composites especially at high temperatures. In the optical measurements, it was observed that there was an increase in the optical bandgap energy range values with GNPs reinforcement but a decrease in the reflectance values.

Accession Number: WOS:000565494700003

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ISSN: 0957-4522

eISSN: 1573-482X

Record 81 of 243

Title: Microwave Irradiation Effects on Structural and Optical Investigations of Nanostructured Ge25Se75 Glassy Films

Author(s): Rashad, M (Rashad, M.); Ali, AM (Ali, A. Mossad); Somaily, HH (Somaily, H. H.); Algarnl, H (Algarnl, H.); Hamad, D (Hamad, D.); Hendi, AA (Hendi, A. A.); Hafiz, MM (Hafiz, M. M.)

Source: ACTA PHYSICA POLONICA A **Volume:** 138 **Issue:** 3 **Pages:** 434-439 **DOI:** 10.12693/APhysPolA.138.434 **Published:** SEP 2020

Abstract: Ge25Se75 binary glass is prepared using melt-quenching technique. Thin films of 250 nm Ge25Se75 are thus evaporated using thermal evaporation method on a cleaned glass substrate. Energy dispersive X-ray analysis confirmed the starting percentage of the element. The effect of microwave irradiation on Ge25Se75 thin film with different illumination times (0-90 min) is studied. As confirmed by X-ray diffraction and scanning electron microscopy measurements, the nature of the as-prepared Ge25Se75 thin films appears to be amorphous. The type of optical transition has been demonstrated to be allowed indirect transitions. Moreover, the rest of the optical parameters have changed as a result of the microwave irradiation. It can be observed that, for Ge25Se75 thin films, the optical band gap increases as the illumination time increases. In terms of bond adjustments and changes in these films' microstructure, this post-light increment in the band gap was decoded. Furthermore, while increasing the illumination

Accession Number: WOS:000588733300014

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ISSN: 0587-4246

eISSN: 1898-794X

Record 82 of 243

Title: SPECTROSCOPIC ELLIPSOMETRY ANALYSIS OF A ANTIMONY TRISULFIDE (Sb2S3) THIN FILM

Author(s): Drissi, N (Drissi, N.); Nouira, W (Nouira, W.); Gassoumi, M (Gassoumi, M.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 9 **Pages:** 461-468 **Published:** SEP 2020

Abstract: In the present research paper, thin films of antimony trisulfide (Sb2S3) were successfully deposited on glass substrates. The effect of thickness on the structural and optical properties of antimony trisulfide (Sb2S3) thin films is studied. The optical constants (n, k) and film thicknesses of Sb2S3 thin films

were obtained by fitting the ellipsometric parameters (psi and Delta) data using three-layer model systems in the wavelength range of 400-1800 nm. It is found that the refractive index n increases with an increase of the film thickness. The structural investigations are performed by Scanning electron microscopy SEM (the Grain size increased with the film thickness). We demonstrate generalized ellipsometry for precise measurement of the principal indices of refraction and the extinction coefficients.

Accession Number: WOS:000582886300004

ISSN: 1584-8663

Record 83 of 243

Title: SURFACTANT ASSISTED HYDROTHERMAL SYNTHESIS OF ZINC SULFIDE NANOPARTICLES USING SINGLE SOURCE PRECURSORS

Author(s): Shahzad, N (Shahzad, N.); Ali, N (Ali, N.); Ahmad, I (Ahmad, I); Ullah, N (Ullah, N.); Khalid, S (Khalid, S.); Fazal, M (Fazal, M.); Kalam, A (Kalam, A.); Al-Sehemi, AG (Al-Sehemi, A. G.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 9 **Pages:** 469-480 **Published:** SEP 2020

Abstract: Lot of research is being carried out to develop solar cells which are economical with higher efficiencies. Many nanomaterials have been explored to tackle this issue. In this paper we have been used pure ZnS and cobalt doped ZnS nanoparticles which were hydrothermally synthesized from single source precursors using TX-100 as surfactant. The prepared precursors and samples were characterized using FTIR, TGA, XRD and UV-Visible. The crystallite size of the nanoparticles calculated from the XRD analysis have been found in the range of 20-25 nm. UV-Visible analysis at room temperature shows absorption peaks in the UV-region. The optical bandgap calculated using Tauc's plot from the absorption data lies in the region of 3.2-3.5 eV. This study helps in understanding novel performance of Co-ZnS in comparison to pure ZnS nanoparticles for its use in solar cell applications due to increase in photocatalytic activity in visible region.

Accession Number: WOS:000582886300005

ISSN: 1584-8663

Record 84 of 243

Title: Ytterbium doping effects into the Ba and Ti sites of perovskite barium titanate: Electronic structures and optical properties

Author(s): Alshoaibi, A (Alshoaibi, Adil); Kanoun, MB (Kanoun, Mohammed Benali); Ul Haq, B (Ul Haq, Bakhtiar); AlFaify, S (AlFaify, Salem); Goumri-Said, S (Goumri-Said, Souraya)

Source: RESULTS IN PHYSICS **Volume:** 18 **Article Number:** 103257 **DOI:** 10.1016/j.rinp.2020.103257 **Published:** SEP 2020

Abstract: Oxide perovskites doped with rare-earth have shown change in optoelectronic properties with high dielectric constants. Herein, the structural, electronic, and optical characteristics of BaTiO3 doped with ytterbium at the Ba and Ti sites were studied by employing the first-principles density functional calculations. The Tran-Blaha modified Becke-Johnson (TB-mBJ) potential and GGA + U approaches have been used for determining the optoelectronic properties. We probed the impact of the ytterbium incorporation at the Ti and Ba sites into BaTiO3 by tuning of the structural geometry and electronic structure behavior and dielectric constants. A de-tailed analysis, of structural properties, reveals that lattice parameters of ytterbium doping shift slightly regarding those of pristine BaTiO3. The Ba-O and Ti-O bond lengths were reduced due to the crystalline structure lattice distortion. The band structures demonstrate that ytterbium doping has induced various changes in the electronic nature of BaTiO3 by creating a magnetism. For both Ba and Ti sites, ytterbium doping has strongly increased the BaTiO3 dielectric constants.

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ISSN: 2211-3797

Record 85 of 243

Title: Optical Multistability in the Metal Nanoparticle-Graphene Nanodisk-Quantum Dot Hybrid Systems

Author(s): Tohari, MM (Tohari, Mariam M.); Alqahtani, MM (Alqahtani, Moteb M.); Lyras, A (Lyras, Andreas)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 9 **Article Number:** 1687 **DOI:** 10.3390/nano10091687 **Published:** SEP 2020

Abstract: Hybrid nanoplasmonic systems can provide a promising platform of potential nonlinear applications due to the enhancement of optical fields near their surfaces in addition to the control of strong light-matter interactions they can afford. We theoretically investigated the optical multistability of a probe field that circulated along a unidirectional ring cavity containing a metal nanoparticle-graphene nanodisk-quantum dot hybrid system; the quantum dot was modeled as a three-level atomic system of Lambda configuration interacting with probe and control fields in the optical region of the electromagnetic spectrum. We show that the threshold and degree of multistability can be controlled by the geometry of the setup, the size of metal nanoparticles, the carrier mobility in the graphene nanodisk and the detunings of probe and control fields. We found that under electromagnetically-induced transparency conditions the system exhibits enhanced optical multistability with an ultralow threshold in the case of two-photon resonance with high carrier mobility in the graphene nanodisk. Moreover, we calculated the limits of the controllable parameters within which the switching between optical multistability and bistability can occur. We show that our proposed hybrid plasmonic system can be useful for efficient all-optical switches and logic-gate elements for quantum computing and quantum information processing.

Accession Number: WOS:000581313300001

PubMed ID: 32867261

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eISSN: 2079-4991

Record 86 of 243

Title: Design of a low-cost laser CUT-OFF filters using carmine dye-doped PVA polymeric composite films

Author(s): Alrowaili, ZA (Alrowaili, Z. A.); Ezzeldien, M (Ezzeldien, Mohammed); Mohammed, MI (Mohammed, M., I); Yahia, IS (Yahia, I. S.)

Source: RESULTS IN PHYSICS **Volume:** 18 **Article Number:** 103203 **DOI:** 10.1016/j.rinp.2020.103203 **Published:** SEP 2020

Abstract: Polyvinyl alcohol (PVA)/carmine dye polymeric composite films are prepared by a solution casting method. Pure PVA, 0.11 wt% carmine dye/PVA, 0.55 wt% carmine dye/PVA, 1.11 wt% carmine dye/PVA, 5.5 wt% carmine dye/PVA, 11.11 wt% carmine dye/PVA and 27.775 wt% carmine dye/PVA have a semi-crystalline structure. The transmission spectrum shows that the light is blocked fill 600 nm for 27.775 wt% carmine dye/PVA composite films. The transmittance for the composite 27.775 wt% carmine/PVA is reduced to 61%. The absorption bands and band edges were shifted due to the increase of carmine dye percentage in the PVA matrix. The direct bandgap decreased from 5.16 to 1.65 eV as the carmine dye percentage increased.The indirect band gap decreased from 4.75 to 0.99 eV. The refractive index is strongly dependent on the amount of carmine dye on PVA, and the refractive index increased up to 8. The optical conductivity of PVA/carmine dye composites was divided into different stages according to the photon energy. The highest values of the dielectric loss for PVA/carmine dye composites were found at the lowest frequency (100 Hz). PVA/carmine dye composite films are promising standing up filters for laser power attenuation and optoelectronic devices.

Accession Number: WOS:000577356300010

ISSN: 2211-3797

Record 87 of 243

Title: Fabrication of high-performance SiO2@p-CuO/n-Si core-shell structure based photosensitive diode for photodetection application

Author(s): Gunasekaran, S (Gunasekaran, S.); Thangaraju, D (Thangaraju, D.); Marnadu, R (Marnadu, R.); Chandrasekaran, J (Chandrasekaran, J.); Alshahrani, T (Alshahrani, T.); Shkir, M (Shkir, Mohd); Durairajan, A (Durairajan, A.); Graca, MPF (Graca, M. P. F.); Elango, M (Elango, M.)

Source: SURFACES AND INTERFACES **Volume:** 20 **Article Number:** 100622 **DOI:** 10.1016/j.surfin.2020.100622 **Published:** SEP 2020

Abstract: Core-shell SiO2@p-CuO semiconductor composite structure-based junction diodes were fabricated by using a metal oxide semiconducting material. The core-shell SiO2@p-CuO composite structure was successfully fabricated by co-precipitation route. X-ray diffraction (XRD) and Raman spectroscopy is used to inspect the structure & vibrational modes. Field Emission SEM (FE-SEM) was used to analyse the morphology. XRD confirms the existence of monoclinic structure in the pure CuO and SiO2@p-CuO and Raman studies further establish the formation of a single-phase structure in annealed samples. Crossed nanoflakes-like surface morphology of CuO and formation of core-shell SiO2@p-CuO structure was verified with FE-SEM micrographs. Fabricated SiO2@p-CuO/n-Si junction diode shows better photo-response along with a better ideality factor of 3.96 under a light condition than the p-CuO/n-Si. The photosensitivity, responsivity, external quantum efficiency, and detectivity of the developed SiO2@p-CuO/n-Si diodes is estimated similar to 580,471.4%, similar to 259.7 mA/W, similar to 100.7%, 1.715 x 10(12) Jones, respectively which are several times larger than the bare p-CuO/n-Si, which are estimated similar to 5320.3%, similar to 230.6 mA/W, similar to 89.4% and 1.561 x 10(11) Jones, respectively. The enhanced photodetection properties of SiO2@p-CuO/n-Si diode proposes it as a mesmerizing aspirant for photodetector application.

Accession Number: WOS:000572913500007

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Thangaraju, Dheivasigamani	E-7911-2015	0000-0003-1928-3779

ISSN: 2468-0230

Record 88 of 243

Title: Linear, third order nonlinear optical and photoluminescence properties of Cd0.99Zn0.09S/ZnO nanocomposite thin films for optoelectronics applications

Author(s): Khan, ZR (Khan, Ziaul Raza); Alshammari, AS (Alshammari, Abdullah S.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: SURFACES AND INTERFACES **Volume:** 20 **Article Number:** 100561 **DOI:** 10.1016/j.surfin.2020.100561 **Published:** SEP 2020

Abstract: Cd0.99Zn0.01S/ZnO nanostructured films were developed by solution processing method on ITO/glass substrates with different ZnO thicknesses. Structural, linear, nonlinear optical and photoluminescence properties of the as grown films were analyzed. In x-ray diffraction patterns, Cd0.99Zn0.01S and ZnO peaks were observed clearly. The grain size of the films was estimated to be in the range of 23-25 nm. 2D atomic force microscopy images of the films confirmed the growth of nano size grains. Tauc's plot of the films reveals that the band gap energies are in the range of 2.49-2.54 eV. Photoluminescence spectra of films showed interesting reduction in the visible emission along with an enhancement in the UV emission with increasing ZnO thickness. The nanocomposite Cd1-xZnxS/ZnO thin film with 20 nm thickness shows high transmittance of about 70 %. Nonlinear optical parameters such as third order nonlinear optical susceptibility,.(3) and nonlinear refractive index n(2) were also roughly estimated. The values of.(3) and n(2) parameters were found to be in the range of 1.73 x 10(-13)-1.09 x 10(-11) esu and 2.6 x 10(-12)-1.78 x 10(-10) esu, respectively.

Accession Number: WOS:000572912400012

Author Identifiers:

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ISSN: 2468-0230

Record 89 of 243

Title: Facile microwave synthesis of bismuth molybdate nanostructures and their characterization for optoelectronic applications

Author(s): Khan, ZR (Khan, Ziaul Raza); Shkir, M (Shkir, Mohd); Alshahrani, T (Alshahrani, T.); Manthrammel, MA (Manthrammel, M. Aslam); AlFaify, S (AlFaify, S.)

Source: SOLID STATE SCIENCES **Volume:** 107 **Article Number:** 106361 **DOI:** 10.1016/j.solidstatesciences.2020.106361 **Published:** SEP 2020

Abstract: Facile microwave synthesis of monophasic bismuth molybdate (alpha-Bi2Mo3O12) nanoparticles/nanosheets were achieved with different contents of Cetrimonium bromide (CTAB) as surfactants. The effect of CTAB contents on physical properties of alpha-Bi2Mo3O12 has been studied. X-ray diffraction (XRD) and FT-Raman studies approved the monophasic synthesis of alpha-Bi2Mo3O12 without any additional impurity or separate phase. Energy dispersive X-ray spectroscopy (EDX) study further confirm the synthesis of bismuth molybdate. The morphology of alpha-Bi2Mo3O12 was strongly affected by CTAB contents and it was transformed from nanoparticles to nanosheets like structure, however, no separate phase was observed. For optical band gap analysis diffused reflectance spectra were measured and Kubelka-Munk theory was employed to determine energy gap and noticed between 2.76 and 3.10

eV. Furthermore, dielectric constant (epsilon'), loss (epsilon ''), and ac electrical conductivity (sigma(ac)) was determined and discussed. The values of epsilon' were noticed between 17 and 27. The electrical conduction mechanism was also discussed through calculating the frequency exponent values.

Accession Number: WOS:000571544200004

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ISSN: 1293-2558

eISSN: 1873-3085

Record 90 of 243

Title: Tuning the optical band gap and magnetization of oleic acid coated CoFe2O4 NPs synthesized by facile hydrothermal route

Author(s): Chandekar, KV (Chandekar, Kamlesh V.); Shkir, M (Shkir, Mohd.); AlFaify, S (AlFaify, Salem)

Source: MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS **Volume:** 259 **Article Number:** 114603 **DOI:** 10.1016/j.mseb.2020.114603 **Published:** SEP 2020

Abstract: The high-quality oleic acid coated cobalt ferrite (OCF) nanopowders were prepared by hydrothermal route at 60 degrees C, 120 degrees C and 180 degrees C temperatures. The average crystallite sizes of 5.2 +/- 0.07 nm, 13.3 +/- 0.19 nm and 18.9 +/- 0.23 nm were evaluated for OCF-60, OCF-120 and OCF-180. The SEM images of OCF exhibits agglomerated nanoparticles of roughly spherical shape. Optical energy gap was estimated and found to be enhanced from 1.8 to 2.3 eV with decreasing particle size. The area ratio A(nu 2) of phonon modes occurred at 447 and 600-613 cm(-1) are correspond to octahedral and tetrahedral sites, respectively. The enhancement in saturation magnetization MS was observed from 44.64 to 76.66 (emu/g) owing to decrease in area ratio A(nu 2). Value of spin-spin correlation function was found to be decreased from 1.60 to 0.93 with increase in M-S/size. A strong correlation between magnetic and optical properties with particle size was observed.

Accession Number: WOS:000551686200017

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ISSN: 0921-5107

eISSN: 1873-4944

Record 91 of 243

Title: Effect of Er doping on the ammonia sensing properties of ZnO thin films prepared by a nebulizer spray technique

Author(s): Kumar, KDA (Kumar, K. Deva Arun); Valanarasu, S (Valanarasu, S.); Ponraj, JS (Ponraj, Joice Sophia); Fernandes, BJ (Fernandes, Brian Jeevan); Shkir, M (Shkir, M.); AlFaify, S (AlFaify, S.); Murahari, P (Murahari, Prashantha); Ramesh, K (Ramesh, K.)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 144 **Article Number:** 109513 **DOI:** 10.1016/j.jpcs.2020.109513 **Published:** SEP 2020

Abstract: Erbium (Er)-doped ZnO thin films were deposited on glass substrates by nebulizer spray pyrolysis with different doping concentrations (0 wt%, 1 wt%, 3 wt% and 5 wt%). The deposited films are polycrystalline with a hexagonal structure with a (002) predominant plane. The Er-doped ZnO films have greater surface roughness than the undoped ZnO film. The optical transmittance of the undoped ZnO film is about 80% in the visible range. The optical bandgap of the undoped ZnO thin film is 3.29 eV, which is very close to the bulk ZnO. From photoluminescence spectra, sharp UV emission is observed at 385 nm for all the prepared films. The response of the films to ammonia (NH3) vapour is high when the Er concentration is 3% or less, and for higher concentrations of Er, the response is low. All the deposited Er-doped ZnO films show short response time and recovery time with regard to NH3.

Accession Number: WOS:000539440600007

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Kumar, Karuppiah Deva Arun	V-1050-2019	
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Murahari, Prashantha	S-1083-2016	0000-0002-6490-8910

ISSN: 0022-3697

eISSN: 1879-2553

Record 92 of 243

Title: Theoretical investigations of optoelectronic and thermoelectric properties of the XIn2O4 (X = Mg, Zn, Cd) spinel oxides

Author(s): Mahmood, Q (Mahmood, Q.); Hassan, M (Hassan, M.); Algrafy, E (Algrafy, Eman); Ul Haq, B (Ul Haq, Bakhtiar); Kattan, NA (Kattan, Nessrin A.); Murtaza, G (Murtaza, G.); Laref, A (Laref, A.)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 144 **Article Number:** 109481 **DOI:** 10.1016/j.jpcs.2020.109481 **Published:** SEP 2020

Abstract: The spinel oxides have received remarkable attention in recent years for being promising materials for optoelectronic and thermoelectric applications. In this paper, the thermodynamic stability of the XIn2O4 (X = Mg, Zn, Cd) spinels is examined by calculating the formation energy whereas the mechanical stability is evaluated by Born mechanical stability criteria. Our results indicate adequate thermodynamic and mechanical stability of the studied spinels. Ductile behavior of these materials is established through Pugh's and Poisson's ratios. The bandgaps of magnitudes 4.0 eV, 2.79 eV, and 2.21 eV have been calculated respectively for MgIn2O4, ZnIn2O4 and CdIn2O4 by modified Becke and Johnson (mBJ) exchange potential. The optical spectra of dielectric constants, refraction, absorption and other related parameters are determined to explore their potential for optoelectronic applications. Furthermore,

thermoelectric properties are investigated in terms of thermal to electrical conductivities, Seebeck coefficients, and figures of merit (ZT). The high ZT of magnitude 0.84, 0.74, 0.79 are observed for MgIn2O4, ZnIn2O4 and CdIn2O4 that highlight important of these materials' potential applications in thermoelectric generators and other thermal energy conversion devices.

Accession Number: WOS:000539440600027

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Murtaza, Ghulam		0000-0002-2548-3921
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ISSN: 0022-3697

eISSN: 1879-2553

Record 93 of 243

Title: Enhanced Photocatalytic Performance of Sn6SiO8 Nanoparticles and Their Reduced Graphene Oxide (rGO) Nanocomposite

Author(s): Gnanamoorthy, G (Gnanamoorthy, G.); Muthukumaran, M (Muthukumaran, M.); Prasath, PV (Prasath, P. Varun); Karthikeyan, V (Karthikeyan, V); Narayanan, V (Narayanan, V); Sagadevan, S (Sagadevan, Suresh); Umar, A (Umar, Ahmad); Khan, MA (Khan, M. Ajmal); Algarni, H (Algarni, H.)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 9 **Pages:** 5426-5432 **DOI:** 10.1166/jnn.2020.17814 **Published:** SEP 2020

Abstract: Photocatalysts provide excellent potential for the full removal of organic chemical pollutants as an environmentally friendly technology. It has been noted that under UV-visible light irradiation, nanostructured semiconductor metal oxides photocatalysts can degrade different organic pollutants. The Sn6SiO8/rGO nanocomposite was synthesized by a hydrothermal method. The Sn6SiO8 nanoparticles hexagonal phase was confirmed by XRD and functional groups were analyzed by FT-IR spectroscopy. The bandgap of Sn6SiO8 nanoparticles (NPs) and Sn6SiO8/GO composites were found to be 2.7 eV and 2.5 eV, respectively. SEM images of samples showed that the flakes like morphology. This Sn6SiO8/rGO nanocomposite was testing for photocatalytic dye degradation of MG under visible light illumination and excellent response for the catalysts. The enhancement of photocatalytic performance was mainly attributed to the increased light absorption, charge separation efficiency and specific surface area, proved by UV-vis DRS. Further, the radical trapping experiments revealed that holes (h(+)) and superoxide radicals (O-center dot(2)-) were the main active species for the degradation of MG, and a possible photocatalytic mechanism was discussed.

Accession Number: WOS:000528206000020

PubMed ID: 32331114

Author Identifiers:

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ISSN: 1533-4880

eISSN: 1533-4899

Record 94 of 243

Title: Influence of Incorporated Barium Ion on the Physio-Chemical Properties of Zinc Oxide Nanodisks Synthesized via a Sonochemical Process

Author(s): Sagadevan, S (Sagadevan, Suresh); Vennila, S (Vennila, S.); Begum, SNS (Begum, S. N. Suraiya); Wahab, YA (Wahab, Yasmin Abdul); Hamizi, NAB (Hamizi, Nor Aliya Binti); Marlinda, AR (Marlinda, A. R.); Johan, MR (Johan, Mohd Rafie); Ahmad, N (Ahmad, Naushad); Umar, A (Umar, Ahmad); Khan, MA (Khan, M. Ajmal); Algarni, H (Algarni, H.)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 9 **Pages:** 5452-5457 **DOI:** 10.1166/jnn.2020.17855 **Published:** SEP 2020

Abstract: Nanostructure materials are of interest in last few decades due to their unique size-dependent physio-chemical properties. In this paper, zinc oxide (ZnO) and barium doped ZnO nanodisks (NDs) were synthesized using sonochemical method and characterized by various techniques such as X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy, scanning electron microscope (SEM), UV-vis absorption and dielectric measurements. The XRD and FTIR studies confirm the crystalline nature of ZnO NDs, and the average crystallite size was found to be similar to 25 nm for pure ZnO and similar to 22 nm for Ba doped ZnO NDs. SEM study confirmed the spherical shaped ZnO NDs with average sizes in the range of 20-30 nm. The maximum absorbance was obtained in the 200-500 nm regions with a prominent peak absorbance were observed by UV-vis spectra. The corresponding band gap for ZnO NDs and Ba doped ZnO NDs were calculated using Tauc's plot and was found to be 3.12 and 3.04, respectively. The conductivity and dielectric measurements as a function of frequency have been studied.

Accession Number: WOS:000528206000023

PubMed ID: 32331117

Author Identifiers:

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Ahmad, Naushad	ABC-8519-2020	
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ISSN: 1533-4880

eISSN: 1533-4899

Record 95 of 243

Title: Structural, Optical and Magnetic Properties of Zn1-xCoxO Nanoparticles

Author(s): Sundaram, RS (Sundaram, R. Shunmuga); Arivazhagan, G (Arivazhagan, G.); Inbanathan, SSR (Inbanathan, S. S. R.); Hussian, S (Hussian, Shamima); Manikandan, E (Manikandan, E.); Umar, A (Umar, Ahmad); Khan, MA (Khan, M. Ajmal); Algarni, H (Algarni, H.)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 9 **Pages:** 5525-5532 **DOI:** 10.1166/jnn.2020.17812 **Published:** SEP 2020

Abstract: Zn1-xCoxO nanoparticles with three different values of 'x' (x = 0.05, 0.10, 0.15) were prepared by chemical co-precipitation process without any further heat treatment. The X-ray diffraction studies confirmed the wurtzite hexagonal crystal structure for synthesized Zn1-xCoxO nanoparticles. The dislocation density results reveal that there is an increase in the concentration of lattice imperfections with increasing the concentration of Co ions. The true values of lattice constants were calculated by using Nelson-Riley Function (NRF). Further, the average bond length (BL) were also calculated and presented. The optical and magnetic properties of Znx-1CoxO nanoparticles were examined by room-temperature photoluminescence (PL) spectroscopy and vibrating sample magnetometer (VSM), respectively. The calculated values of magnetic susceptibility for Znx-1CoxO nanoparticles with x = 0.05, 0.10, 0.15 were found to be 9.883 x 10(-4), 2.29 x 10(-2) and 2.37 x 10(-2), respectively.

Accession Number: WOS:000528206000036

PubMed ID: 32331130

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Arivazhagan, G	ABG-3940-2020	

ISSN: 1533-4880

eISSN: 1533-4899

Record 96 of 243

Title: Visible-Light Driven Effective Photocatalytic Degradation of Methylene Blue Dye Using Perforated Curly Zn0.1Ni0.9O Nanosheets

Author(s): Karthikeyan, V (Karthikeyan, V); Gnanamoorthy, G (Gnanamoorthy, G.); Prasath, PV (Prasath, P. Varun); Narayanan, V (Narayanan, V); Sagadevan, S (Sagadevan, Suresh); Umar, A (Umar, Ahmad); Khan, MA (Khan, M. Ajmal); Yousef, E (Yousef, El Sayed); Ahmad, N (Ahmad, Naushad)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 9 **Pages:** 5759-5764 **DOI:** 10.1166/jnn.2020.17898 **Published:** SEP 2020

Abstract: Herein, we report the facile synthesis, characterization and visible-light-driven photocatalytic degradation of perforated curly Zn0.1Ni0.9O nanosheets synthesized by hydrothermal process. The X-ray diffraction (XRD) and scanning electron microscopy (SEM) studies confirmed the cubic phase crystalline structure and growth of high density perforated curly Zn0.1Ni0.9O nanosheets, respectively. As a photocatalyst, using methylene blue (MB) as model pollutant, the synthesized nanosheets demonstrated a high degradation efficiency of 76% in 60 min under visible light irradiation. The observed results suggest that the synthesized Zn0.1Ni0.9O nanosheets are attractive photocatalysts for the degradation of toxic organic waste in the water under visible light.

Accession Number: WOS:000528206000081

PubMed ID: 32331175

Author Identifiers:

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Ahmad, Naushad	ABC-8519-2020	

ISSN: 1533-4880

eISSN: 1533-4899

Record 97 of 243

Title: Effect of chromium ions on the structural, magnetic, and optical properties of manganese-zinc ferrite nanoparticles

Author(s): Sharma, A (Sharma, Anjana); Batoo, KM (Batoo, Khalid Mujasam); Raslan, EH (Raslan, Emad H.); Kumar, G (Kumar, Gagan)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 19 **Pages:** 16959-16967 **DOI:** 10.1007/s10854-020-04252-3 **Early Access Date:** AUG 2020 **Published:** OCT 2020

Abstract: The present work describes the synthesis of Mn0.5Zn0.5CrxFe2-xO4(x = 0.1, 0.2, 0.3) ferrite nanoparticles by solution combustion method and their detailed structural, electrical, magnetic, and optical characterizations. X-ray pattern represents the creation of a single spinel structure. In addition to this, the distribution of cations is also approximated from X-ray study which is then authenticated by the magnetization technique also. The crystalline size (23-21 nm) and lattice parameter (8.39-8.30 angstrom) are found to shrink with the rise in chromium ions. A decrease in saturation magnetization (0.80-0.64 emu/g) and remanent magnetization (0.05-0.03 emu/g) is found with the rise in chromium ions, while the coercivity is found to increase (83-123 Oe) through the adding of chromium ions. FTIR predicted the two absorption bands (nu(1)and nu(2)) near 600 and 400 cm(-1). Dielectric constant and loss tangent were observed to decrease with an increase in frequency, whereas AC conductivity attains a nearly constant value at a lower frequency and observed to increase at higher frequencies with the addition of dopant.

Accession Number: WOS:000563045100008

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Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203

ISSN: 0957-4522

eISSN: 1573-482X

Record 98 of 243

Title: RAMAN STRUCTURAL AND GAMMA RADIATION SHIELDING FEATURES FOR AMORPHOUS MATERIALS: TLBLa(Nb/Ti)

Author(s): Almohiy, H (Almohiy, H.); Saad, M (Saad, M.); Shaaban, ER (Shaaban, E. R.); Abou Deif, YM (Abou Deif, Y. M.); Reben, M (Reben, M.); Yousef, E (Yousef, E.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 8 **Pages:** 397-403 **Published:** AUG 2020

Abstract: The gamma radiation protection parameter for the TeO2-LINbO3-BaF2-La2O3 network modified by Nb2O5/TiO2 in the present work. The following compounds have been examined: [77.53TeO(2)-7.31LiNbO(3)-4.16Nb(2)O(5)-10% BaF2-1.0La(2)O(3), sample code TSH1), [71.69TeO(2)-7.31LiNbO(3)-10BaF(2)-1.0La(2)O(3), sample TSH2] and [76.69TeO(2)-7.31LiNbO(3)-5TiO(2)-10BaF(2)-1% La2O3 and sample code TSH3]. Within this, we specify the criteria for shielding such as mass attenuation coefficients (mu(m)/rho), effective atomic numbers (Z(eff)), electron density (Ne), half-value layers (HVL), mean free path (MFP). The TSH3 glasses have a greater gamma-ray safety performance because of a higher value of HVL, (mu(m)/.), and MFP. The observed glasses display good gamma ray safety compared to used standard radiation-shielding materials, namely RS-360, and RS-520. Finally, the structure of these glasses investigates at wavenumber in the range 50 to 1200 cm(-1) by using Raman spectra.

Accession Number: WOS:000560723000002

ISSN: 1584-8663

Record 99 of 243

Title: Facilely fabricated Sr@NiO/FTO films and their characterizations for opto-nonlinear applications

Author(s): Manthrammel, MA (Manthrammel, M. Aslam); Shkir, M (Shkir, Mohd); Ganesh, V (Ganesh, V.); Khan, A (Khan, Aslam); AlFaify, S (AlFaify, S.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 66 **Pages:** 91-101 **DOI:** 10.1016/j.cjph.2020.04.007 **Published:** AUG 2020

Abstract: Nickel oxide (NiO) is found to have several fascinating applications in optoelectronics and spintronic devices. Hence, herein we facilely fabricated the NiO thin films with 0.0, 1.0, 2.5 and 5.0 wt.% Sr doping by low-cost spin coater at RT. The single-phase confirmation of Sr@NiO films was done by X-ray diffraction and FT-Raman analyses. The crystallite size was estimated through Scherrer rule and noted to lie between 13 to 31 nm. The broad Raman peaks indicate low dimension nanostructured films formation. Sr doping in NiO was detected by EDX spectra and its homogeneity in final film by SEM e-mapping. AFM analysis revealed nano-spherical grains in all films. The grown films were tested for optical transparency and noticed that the films are transparent viz. similar to 45 to 65% over 500 to 1400 nm wavelength region. The direct energy gap and refractive index was determined and lies between 3.74 to 3.84 eV and 1.6 and 2.2 in the visible, correspondingly. The values of dielectric constant were calculated in range from 2 to 60. The linear, third order nonlinear and nonlinear refractive index values are noted to be enhanced by Sr content in energy range from 1 to 4 eV. The enhanced energy gap and nonlinear activities signify the importance of the grown Sr@NiO films for optoelectronics.

Accession Number: WOS:000558937700010

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ISSN: 0577-9073

Record 100 of 243

Title: Investigation of the correlation between physico-chemical, optical and thermal properties of (GeS2)(60)(Sb2S3)(40-x)(CdCl2)(x)chalcohalide glasses

Author(s): Kebaili, I (Kebaili, Imen); Boukhris, I (Boukhris, Imed); Dahshan, A (Dahshan, A.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 8 **Article Number:** 085704 **DOI:** 10.1088/1402-4896/aba2f9 **Published:** AUG 2020

Abstract: The correlation between physico-chemical, optical, and thermal properties of (GeS2)(60)(Sb2S3)(40-x)(CdCl2)(x)(x = 0, 10, 20, 30, and 40 mol%) chalcohalide glasses was systematically investigated through the replacement of Sb(2)S(3)by CdCl2. The optical band gap was estimated based on the system density, and it was turned out that it hardly increased from 2.16 to 2.3 eV with increasing CdCl(2)content from 0 to 40 mol%. Moreover, we theoretically determined the valence band (E-VB) and conduction band (E-CB) positions using the calculated band gap values. The molar volume of the studied system increased while the density as well as the packing density decreased by increasing CdCl(2)content. The average coordination number, the constraints number, the mean bond energy, and the average heat of atomization have been calculated via the chemical bond approach and have been found to decrease when the CdCl(2)content increases. On the other hand, the number of lone-pair electrons and the cohesive energy have been found to increase. Finally, the variation of the glass-transition temperature was also discussed in terms of the overall mean bond, and it was found to decrease with increasing CdCl(2)content.

Accession Number: WOS:000553716300001

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ISSN: 0031-8949

eISSN: 1402-4896

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Record 101 of 243

Title: Methanol solvent effect on photosensing performance of AZO thin films grown by nebulizer spray pyrolysis

Author(s): Kumar, KDA (Kumar, K. Deva Arun); Mele, P (Mele, Paolo); Ponraj, JS (Ponraj, Joice Sophia); Haunsbhavi, K (Haunsbhavi, Kumar); Varadharajaperumal, S (Varadharajaperumal, S.); Alagarasan, D (Alagarasan, Devarajan); Algarni, H (Algarni, H.); Angadi, B (Angadi, Basavaraj); Murahari, P (Murahari, Prashantha); Ramesh, K (Ramesh, K.)

Source: SEMICONDUCTOR SCIENCE AND TECHNOLOGY **Volume:** 35 **Issue:** 8 **Article Number:** 085013 **DOI:** 10.1088/1361-6641/ab9208 **Published:** AUG 2020

Abstract: Dopant concentration variation or solvent change is commonly used for the growth and characterization of doped metallic thin films In contrast, we have studied the effects of varying methanol solvent volume ratio for aluminum doped zinc oxide (AZO) thin film growth. AZO thin films were coated on glass and ITO substrates by nebulizer spray pyrolysis method. The effect of different solvent concentrations and the water to methanol ratio on the resultant film properties were analyzed. The structural and lattice constants of the prepared films were investigated by x-ray diffraction (XRD). Pure methanol solvent enhances the structural quality of the AZO film, as confirmed from the XRD and x-ray photoelectron spectroscopy analyses. The atomic force microscopy images showed thinner and smooth film surface for the pure methanol solvent condition without water. The optical absorption study showed a high transmittance (similar to 93%) in the visible region with a bandgap of 3.30 eV, which is close to bulk ZnO (3.36 eV). The photoluminescence spectra showed a powerful UV emission at 390 nm, indicating that the films were of good quality. Ag/AZO/Cu2O/ITO structured photodiodes were fabricated using ITO substrate and their photosensing properties were studied. All the prepared films (S1, S2, S3, S4 and S5) showed an increase in current level for both dark and light conditions, with an increase in methanol solvent ratio. The film S5 (pure methanol solvent) under the dark and light illumination conditions at a bias of 1.0 V, showed current values of similar to 6.5 x 10(-5) A and similar to 1.85 x 10(-4) A, respectively.

Accession Number: WOS:000548365500001

Author Identifiers:

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ISSN: 0268-1242

eISSN: 1361-6641

Record 102 of 243

Title: Structural, magnetic and electrical characterization of Cr-doped lead-free multiferroic AlFeO3 prepared by co-precipitation and solid state method

Author(s): Amami, M (Amami, Mongi); Ben Farhat, L (Ben Farhat, Lamia); Ben Ahmed, S (Ben Ahmed, Samia); Ezzine, S (Ezzine, Safa)

Source: INTERNATIONAL JOURNAL OF MODERN PHYSICS B **Volume:** 34 **Issue:** 19 **Article Number:** 2050183 **DOI:** 10.1142/S0217979220501830 **Published:** JUL 30 2020

Abstract: Polycrystalline samples AlFe0.95Cr0.05O3 synthetized by a solid state and a co-precipitation (cop) method show an orthorhombic system in space group Pc21n. It was found that the cation distribution and magnetic ordering depend toughly on the preparation conductions. The dielectric and conductivity properties of samples were studied as function of frequency and temperature. We deployed impedance spectroscopy in studying the dielectric behavior of AlFe0.95Cr0.05O3. The significant results of this work are as follows: For both samples, permittivity and dielectric loss are very sensitive to temperature and frequency variation. The presence of additional effects and conducting species in AFCr5 ceramics leads to high dielectric permittivity. The activation energy values point towards the small range motion of oxygen at low-temperature and long range motion at high-temperature. The dielectric response, in case of AFCr5-s, was assigned to both grain and grain boundaries. However, additional entity pores also contribute to dielectric belongings of AFCr5-cop.

Accession Number: WOS:000563093700009

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ISSN: 0217-9792

eISSN: 1793-6578

Record 103 of 243

Title: Investigation of Optical and Electrical Properties of Different Compositions of As-S-Se Thin Films at Thickness 725 nm With High Precision Using a Wedge-Shaped Optical Model

Author(s): Qasem, A (Qasem, Ammar); Shaaban, ER (Shaaban, E. R.); Hassaan, MY (Hassaan, M. Y.); Moustafa, MG (Moustafa, M. G.); Hammam, MAS (Hammam, Mohamed A. S.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 10 **Pages:** 5750-5761 **DOI:** 10.1007/s11664-020-08347-9 **Early Access Date:** JUL 2020 **Published:** OCT 2020

Abstract: Different compositions of as-obtained As(40)S(60-x)Se(x)thin films (x = 0 at.%, 20 at.%, 40 at.%, and 60 at.%) with fixed thicknesses were deposited by a thermal evaporation technique. Inheterogeneities of thin-film thickness is a problem that includes significant errors of optical calculations unless there is an optical model that prevents these errors, and the consequent gross errors, in the measurement of optical constants. If not taken into account, this may lead to rather large calculated values for the absorption coefficient or the incorrect presence of the absorption-band tail, as well as to significant errors in the calculated values of the refractive index and film thickness. The optical properties of As(40)S(60-x)Se(x)thin films have been determined utilizing measurements of the optical transmission spectra. Owing to the shrinking of the transmission spectra in both the medium and strong absorption regions, we

have resorted to applying the optical wedge model for the determination of the film thickness with high precision that equals approximately 725 nm. This paper therefore presents formulae for the transmittance spectrum of a thin dielectric film of selected thickness covering a thick, non-absorbing substrate as well as its upper and lower envelopes. The effect of the content variation on the interference fringes of the transmittance spectrum is analyzed in detail. The electrical properties of the As(40)S(60-x)Se(x)thin films have been studied in terms of measuring the temperature-dependent AC conductivity. Both the dielectric constants and dielectric modulus were investigated and are discussed for applications in optoelectronic devices. The change in electrical properties of As(40)S(60-x)Se(x)thin films has been interpreted in terms of changed morphological and structural properties. The ratios of the elements were analyzed by comparing them with the actual weight ratios of the bulk material using EDX technology, in addition to the assessment of the Amorphic structure and composition characteristics of the films examined by the x-ray and scanning electron microscopy.

Accession Number: WOS:000559355800002

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ISSN: 0361-5235

eISSN: 1543-186X

Record 104 of 243

Title: Electronic properties, optical spectra and magnetisation of MnAs material under compression

Author(s): Algarni, H (Algarni, H.); Gueddim, A (Gueddim, A.); Bouarissa, N (Bouarissa, N.); Khan, MA (Khan, M. Ajmal)

Source: PHILOSOPHICAL MAGAZINE **Volume:** 100 **Issue:** 23 **Pages:** 2972-2985 **DOI:** 10.1080/14786435.2020.1799102 **Early Access Date:** JUL 2020 **Published:** DEC 1 2020

Abstract: We report on ab-initio all electrons spin-polarised density-functional calculations for the band structure, optical spectra and magnetisation of bulk MnAs with NiAs-type lattice structure with emphasis on their dependence on pressure. The aim of this contribution is to show how the investigated properties behave upon compression. Our findings are compared when possible with those reported in the literature showing generally reasonable accordance. Our results indicate that the material under load exhibits a metallic character. The studied optical spectra show an anisotropic character between thexandzdirections and are shifted downwards with raising pressure. The predicted static refractive index values depend on the direction, spin channel and pressure. The effect of the spin channel on the electronic and optical properties is found to be important. At zero pressure, MnAs reaches a total magnetic moment of the order of 5.69 mu(B)per cell which decreases with raising pressure. The material of interest can be regarded as a good candidate for use in fabricating novel functional materials due to the spin degree of freedom.

Accession Number: WOS:000555222100001

ISSN: 1478-6435

eISSN: 1478-6443

Record 105 of 243

Title: Illumination impact on the electrical characteristics of Au/Sunset Yellow/n-Si/Au hybrid Schottky diode

Author(s): Imer, AG (Imer, A. G.); Kaya, E (Kaya, E.); Dere, A (Dere, A.); Al-Sehemi, AG (Al-Sehemi, A. G.); Al-Ghamdi, AA (Al-Ghamdi, A. A.); Karabulut, A (Karabulut, A.); Yakuphanoglu, F (Yakuphanoglu, F.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 17 **Pages:** 14665-14673 **DOI:** 10.1007/s10854-020-04029-8 **Early Access Date:** JUL 2020 **Published:** SEP 2020

Abstract: In this study, semiconductor device applications of organic material sunset yellow (SY) (C16H10N2Na2O7S2) has been investigated. The SY thin film was grown onn-Si via spin coating method and theAu/SY/n-Si/Auheterojunction was fabricated. The basic diode parameters of device were determined by the current-voltage (I-V) and capacitance-voltage (C-V) measurements at the room temperature. The values of the ideality factory (n) and barrier height (phi(b)) were evaluated as 1.15 and 0.70 eV, respectively; and series resistance (R-s) of device was found using Norde functions. The values of built in potential, donor concentration, Fermi energy level and barrier height were also estimated from the linearC(-2)-Vcurves with reverse bias room temperature and difference frequency. Furthermore,I-Vmeasurements were applied under different illuminations; some photoelectrical parameters of device were evaluated to understand the photo response properties of the device. Consequently, the results confirmed that the barrier height can be modified by interfacial SY layer, and the device can be used in optoelectronic applications such as optical sensor or photodiode.

Accession Number: WOS:000553322800003

Author Identifiers:

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al-sehemi, Abdullah	AAM-4039-2020	
Al-Sehemi, Abdullah	AAK-5902-2020	

ISSN: 0957-4522

eISSN: 1573-482X

Record 106 of 243

Title: Kramers-Kronig calculations for linear and nonlinear optics of nanostructured methyl violet (CI-42535): New trend in laser power attenuation using dyes (vol 552, 52, 2019)

Author(s): Assiri, MA (Assiri, Mohammed A.); Manthrammel, MA (Manthrammel, M. Aslam); Aboraia, AM (Aboraia, A. M.); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Ganesh, V (Ganesh, V.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.); Soldatov, AV (Soldatov, Alexer V.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 589 **Article Number:** 412218 **DOI:** 10.1016/j.physb.2020.412218 **Published:** JUL 15 2020

Accession Number: WOS:000538790800009

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ISSN: 0921-4526

eISSN: 1873-2135

Record 107 of 243

Title: Numerical examination for nanomaterial forced convection within a permeable cavity involving magnetic forces

Author(s): Shafee, A (Shafee, Ahmad); Muhammad, T (Muhammad, Taseer); Alsakran, R (Alsakran, Reem); Tlili, I (Tlili, Iskander); Babazadeh, H (Babazadeh, Houman); Khan, U (Khan, Umar)

Source: PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS **Volume:** 550 **Article Number:** 123962 **DOI:** 10.1016/j.physa.2019.123962 **Published:** JUL 15 2020

Abstract: In current research, Lattice Boltzmann technique was hired to analyze MHD nanomaterial treatment within a permeable geometry. Brownian movement effect is included in relation of nanofluid. Importance of nanoliquid volume fraction f, Hartmann parameter Ha, Reynolds parameter Re and Darcy parameter Da are illustrated. Outputs depict that isotherms accumulate next to upper surface with the rise of Da and Re. Thermal plume becomes weaker with the rise of Ha. To better describing the role of variables, new formula was derived and related profiles were drawn. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000528310200011

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Shafee, A.	ABF-2812-2020	
Babazadeh, H	ABF-3389-2020	

ISSN: 0378-4371

eISSN: 1873-2119

Record 108 of 243

Title: Convective self-assembled processed multiwall carbon nanotube thin films for semi-transparent microelectronic applications

Author(s): Nawar, AM (Nawar, Ahmed M.); Yahia, IS (Yahia, I. S.); Al-Kotb, MS (Al-Kotb, M. S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 15 **Pages:** 12127-12136 **DOI:** 10.1007/s10854-020-03759-z **Early Access Date:** JUL 2020 **Published:** AUG 2020

Abstract: A self-assembled convective setup was utilized to manufacture multiwall carbon nanotube (MWCNTs) thin films at room temperature on glass substrates. The extracted X-ray diffraction patterns revealed that the manufactured MWCNTs films have a crystal structure with observed peaks at 2 theta= 26.61 degrees, 43.45 degrees, and 53.1 degrees, and are related to the (002), (101) and (004) planes, respectively, confined to graphite of a hexagonal structure. The Raman spectroscopic behavior of the samples was investigated, and the intensity of the D:G band ratio was utilized to estimate the crystallinity degree of carbon in the MWCNTs samples (similar to 0.81). The SEM images of the films showed that the topographical properties of the films are retained and densely packed, confirming a network distribution. Briefly, the films are significantly influenced to have a rod-like shape of the MWCNTs. The analyzed HR-TEM images of the films have a uniform structure with cylindrical-shaped MWCNTs. When the energy of the probe waves was similar to 3.95 eV, the reflected and transmitted probe wave vanished. The fabricated MWCNTs films may play an essential role as a real absorber with an absorption coefficient alpha(h upsilon = 3.5 eV) approximate to 5.36 x 10(5) cm(-1). The manufactured MWCNTs films are found to support the interpretation of a direct bandgap; the evaluated energy gap is E-g(OPT) =3.748 eV as a result of the carbon atoms impurities; and a direct transition at low energy is estimated by E-g(Onset) = 0.59eV. The performance of the fabricated films is predicted and analyzed by the complex parameters: dispersion, n*, optical dielectric, epsilon*, and optical conductivity, sigma*. The manufactured MWCNTs provide a pathway to fabricate a broadband stable behavioral absorptive layer for photovoltaic devices and optical switching optoelectronics (at low reflectance and transmittance with high absorbance).

Accession Number: WOS:000546770800001

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ISSN: 0957-4522

eISSN: 1573-482X

Record 109 of 243

Title: Effect of La incorporation on the NH(3)sensing behaviour of ZnO thin films prepared using low-cost nebulizer spray technique

Author(s): Santhosam, AJ (Santhosam, A. Jansi); Ravichandran, K (Ravichandran, K.); Shkir, M (Shkir, Mohd.); Sridharan, M (Sridharan, M.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 16 **Pages:** 13240-13248 **DOI:** 10.1007/s10854-020-03875-w **Early Access Date:** JUL 2020 **Published:** AUG 2020

Abstract: Lanthanum-doped zinc oxide (ZnO:La) thin films were deposited using a nebulizer spray technique with La concentrations 0, 1, 3 and 5 wt%. The structural, morphological and gas sensing properties were studied. All the film samples exhibit considerable ammonia sensing ability. The gas sensing results show that the ZnO:La film with 3 wt% of La doping exhibits remarkable sensing response and fast response/recovery times (39 s/11 s) for 100 ppm of NH(3)at room temperature. The reasons for the enhanced sensing ability of the doped films have been addressed with the help of the underlying mechanism, atomic force microscopy (AFM) and photoluminescence (PL) results.

Accession Number: WOS:000546770800006

ISSN: 0957-4522

eISSN: 1573-482X

Record 110 of 243

Title: Facile hydrothermal synthesis of highly efficient and visible light-driven Ni-doped V(2)O(5)photocatalyst for degradation of Rhodamine B dye

Author(s): Rafique, M (Rafique, Muhammad); Hamza, M (Hamza, Muhammad); Tahir, MB (Tahir, Muhammad Bilal); Muhammad, S (Muhammad, Shabbir); Al-Sehemi, AG (Al-Sehemi, Abdullah G.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 15 **Pages:** 12913-12925 **DOI:** 10.1007/s10854-020-03844-3 **Early Access Date:** JUL 2020 **Published:** AUG 2020

Abstract: Nickel-doped vanadium pentoxide (Ni-doped V2O5) photocatalyst is prepared through facile hydrothermal method to investigate its performance as photocatalyst in degradation of Rhodamine B (RhB) dye. Different characterization tools are employed for the investigation of structural, morphological and optical characteristics of Ni-doped V2O5. X-ray Diffraction technique confirms the formation of orthorhombic V(2)O(5)and shows stable phase upon doping. The rod-like layer structure morphology is presented through Scanning Electron Microscopy. Energy Dispersive X-ray Spectroscopy confirms the purity of the prepared samples. The optical characteristics are evaluated through UV-Visible spectroscopy which reveals that bandgap of the material is decreased with increasing doping of Ni. The emission spectra of Ni-doped V(2)O(5)is obtained through Photoluminescence Spectroscopy which confirms that the synthesized material is visible light-driven. The photocatalytic activity of optimized samples is evaluated through studying its potential in degradation of RhB dye. The influence of different parameters, i.e., light irradiation time, temperature of solution, pH of solution, amount of catalyst, etc., on the performance of photocatalyst is also studied. The degradation of RhB follows the pseudo first-order linear kinetics with degradation rate of 0.144 min(-1). The stability experiment ensures that Ni-doped V(2)O(5)has potential to degrade the organic pollutants and dyes polluted wastewater for a number of cycles.

Accession Number: WOS:000546398100007

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Al-Sehemi, Abdullah	AAK-5902-2020	
Tahir, Muhammad Bilal	B-1448-2019	0000-0002-0495-0236

ISSN: 0957-4522

eISSN: 1573-482X

Record 111 of 243

Title: ANNEALED TIN SELENIDE (SnSe) THIN FILM MATERIAL FOR SOLAR CELL APPLICATION

Author(s): Shahzad, N (Shahzad, N.); Ali, N (Ali, N.); Haq, I (Haq, I); Shah, SW (Shah, S. W.); Ali, S (Ali, S.); Ahmad, QS (Ahmad, Q. S.); Azlullah, F (Azlullah, F.); Kalam, A (Kalam, A.); Al-Sehemi, AG (Al-Sehemi, A. G.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 7 **Pages:** 347-351 **Published:** JUL 2020

Abstract: The main theme of this work is the synthesis and characterization of SnSe thin film for photovoltaic application. 2-micron Tin Selenide thin film is deposited on clean glass substrate (4cmx4cm) by thermal evaporation technique. The sample is annealed for one hour at a temperature of 350 degrees C. Optical characterization is achieved for the calculation of transmittance, reflection, reflection and absorbance. 1.2 eV band gap is calculated which confirmed the semiconductor nature of thin film. Relatively high resistance (5M Omega) of the sample is calculated using I-V characteristics.

Accession Number: WOS:000560633800003

Author Identifiers:

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ISSN: 1584-8663

Record 112 of 243

Title: EFFECT OF UV-IRRADIATION TIME ON THE STRUCTURAL AND OPTICAL PROPERTIES OF POLYCRYSTALLINE OF 720 NM OF ZnSe FILM FOR OPTOELECTRONIC APPLICATIONS

Author(s): Abdeljalil, MH (Abdeljalil, M. H.); El-Taher, A (El-Taher, A.); Othman, AA (Othman, A. A.); Ali, GAM (Ali, G. A. M.); Yousef, ES (Yousef, E. S.); Shaaban, ER (Shaaban, E. R.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 7 **Pages:** 361-373 **Published:** JUL 2020

Abstract: Polycrystalline ZnSe thin films with thickness 720 nm were prepared by thermal evaporation under ultra vacuum onto glass substrates. The optical properties of the as deposited and UV-irradiated films with different exposure times (0, 30, 60, 90, and 120 min.) were reported. The polycrystalline nature of the films was detected by XRD measurements. XRD patterns for UV irradiated films show that the intensities of the peaks increase with increasing the UV-irradiated time but the full width at half maximum (FWHM) decreases. The optical constants of the films were calculated by Swanepoel's method in terms of wedge shape model to obtain both thickness and refractive index with high precision. The energy gap of ZnSe films was determined by using the transmission in terms of transmission spectra in the strong absorption region. In terms of the obtained results, the increase of exposure time improved shrinkage of non-uniform transmission in both the strong and medium absorption region of ZnSe film. The optimal improvement was at UV-irradiation time equal 120 min. Accordingly, the possibility of asserting that such tenability in the optical refractive index and energy gap of ZnSe thin films with UV-irradiation serves as a promising film in optoelectronic devices.

Accession Number: WOS:000560633800005

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ISSN: 1584-8663

Record 113 of 243

Title: A SILAR fabrication of nanostructured ZnO thin films and their characterizations for gas sensing applications: An effect of Ag concentration

Author(s): Devi, KR (Devi, K. Radhi); Selvan, G (Selvan, G.); Karunakaran, M (Karunakaran, M.); Kasirajan, K (Kasirajan, K.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 143 **Article Number:** 106547 **DOI:** 10.1016/j.spmi.2020.106547 **Published:** JUL 2020

Abstract: Gas sensing device development is a key field of research in the recent scenario, Hence, in this work, facile fabrication of ZnO films with diverse content of Ag was accomplished as a vapor sensor using a cost-effective successive ionic layer adsorption and reaction (SILAR) process. X-ray diffraction (XRD) analysis provides evidence about the good crystalline nature of grown ZnO: Ag films and crystallite size was decreased from 38 to 27 nm with Ag content increased from 0 to 5 wt.%. Scanning electron microscope (SEM) analysis revealed the remarkable modification in morphology from nanograins (undoped) to nanomds (5 wt.% Ag). Energy dispersive analysis of X-rays (EDX) supports the Zn, 0, and Ag content present in the final film. The prepared Ag-doped ZnO films exhibited good optical nature and an improvement in the energy gap from 3.04 to 3.29 eV was noticed. The responsivity, response and recovery time of ammonia vapor sensor were remarkably enhanced to 8260 %, 27 s, and 7 s respectively, for the 5 wt.% Ag doped ZnO nanofilm. The responsivity of 5 wt.% Ag doped film was 15 times that of undoped ZnO film. These results make low cost grown Ag-doped ZnO nanorod a good candidate for high quality vapor sensor.

Accession Number: WOS:000547103300002

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ISSN: 0749-6036

Record 114 of 243

Title: Opto-dielectric-nonlinear properties of Na-Zn-CdS alloys nanostructure thin films: Role of Zn doping

Author(s): Khan, ZR (Khan, Ziaul Raza); Munirah (Munirah); Shkir, M (Shkir, Mohd); Alfaify, S (Alfaify, S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 588 **Article Number:** 412194 **DOI:** 10.1016/j.physb.2020.412194 **Published:** JUL 1 2020

Abstract: Na-Zn-CdS alloys nanostructure films with different doping concentration of Zn (Zn = 1, 2, 3 and 4 wt %) were developed. Structural investigation of films showed that the films have broadened peak at 2. angle similar to 26.53.along with cubic zinc blende structure. Grain size of films were found in few nanometer range, which was confirmed from SEM. The vibration spectra of films revealed the characteristics peaks of CdS which are centered at 308-301 cm(-1) and first overtone at 604-613 cm(-1). The band gap values were obtained in the range of 2.40-2.46 eV. A broadening in optical band gap was observed with increase in Zn concentration. Third-order nonlinear optical susceptibility chi((3)) and refractive index n((2)) were obtained over the range of 2.92 x 10(-13)-1.0 x 10(-11) esu, and 6.78 x 10(-12)-7.22 x 10(-10) esu, respectively. Photoluminescence spectra of films exhibited the band to band transition with deep level emission (DLE) within the range of 554-568 nm for all films.

Accession Number: WOS:000536800500002

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ISSN: 0921-4526

eISSN: 1873-2135

Record 115 of 243

Title: Synthesis of CuFe2-xErxO4 nanoparticles and their magnetic, structural and dielectric properties

Author(s): Mustaqeem, M (Mustaqeem, Mujahid); Mahmood, K (Mahmood, Khalid); Saleh, TA (Saleh, Tawfik A.); Rehman, AU (Rehman, Aziz Ur); Ahmad, M (Ahmad, Muhammad); Gilani, ZA (Gilani, Zaheer Abbas); Asif, M (Asif, Muhammad)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 588 **Article Number:** 412176 **DOI:** 10.1016/j.physb.2020.412176 **Published:** JUL 1 2020

Abstract: Erbium-doped nanocrystalline, Cu-ferrites, chemically known as CuFe2-xErxO4 (x = 0.04, 0.08, 0.12, 0.16, 0.20) were synthesized. The effects of Er3+-doped on magnetic, structural and dielectric behaviour of CuFe2O4 were studied by XRD, Scanning Electron Microscope (SEM), TGA, FTIR, VSM, and dielectric analysis. The CuFe2-xErxO4 ferrites crystallize in spinel cubic structures with ex. 0.12. SEM data demonstrated that their spherical morphology and crystalline size was <50 nm. The XRD spectra of all the prepared samples exhibited peaks of single-phase spinel ferrites. The lattice parameter (A) was amplified with the ascent of Er3+ concentration in the latticework. The FTIR patterns of the synthesized ferrites described the asymmetric stretching mode of spinel transition AB(2)O(4). SEM photography confirms that the particle size had developed up to 500 nm after doping of Er3+. The maximum saturation magnetization (Ms similar to 38.01 emug(-1)) was observed for CuFe2O4. It was found that the decreasing in temperature leads to the great enhancement in the magnetic properties of the examined samples. As the magnetic recording performance of the magnetic samples is enhanced for wellcrystallized samples with nano-structural, the effect of Er3+ substitution appears to be particularly valuable in this respect.

Accession Number: WOS:000537133500013

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ISSN: 0921-4526

eISSN: 1873-2135

Record 116 of 243

Title: A rapid microwave synthesis of Ag2S nanoparticles and their photocatalytic performance under UV and visible light illumination for water treatment applications

Author(s): Al-Shehri, BM (Al-Shehri, Badria M.); Shkir, M (Shkir, Mohd); Bawazeer, TM (Bawazeer, Tahani M.); AlFaify, S (AlFaify, S.); Hamdy, MS (Hamdy, Mohamed S.)

Source: PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES **Volume:** 121 **Article Number:** 114060 **DOI:** 10.1016/j.physe.2020.114060 **Published:** JUL 2020

Abstract: In current work, silver sulfide nanoparticles (Ag2S NPs) were prepared in presence of 0.0, 0.1, 0.25.0.5 and 1.0 g of sodium dodecyl sulfate surfactant (named as S1, S2, S3, S4 and S5) though a microwave assisted route within 10 min of irradiation at 700 W power. XRD established decent crystalline nature of the prepared Ag2S NPs of crystallite size in range from 44 to 49 nm. Scanning electron microscopy showed that the synthesized particles have three-dimensional irregular shape, very close to fused-spheres or worm-like structure. More importantly; the size of the particles is decreased with the amount of the applied SDS surfactant. Kubelka-Munk relation was used to evaluate energy gap and noticed similar to 1.014 for S1, 1.017 eV for S2, 1.021 eV for S3, 1.023 eV for S4, and 1.026 eV for S5 samples, i.e. the energy gap is slightly increase with the amount of the applied SDS surfactant. The estimated refractive index values are noted in 1.51-2.2 range. Dielectric constant (epsilon(1)), loss tangent (tan delta) and dielectric loss (epsilon(2)) were calculated and shows high values of e epsilon(1) and low values of tan delta. The photocatalytic performance was examined in methyl green dye photocatalytic decolourization under illumination of UV/visible light. Ag2S samples exhibited excellent photocatalytic behavior, hence can be used in water treatment applications.

Accession Number: WOS:000533569800002

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ISSN: 1386-9477

eISSN: 1873-1759

Record 117 of 243

Title: Exploration of dilatant nanofluid effects conveying microorganism utilizing scaling group analysis: FDM Blottner

Author(s): Naganthran, K (Naganthran, Kohilavani); Basir, MFM (Basir, Md Faisal Md); Kasihmuddin, MSM (Kasihmuddin, Mohd Shareduwan Mohd); Ahmed, SE (Ahmed, Sameh E.); Olumide, FB (Olumide, Falodun Bidemi); Nazar, R (Nazar, Roslinda)

Source: PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS **Volume:** 549 **Article Number:** 124040 **DOI:** 10.1016/j.physa.2019.124040 **Published:** JUL 1 2020

Abstract: Biological transport in nanofluid is an essential new focus in fluid dynamics since the suspensions of microorganisms and nanoparticles proved to enhance the thermal conductivity of the fluid, which benefits many industrial applications for instances, biofuel cells and bio-microfluidics devices. In this regard, the present work is dedicated to investigating the effects of magnetohydrodynamics (MHD) and chemical reaction in the boundary layer flow, heat, mass and living microorganism transfer past a permeable stretching surface in a dilatant nanofluid. At the surface of the stretching sheet, there are multiple kinds of slips which affect the mechanisms within the vicinity of the boundary layer. The scaling group analysis has been performed to produce the appropriate similarity solution specifically for the present model. The governing boundary layer model in the form of the partial differential equations are reduced to a system of ordinary differential equations via similarity solutions to ease the computational process. The transformed mathematical model is then solved numerically via the Blottner's finite difference method (FDM). The presences of the velocity slip at the surface of the stretching sheet decelerated the fluid flow. (C) 2020 Elsevier B.V. All rights reserved.

Accession Number: WOS:000528208500015

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Nazar, Roslinda	G-2562-2017	0000-0002-6422-771X

ISSN: 0378-4371

eISSN: 1873-2119

Record 118 of 243

Title: Comprehensive Study on Nebulizer-Spray-Pyrolyzed Eu-Doped PbS Thin Films for Optoelectronic Applications

Author(s): Paulraj, K (Paulraj, K.); Ramaswamy, S (Ramaswamy, S.); Saravanakumar, S (Saravanakumar, S.); Shkir, M (Shkir, Mohd); Alfaify, S (Alfaify, S.); Khan, A (Khan, Aslam)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 9 **Special Issue:** SI **Pages:** 5439-5448 **DOI:** 10.1007/s11664-020-08267-8 **Early Access Date:** JUN 2020 **Published:** SEP 2020

Abstract: PbS films in undoped state and with various Eu contents (1 wt.%, 3 wt.%, and 5 wt.%) have been coated effectively on insulating glass substrates by a nebulized spray pyrolysis route. The effects of Eu doping on various properties including the photosensitivity of the PbS films were systematically analyzed. X-ray diffraction (XRD) analysis of the materials revealed a polycrystalline nature with crystallites showing simple cubic structure oriented along (200) direction. Based on the XRD data, the crystallite size, dislocation density, and lattice strain of the films with different doping concentrations were calculated and are consistently discussed. The secondary phase Eu(3)O(4)formed when the Eu doping level was higher in the host solution. The Raman peaks detected at 190 cm(-1), 236 cm(-1), and 465 cm(-1)confirmed formation of PbS. Scanning electron microscopy was used to reveal the morphology of the films as a function of the dopant concentration. Important optical properties including the bandgap, absorption coefficient, dielectric constant, index of refraction, and coefficient of extinction of the films are systematically reported. Optical study of the films revealed a variation of the bandgap from 2.14 eV to 2.81 eV with increasing Eu doping level. The 3 wt.% europium-doped PbS film showed better photosensitivity at 100 W/m(2)compared with the other films based on current-voltage (I-V) measurements.

Accession Number: WOS:000544546600004

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ISSN: 0361-5235
eISSN: 1543-186X

Record 119 of 243

Title: Detailed investigation of optical linearity and nonlinearity of nanostructured Ce-doped CdO thin films using Kramers-Kronig relations

Author(s): Ganesh, V (Ganesh, V); Haritha, L (Haritha, L.); Ali, HE (Ali, H. Elhosiny); Aboraia, AM (Aboraia, A. M.); Khairy, Y (Khairy, Yasmin); Hegazy, HH (Hegazy, H. H.); Butova, V (Butova, V); Soldatov, AV (Soldatov, Alexander, V); Algarni, H (Algarni, H.); Zahran, HY (Zahran, H. Y.); Yahia, IS (Yahia, I. S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 7 **Article Number:** 551 **DOI:** 10.1007/s00339-020-03727-8 **Published:** JUN 24 2020

Abstract: Sol-gel-assisted spin coating technique has been employed to deposit Ce-doped cadmium oxide films (CdO) thin films on a glass substrate. Structural analysis carried out by XRD revealed that the films are polycrystalline and crystallize in a cubic structure. The preferential directions for the CdO growth are (2 0 0), and (2 1 0) and doping of Ce ions inhibits the growth. In addition to XRD, Raman analysis also supports the crystalline phase with no impurities. Using the Kramers-Kronig relations, the dispersion relation is evaluated from which the refractive index and the absorption coefficient were derived. The deposited doped and pure CdO films are highly transparent. The energy gap values of pure and doped CdO films are in the range of 2.2-4.2 eV, making them suitable for optoelectronic applications. The lower values of 'n' and 'k' are making the films most significant. The dielectric constant and nonlinear optical properties showed an increasing tendency on doping Ce ions into CdO films.

Accession Number: WOS:000542640800001

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ISSN: 0947-8396
eISSN: 1432-0630

Record 120 of 243

Title: Effect Melting Time on the Excess Conductivity and Critical Parameters of BSCCO Cooper Oxide System

Author(s): Sedky, A (Sedky, A.); Ali, AM (Ali, Atif Mossad); Somaily, HH (Somaily, H. H.)

Source: JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM **Volume:** 33 **Issue:** 10 **Pages:** 2963-2969 **DOI:** 10.1007/s10948-020-05529-8 **Early Access Date:** JUN 2020 **Published:** OCT 2020

Abstract: We report here the effect of melting time (t(m)= 2.5-4.5 min) on the conductivity and dimensionality of BSCCO cooper oxide system. It is found that the mean field and crossover temperatures (T-c(mf), T-01, and T-02) are increased by increasing t(m)up to 3.5 min, followed by a decrease with further increase of t(m)up to 4.5 min. The logarithmic plots of excess conductivity (increment sigma) and reduced temperature (CYRILLIC CAPITAL LETTER UKRAINIAN IE) reveal three regions of different exponents corresponding to two crossover temperatures in the slope of each plot. Interestingly, the crossover occurs from three dimensional (3D) to zero dimensional (0D/SW) in the mean field region and from 0D/SW to two dimensional (2D) in the critical field region, for the samples melted at t(m)= 2.5, 4, and 4.5 min, while it occurs from (3D) to one dimensional (1D) and from (1D) to (2D) for the sample melted at t(m)= 3.5 min. On the other hand, we have estimated several physical parameters such as order parameter exponents (lambda), interlayer coupling (K), c-axis coherence length (xi(c)(0)), anisotropy (gamma), Ginsburg number (G(i)), critical magnetic fields (H-c(0),H-c1(0), andH(c2)(0)), and critical current (J(c)(0)) for all samples. It is found that lambda(1), lambda(3),K, xi(c)(0),G(i), and gamma are increased by increasing t(m)up to 3.5 min, followed by a decrease with further increase of t(m)up to 4.5 min as well asT(c),T-c(mf), andT(0)behaviors. But the vice is versa for the behaviors of lambda(2), kappa,H-c(0),H-c1(0),H-c2(0),J(c)(0), andN(G). Moreover, it is observed that the behavior of critical fields and critical current against melting time is controlled by the order parameter exponent of the second region rather than the first and third regions. These results are discussed in terms of the correlation between the effects of melting time on the weak links and the flow of actual supercurrent in the considered system.

Accession Number: WOS:000541316700001

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Somaily, Hamoud	AAO-7060-2020	0000-0002-1441-3493

ISSN: 1557-1939
eISSN: 1557-1947

Record 121 of 243

Title: Gamma-ray shielding parameters of lithium borotellurite glasses using Geant4 code

Author(s): Kebaili, I (Kebaili, Imen); Sayyed, MI (Sayyed, M., I); Boukhris, I (Boukhris, Imed); Al-Buriahi, MS (Al-Buriahi, M. S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 7 **Article Number:** 536 **DOI:** 10.1007/s00339-020-03702-3 **Published:** JUN 18 2020

Abstract: The gamma-ray shielding parameters for ternary lithium borotellurite systems have been reported using Geant4 code. We simulated the mass attenuation coefficients using Geanr4 code between 284 keV and 1.33 MeV. We checked the accuracy of the simulated results by using XCOM software. The Geant4 and XCOM results showed a reasonable agreement. The maximum linear attenuation coefficient (LAC) values were reported at 284 keV and varied between 0.77914 and 0.81525 cm. The minimum LAC is found at 1.33 MeV and varied between 0.23742 and 0.25005 cm. The LAC reduced by 59.7% for TeLiB1 between 284 and 826 keV, while it reduced by only 6.7% at higher energies. The half-value layer (HVL) decreased due to the increase of B(2)O(3)from 5 to 15 mol%, but the HVL values for the glasses which contain 80 mol% of TeO(2)are lower than the HVL for the first three compositions (contain 75 mol% of TeO2). TeLiB6 glass is the best attenuator in this study due to the least HVL values of this sample. The results also revealed that TeLiB1 glass with thickness of 2.94803 cm is required to reduce the photon level carrying energy of 284 keV by a factor of one-tenth. For TeLiB6, it requires a sample with a thickness of 2.82123 cm for this aim at the same energy. The effective atomic number for the ternary lithium borotellurite glasses with 80 mol% of TeO(2)is higher than those with 75 mol% of TeO2.

Accession Number: WOS:000546969700002

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boukhris, imed	AAY-3603-2020	

ISSN: 0947-8396

eISSN: 1432-0630

Record 122 of 243

Title: Effect of (SbS) addition on the physical properties of quaternary (CdTe)(100-x)(SbS)(x)(0 <= x <= 28 at. %) glasses and band gap engineering

Author(s): Boukhris, I (Boukhris, Imed); Kebaili, I (Kebaili, Imen); Neffati, R (Neffati, Riadh); Dahshan, A (Dahshan, A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 7 **Article Number:** 534 **DOI:** 10.1007/s00339-020-03703-2 **Published:** JUN 17 2020

Abstract: Effects of incorporating (SbS) in the quaternary (CdTe)(100-x)(SbS)(x)(x = 0, 8, 16, 20 and 28 at. %) glasses on different physico-chemical properties were investigated using the chemical bond approach. In addition to the estimation of the coordination number, constraint number (Ns), heat of atomization (H-s), cohesive energy and lone pair electrons, one presents theoretically the band gap estimation as well as the valence band (E-VB) and conduction band (E-CB) positions. The theoretical estimations of band gap are in good agreement with the previously published experimental results, and all compounds have their band gap in the infrared range (from 1.58 to 1.36 eV). Therefore, these materials may be used as an optical absorber in the wavelength range between 0.784 and 0.911 mu m. This indicates that the studied compositions could be used for the development of new-generation infrared systems as well as for solar cell devices. Furthermore, the increase of (SbS) content decreases the network rigidity, but due to the decrease in the excess of Cd-Cd, one found, in contrary, an increase in the cohesive energy of the system.

Accession Number: WOS:000542744500002

Author Identifiers:

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ISSN: 0947-8396

eISSN: 1432-0630

Record 123 of 243

Title: Impact of Se doping on optical and third-order nonlinear optical properties of spray pyrolysis fabricated CdS thin films for optoelectronics

Author(s): Shkir, M (Shkir, Mohd); Anis, M (Anis, Mohd); Shaikh, SS (Shaikh, S. S.); Hamdy, MS (Hamdy, Mohamed S.); AlFaify, S (AlFaify, S.)

Source: APPLIED PHYSICS B-LASERS AND OPTICS **Volume:** 126 **Issue:** 7 **Article Number:** 121 **DOI:** 10.1007/s00340-020-07472-x **Published:** JUN 15 2020

Abstract: Cadmium sulphide is known to have tremendous applications towards optoelectronic and nonlinear devices. Hence, here we have facilely casted the CdS films with diverse Se contents through low-cost spray pyrolysis technique. XRD study defends mono-phase formation of CdS having hexagonal system at all Se doping contents. Scherrer equation was employed to evaluate crystallite size in range of 15-25 nm. Vibrational study reveals the presence of fundamental modes of vibration of hexagonal CdS. EDX and SEM mapping studies approve the existence of Se and its homogeneous distribution all over the film. SEM micrographs shows the nanoscale grains formation on film surface and the size is increasing with Se doping. Optical study revealed that the grown films are of optimal quality with transparency in range of 60-75% with low absorbance and reflectance values. The refractive index values are noted to varied from 1 to 2.7 with wavelength and noticed to be reduced on Se content in UV-Vis region. The reduction in direct and indirect energy gap was found from 2.46 to 2.34 eV and 2.21 to 1.96 eV, correspondingly due to Se. PL emission profile contains an emission band at 528, 529, 529, 530 and 546 nm for 0.0, 0.5, 1.0, 2.5, 5.0 wt% Se:CdS films. Dielectric constant and loss were estimated. The nonlinear refraction (n(2)) and absorption coefficient (beta) and third-order nonlinear susceptibility (chi(3)) values were determined usingZ-scan and observed in order of 10(-8)cm(2)/W, 10(-4) cm/W and 10(-3) esu, correspondingly. The high values of chi(3) propose the films for nonlinear applications.

Accession Number: WOS:000544276100001

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ISSN: 0946-2171

eISSN: 1432-0649

Record 124 of 243

Title: Emission and opto-dielectric nonlinearity in 2D Cd-ZnO-Na nanostructures: an effect of Na doping

Author(s): Khan, ZR (Khan, Ziaul Raza); Alshammari, AS (Alshammari, Abdullah S.); Bouzidi, M (Bouzidi, M.); Gandouzi, M (Gandouzi, M.); Shkir, M (Shkir, Mohd); Alfaify, S (Alfaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 15 **Pages:** 12116-12126 **DOI:** 10.1007/s10854-020-03758-0 **Early Access Date:** JUN 2020 **Published:** AUG 2020

Abstract: Cd-ZnO-Na alloy nanostructured thin films were synthesized via sol-gel spin coating method on glass substrates and the effect of Na (1, 2 and 3 wt%) doping variation on linear, nonlinear optical, opto-dielectric, and emission properties of the films was investigated. The variations in physical properties with different Na doping concentrations were analyzed using X-ray diffraction (XRD), atomic force microscope (AFM), scanning electron microscope (SEM), FT-Raman, UV-Vis, and photoluminescence spectroscopy. From XRD patterns, it was observed that the growth of the films occurs along (002) plane with hexagonal wurtzite structure. High percentage of transmittance (viz. 85 to 90%) was recorded for all as grown films. However, the estimated

bandgap energy of the films was found to decrease from 3.37 to 3.30 eV with increasing Na doping concentration from 1 to 3 wt%. Emission spectra of the films show an intense and sharp peak near band emission (NBE) at 389 nm whereas a low intense peak was observed at 475 nm. The intensity of NBE peak specifies the significant enhancement in photoluminescence properties of the grown films with increasing Na doping concentrations. Nonlinear optical parameters of the Cd-ZnO-Na films such as chi(3)andn(2)showed substantial improvements, which were deduced and obtained in the range 1.11 x 10(-14)-1.91 x 10(-12)esu and 5.20 x 10(-13)-3.19 x 10(-11)esu, respectively. The achieved improvement in the grown ZnO films via co-doping with Cd and Na makes them highly suitable candidates for optoelectronics devices applications.

Accession Number: WOS:000541265300003

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ISSN: 0957-4522

eISSN: 1573-482X

Record 125 of 243

Title: Study of the physical properties of quaternary Ge-As-Te-Pb thin films for technology applications

Author(s): Ahmad, M (Ahmad, Mahmoud); Aly, KA (Aly, K. A.); Dahshan, A (Dahshan, A.); Soraya, MM (Soraya, M. M.); Saddeek, YB (Saddeek, Yasser B.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 7 **Article Number:** 510 **DOI:** 10.1007/s00339-020-03672-6 **Published:** JUN 11 2020

Abstract: As the chalcogenide thin films have broad technological applications due to the ability of tuning their properties through composition change, lead addition has been used to tune the energy gap, refractive index, and non-linear optical parameters of Ge25As10Te65-xPbx thin films. The optical constants of Ge-As-Te thin films have been studied when introducing different contents of Pb. Tauc's rule of the allowed indirect transitions was successfully used to describe the optical transitions of the Ge25As10Te65-xPbx (0 <= x <= 10 at. %) thin films. It was found that when increasing Pb content the optical band gap (E-g(opt)) decreases whereas the index of refraction increases. The obtained behavior of E-g(opt) g was interpreted in terms of Mott and Davis model. The energy reliance of the index of refraction (n) shows a normal dispersion that may be explained using the single oscillator model. Applying such model allowed to estimate the static index of refraction (n(o)) and the energies of both single oscillator (E-o) and dispersion (E-d). In addition, the non-linear optical parameters such as the third-order susceptibility (chi((3))) and nonlinear index of refraction (n(2)*) have been deduced from E-o, E-d and n(o) values. Both chi((3)) and n(2)* increase with increasing Pb content.

Accession Number: WOS:000542659100004

Author Identifiers:

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ISSN: 0947-8396

eISSN: 1432-0630

Record 126 of 243

Title: Praseodymium doped PbS thin films for optoelectronic applications prepared by nebulizer spray pyrolysis

Author(s): Paulraj, K (Paulraj, K.); Ramaswamy, S (Ramaswamy, S.); Yahia, IS (Yahia, I. S.); Alshehri, AM (Alshehri, A. M.); Somaily, HH (Somaily, H. H.); Kim, HS (Kim, Hyun-Seok); Kathalingam, A (Kathalingam, A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 7 **Article Number:** 503 **DOI:** 10.1007/s00339-020-03686-0 **Published:** JUN 9 2020

Abstract: Simple nebulizer spray technique used pristine and rare earth praseodymium (Pr) doped PbS thin films coated on soda-lime glass and their optoelectronic properties are reported. Dopant concentration-dependent structural, morphological, optical, and electrical properties of the prepared films were analyzed using X-ray diffraction, Raman spectrum, scanning electron microscopy, EDAX, UV-visible spectrum. X-ray diffraction study revealed the growth of polycrystalline face-centered cubic PbS thin films without any impurities. Increase of doping concentration resulted in a decrease in peak intensity indicating the degradation of crystalline quality. The Raman peaks observed at 190, 240 and 464 nm justified the formation of PbS phase. Surface morphology of the films showed dopant concentration dependent compact and uniform distribution of grains on substrate. EDAX studies legitimized the existence of Pb, S, and Pr in the prepared films. Energy band gap values of the films were gradually increased from 2.18 to 2.69 eV for the increase of doping concentration from 0 to 5 wt%. The prepared films exhibited increased currents for the increase of doping concentration with reasonable photosensing effect inI-Vmeasurements.
[GRAPHICS]
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Accession Number: WOS:000541444100002

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ISSN: 0947-8396

eISSN: 1432-0630

Record 127 of 243

Title: Numerical Treatment for 3D Squeezed Flow in a Rotating Channel With Soret and Dufour Effects

Author(s): Alzahrani, AK (Alzahrani, Abdullah K.); Ullah, MZ (Ullah, Malik Zaka); Muhammad, T (Muhammad, Taseer)

Source: FRONTIERS IN PHYSICS **Volume:** 8 **Article Number:** 201 **DOI:** 10.3389/fphy.2020.00201 **Published:** JUN 3 2020

Abstract: This article examines magnetohydrodynamic three-dimensional (3D) squeezed flow by a rotating permeable channel subject to Dufour and Soret

impacts. Impact of viscous dissipation is also considered. An applied magnetic field is considered subject to electrically conducting viscous fluid. The change from the non-linear partial differential framework to the non-linear ordinary differential framework is assumed into position by utilizing appropriate variables. Governing differential frameworks are computed numerically by shooting method. Numerical results have been achieved by considering numerous values of emerging flow parameters. Contributions of influential parameters on physical quantities are studied thoroughly. Surface drag coefficients and mass and heat transport rates are also processed and examined. Furthermore, the concentration and temperature distributions are reduced for larger values of Soret number. The prime interest of presented study is to model and examine the Dufour and Soret aspects in concentration and energy expressions. To our knowledge, no such analysis has been addressed in the literature yet.

Accession Number: WOS:000543092300001

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ISSN: 2296-424X

Record 128 of 243

Title: EFFECT OF Se ADDITIVE ON THE STRUCTURE, PRE-CRYSTALLIZATION CRITERIA AND CRYSTALLIZATION KINETIC PARAMETERS IN GLASSY MELT-QUENCHED As-S ALLOY

Author(s): Qasem, A (Qasem, A.); Shaaban, ER (Shaaban, E. R.); Hassaan, MY (Hassaan, M. Y.); Rafique, S (Rafique, S.); Moustafa, MG (Moustafa, M. G.); Yousef, E (Yousef, El S.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 6 **Pages:** 277-300 **Published:** JUN 2020

Abstract: The present framework is consecrated to studying structural parameters, pre-crystallization criteria and crystallization kinetics by non-isothermal and iso-conversional methods for melt-quenched As40S60-xSex glassy alloys, with (x=0, 15, 30, 45 and 60 at. %). Energy dispersive x-ray analysis of the As40S60-xSex glassy system appears that the constituent element ratio of the studied samples have been agreed with the nominal compositions. Likewise, Differential Scanning Calorimetry (DSC) and x-ray diffraction (XRD) has been utilized to depict the thermal and structural properties, respectively. Four characteristic temperatures linked to several phenomena are obviously noticed in the studied DSC traces. The first one is T-g that harmonizes with the glass transition temperature. The second one is T-c that harmonizes with the onset of the crystallization temperature. The third one, T-p corresponds to the peak crystallization temperature. The last characteristic temperature, T-p is the melting point. The XRD analysis signalizes to the amorphous structure of the as-prepared glassy alloys. The crystallization kinetics of the powdered of As40S60-xSex, have been investigated under non-isothermal and iso-conversional conditions. Besides, the values of diverse kinetic parameters such as the activation energy of glass transition, the weight stability criterion, and Avrami exponent, have been computed. The activation energies of the crystallization process of the As40S60-xSex glassy alloys were determined by means of classical and also by the iso-conversional methods. The results referred that the rate of crystallization is linked to the thermal stability and glass-forming ability. The kinetic parameters that computed via some classical and isoconversional methods, were found to be dependent on the change of Se content.

Accession Number: WOS:000560725500003

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ISSN: 1584-8663

Record 129 of 243

Title: STRUCTURAL, OPTICAL CONSTANTS AND ENERGY GAP TUNABILITY WHEN INCORPORATING Te INTO CdSe THIN FILM FOR SOLAR CELLS

Author(s): Aly, SA (Aly, S. A.); Abdelmonem, D (Abdelmonem, D.); Abdel-Rahman, M (Abdel-Rahman, M.); Yousef, E (Yousef, E.); Shaaba, ER (Shaaba, E. R.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 6 **Pages:** 301-313 **Published:** JUN 2020

Abstract: In the present work, polycrystalline materials of CdSe1-xTex with (x = 0, 0.2, 0.4, 0.6, 0.8 and 1 at. %) were prepared by a conventional solid-state reaction method. Thin films of CdSe1-xTex of about 0.5 mu m have been produced using evaporation method. The prepared thin films were characterized by using EDAX and X-ray diffractometer. The X-ray diffraction studies shows that the films are polycrystalline in nature, and well oriented along a preferred direction of (002) for hexagonal and along (111) for cubic crystal structure. Both of optical constants (n, k) and film thickness have been determined precisely in terms of envelop method. Analysis of the optical absorption data showed that the transition mechanism takes place by a direct transition. The band gap decreases from 1.677 eV (CdSe) with an increase in Te concentration passing through a minimum of 1.412 eV for CdSe0.4Te0.6 (x = 0.6) and then for higher Te concentration band gap increases to 1.486 eV corresponds to pure CdTe. The importance of CdSe1-xTex compound is the tunability of band gap when incorporating Te into the CdSe. The dispersion of the refractive index is described using the Wimple-DiDomenico (WDD) single oscillator model. The non-linear refractive index has been discussed.

Accession Number: WOS:000560725500004

ISSN: 1584-8663

Record 130 of 243

Title: Noble Metal Nanoparticles Incorporated Siliceous TUD-1 Mesoporous Nano-Catalyst for Low-Temperature Oxidation of Carbon Monoxide

Author(s): Al-Shehri, BM (Al-Shehri, Badria M.); Shkir, M (Shkir, Mohd); Khder, AS (Khder, A. S.); Kaushik, A (Kaushik, Ajeet); Hamdy, MS (Hamdy, Mohamed S.)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 6 **Article Number:** 1067 **DOI:** 10.3390/nano10061067 **Published:** JUN 2020

Abstract: This report, for the first time, demonstrated the low-temperature oxidation of carbon monoxide (CO) using nano-catalysts consisting of noble metal nanoparticles incorporated in TUD-1 mesoporous silica nano-structures synthesized via a one-pot surfactant-free sol-gel synthesis methodology. Herein, we investigated a nano-catalyst, represented as M-TUD-1 (M = Rh, Pd, Pt and Au), which was prepared using a constant Si/M ratio of 100. The outcome of the analytical studies confirmed the formation of a nano-catalyst ranging from 5 to 10 nm wherein noble metal nanoparticles were distributed uniformly onto the mesopores of TUD-1. The catalytic performance of M-TUD-1 catalysts was examined in the environmentally impacted CO oxidation reaction to CO2. The catalytic performance of Au-TUD-1 benchmarked other M-TUD-1 catalysts and a total conversion of CO was obtained at 303 K. The activity of the other nano-catalysts was obtained as Pt-TUD-1 > Pd-TUD-1 > Rh-TUD-1, with a total CO conversion at temperatures of 308, 328 and 348 K, respectively. The Au-TUD-1

exhibited a high stability and reusability as indicated by the observed high activity after ten continuous runs without any treatment. The outcomes of this research suggested that M-TUD-1 are promising nano-catalysts for the removal of the toxic CO gas and can also potentially be useful to protect the environment where a long-life time, cost-effectiveness and industrial scaling-up are the key approaches.

Accession Number: WOS:000552485700001

PubMed ID: 32486262

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eISSN: 2079-4991

Record 131 of 243

Title: Strain and electric field dependent variation in electronic and thermoelectric properties of PtS2

Author(s): Ahmad, S (Ahmad, Sohail)

Source: RESULTS IN PHYSICS **Volume:** 17 **Article Number:** 103088 **DOI:** 10.1016/j.rinp.2020.103088 **Published:** JUN 2020

Abstract: Ab initio calculations based on plane wave methods show that the band gap of PtS2 depends on the number of monolayers combined by van der Waals (vdW) interactions or spin orbit correction (SOC). The valence band minimum (VBM) is sensitive to the out-of-plane, and conduction band maximum (CBM) to the in-plane lattice constants. The vdW force enhances the bonding out of plane, which in turn influences the bonding in plane. The band diagram gets splitted on application of SOC and hence resulting in decrease of band gap. On application of biaxial compressive and tensile strain, a variation in band gap from 1.54 eV to 1.08 eV & 0.97 eV and 1.06 eV & 1.04 eV is observed in case of bilayers with different stackings (AA & AB) respectively. A variation in band gap from 1.54 eV to 0.16 eV (0.23 eV) is also observed on applying electric field on AA(AB) bilayers of PtS2 in z-direction. Absence of imaginary frequencies in phonon dispersion of strained structure reflects the dynamical stability of the studied structure. The effects of strain on the thermoelectric properties of PtS2 monolayer and bilayer were also studied. A variation in the electrical conductivity is observed with the increase in strain in bilayers. As expected for thermoelectric application, the trend in the variation of Seebeck coefficient is of opposite nature. The present work demonstrates the flexibility available for tuning the electronic and thermoelectric properties of this material for a wide range of applications.

Accession Number: WOS:000548696600010

ISSN: 2211-3797

Record 132 of 243

Title: Exact solutions of space-time local fractal nonlinear evolution equations: A generalized conformable derivative approach

Author(s): Hyder, AA (Hyder, Abd-Allah); Soliman, AH (Soliman, Ahmed H.)

Source: RESULTS IN PHYSICS **Volume:** 17 **Article Number:** 103135 **DOI:** 10.1016/j.rinp.2020.103135 **Published:** JUN 2020

Abstract: In this work, a generalized type of conformable local fractal derivative (GCFD) is employed to investigate some nonlinear evolution equations. A modern technique for solving the nonlinear evolution equations is introduced. This technique based on the GCFD, the first integral method, and the functional variable method. As applied examples, new exact solutions of the space-time local fractal Schrodinger-Hirota equation and the space-time local fractal modified KdV-Zakharov-Kuznetsov equation are established. The results acquired confirm that the proposed GCFD is to describe the rigorous structure of complex physical phenomena without heredity and nonlocality. The obtained solutions are compared with some past results from literature. Moreover, some of these solutions are physically interpreted and graphically sketched.

Accession Number: WOS:000548697500012

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Hyder, Abd-Allah		0000-0001-9273-9512

ISSN: 2211-3797

Record 133 of 243

Title: Surface atomic packing fraction as a figure of merit for the structural transition and the bulk-to-nano transformation of spherical FCC and BCC nanosolids

Author(s): Abdul-Hafidh, EH (Abdul-Hafidh, Esam H.); Aissa, B (Aissa, B.)

Source: PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES **Volume:** 120 **Article Number:** 114015 **DOI:** 10.1016/j.physe.2020.114015 **Published:** JUN 2020

Abstract: We report on the development of a simple and efficient method to predict the structural transition and the bulk-to-nano transformation of spherical FCC and BCC solid nanoparticles using the surface atomic packing fraction (g(s)). For both structures, g(s)'s are maxima at radii equal to the nearest neighbor distances. These g(s) values are smaller than the maximum values of their bulk counterparts. Compared to the bulk phase, the volume packing fraction (f) of a FCC nanoparticle decreases with size and approaches 0.810 at shells greater than 208. Our predictions show that bulk-to-nano transition starts at N(similar to)10(4), in a good agreement with the relevant literature. The disturbing the spherical shape of small FCC nanoparticles is found to be easier than breaking them across {100} and {111} crystal planes. However, for BCC, small NPs are more difficult to break through {100} and {111} planes. The current results highlight possible mechanisms for controlling the physical properties of matter at the nanoscale through their morphological characteristics. This study demonstrates that the interplay between packing, structural transition and shape can be utilized to develop new nanomaterials with controlled properties.

Accession Number: WOS:000545246500015

ISSN: 1386-9477

eISSN: 1873-1759

Record 134 of 243

Title: Closed-form solutions of stochastic KdV equation with generalized conformable derivatives

Author(s): Soliman, AH (Soliman, Ahmed H.); Hyder, A (Hyder, Abd-Allah)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 6 **Article Number:** 065219 **DOI:** 10.1088/1402-4896/ab8582 **Published:** JUN 2020

Abstract: With the assistance of Hermite transform, we use the Exp-function technique to solve the Wick-type stochastic KdV equation with a generalized type of conformable derivatives. The exact solutions of the stochastic KdV equation are obtained in a white noise environment. Two new kinds of Brownian motion functional solutions, including soliton and periodic solutions are presented. The graphs for a portion of these exact solutions have been given by picking peculiar values of the existing parameters to visualize the proposed technique of the given KdV equation.

Accession Number: WOS:000528686300001

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ISSN: 0031-8949

eISSN: 1402-4896

Record 135 of 243

Title: Fabrication and characterization of Sn:CdS films for optical-nonlinear-limiting applications

Author(s): AlFaify, S (AlFaify, S.); Haritha, L (Haritha, L.); Manthrammel, MA (Manthrammel, M. Aslam); Ganesh, V (Ganesh, V); Chandekar, KV (Chandekar, Kamlesh, V); Shaikh, SS (Shaikh, S. S.); Shkir, M (Shkir, Mohd)

Source: OPTICS AND LASER TECHNOLOGY **Volume:** 126 **Article Number:** 106122 **DOI:** 10.1016/j.optlastec.2020.106122 **Published:** JUN 2020

Abstract: Herein, we are focusing on to inveterate physical properties of spray pyrolysis fabricated CdS films with diverse Sn doping contents (0.0, 0.5, 1.0, 2.5, 5.0 wt%) named as Sn:CdS. Hexagonal mono-phase of CdS at every content of Sn was detected by structural and vibrational analyses. The mean size of crystallites (L-ave), density of dislocations, strain, number of unit cells and texture coefficient were estimated and the values of L-ave are observed in 20-24 nm range. To confirm the presence of Sn and its homogeneity in films the EDX/SEM mapping was carried out. Fine nanostructured and pin hole/crack free films fabrication was suggested by SEM images. The grown Sn:CdS films are showing the transparency in 50-70% range in visible to INR range. The refractive index values were calculated in 1.6-2.9 range, over 500-2500 nm wavelength region. The estimated values of E-g are noticed in 2.43-2.45 eV range. At two excitation wavelengths the PL emission was recorded at both 350 and 450 nm excitation wavelength and possesses an emission at similar to 531 +/- 20 and 530 +/- 15 nm (green), correspondingly. The values of optical dielectric constant, conductivity, linear, third order- nonlinear susceptibilities and index of nonlinear refraction were estimated. Using a 650 nm wavelength laser the optical limiting was recorded and noticed to be strongly affected by Sn doping.

Accession Number: WOS:000523646300026

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	P-3995-2018	0000-0002-0712-2778
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ISSN: 0030-3992

eISSN: 1879-2545

Record 136 of 243

Title: Raman-Scattering Properties of Er-Doped Alkaline Tellurite Glasses for Lasing Applications

Author(s): Al Shehri, AS (Al Shehri, Alya S.); Yousef, E (Yousef, El Sayed); Al-Salami, AE (Al-Salami, A. E.)

Source: SCIENCE OF ADVANCED MATERIALS **Volume:** 12 **Issue:** 6 **Pages:** 861-865 **DOI:** 10.1166/sam.2020.3749 **Published:** JUN 2020

Abstract: Alkaline tellurite glasses within composition of 65TeO(2)-9Nb(2)O(5)-5Li(2)O-15LiCl-5PbO-1.0La(2)O(3)xEr(2)O(3) ions doped (where x is 0, 20000, 25000 and 30000 ppm) have been prepared by the quenching melting method. Herein, parameters such as Judd-Ofelt, Omega(t) (t = 2, 4, 6) has been estimated. Transfer probabilities quality factors, magnetic and electric radiative oscillator strength fluorescence are used for a number of different excited states. Moreover, the structure of prepared glasses was investigated using Raman spectra. Physical and spectroscopic characterizations of Er3+ doped these glasses, which imply that we can fabricate them as potential candidates for optical application.

Accession Number: WOS:000522735300011

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Shaaban, Essam	AAX-1596-2020	

ISSN: 1947-2935

eISSN: 1947-2943

Record 137 of 243

Title: Dielectric properties of red sand silver nanoparticles

Author(s): Awad, MA (Awad, Manal A.); Alkulaifi, M (Alkulaifi, Manal); Alwehaibi, M (Alwehaibi, Moudi); Alshehri, J (Alshehri, Jamilah); Ortashi, K (Ortashi, Khalid); Qindeel, R (Qindeel, Rabia); Aldosari, N (Aldosari, Noura); Hendi, A (Hendi, Awatif); Aldakheel, H (Aldakheel, Hajar)

Source: MATERIALS LETTERS **Volume:** 268 **Article Number:** 127626 **DOI:** 10.1016/j.matlet.2020.127626 **Published:** JUN 1 2020

Abstract: Nanoparticles exhibit novel physical and chemical attributes suitable for the field of electronics, optics, and electromagnetics. This study investigates the dielectric properties of silver nanoparticles (AgNPs) which are synthesized using red sand suspension. AgNPs are expected to play an important role in the diverse field of applications and they are widely used as paste conductors. In this investigation, AgNP's dielectric parameters are

determined between 20 Hz and 3 MHz in the recurrence run. The AgNPs show solid dielectric scattering, relating to the locale of alpha unwinding inside the expressed recurrence go, which is portrayed as bizarre scattering of frequencies. The conductivity expanded quickly at high frequencies, and the dielectric consistent is quickly diminishing because of the inclination of the dipoles in the AgNPs to arrange themselves in the low recurrence go toward the applied field. The estimation of the dielectric steady remained practically consistent in the high-recurrence run. (C) 2020 Elsevier B.V. All rights reserved.

Accession Number: WOS:000521968300007

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Author	Web of Science ResearcherID	ORCID Number
Alwehaibi, Moudi	AAG-3757-2021	0000-0002-9011-1470

ISSN: 0167-577X

eISSN: 1873-4979

Record 138 of 243

Title: Investigation of electrical, magnetic, and optical properties of silver-substituted magnesium-manganese ferrite nanoparticles (vol 31, pg 7880, 2020)

Author(s): Somnath (Somnath); Batoo, KM (Batoo, Khalid Mujasam); Raslan, EH (Raslan, Emad H.); Adil, SF (Adil, Syed Farooq); Sharma, I (Sharma, Indu); Kumar, G (Kumar, Gagan)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 13 **Pages:** 10939-10939 **DOI:** 10.1007/s10854-020-03673-4 **Early Access Date:** MAY 2020 **Published:** JUL 2020

Accession Number: WOS:000536454100006

Author Identifiers:

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Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203

ISSN: 0957-4522

eISSN: 1573-482X

Record 139 of 243

Title: Investigation of bandgap alteration in graphene oxide with different reduction routes

Author(s): Sharma, N (Sharma, Neeraj); Arif, M (Arif, Mohd.); Monga, S (Monga, Shagun); Shkir, M (Shkir, Mohd.); Mishra, YK (Mishra, Yogendra K.); Singh, A (Singh, Arun)

Source: APPLIED SURFACE SCIENCE **Volume:** 513 **Article Number:** 145396 **DOI:** 10.1016/j.apsusc.2020.145396 **Published:** MAY 30 2020

Abstract: In the present investigation we report a comparative study of Graphene Oxide (GO) in regard to its bandgap variations arising due to different reduction methods such as thermal reduction (Heating), electrical reduction (Voltage Application) and chemical reduction (Hydrazine hydrate). This study reveals that among the GO three reduction method studied the voltage application is the most efficient one. It is found that band gap increases with decreasing carbon to oxygen (C/O) ratio and is found to be maximum, i.e. similar to 4, for the case of GO reduced via voltage application reduction method. The GO for the present study was synthesized by modified Hummer's Method in four batches out of which the three obtained solutions were reduced by thermal reduction, Voltage application and Hydrazine hydrate. The four resultant materials were investigated by XRD, FTIR, UV-Vis, SEM-EDX and Raman analysis. The variation of band gap of GO and reduced graphene oxide (rGO) was found to be GO 3.34 eV , TrGO (Heating) 2.96 eV, HrGO (Hydrazine) 2.68 eV and VrGO (Voltage application) 2.54 eV, respectively.

Accession Number: WOS:000523184600060

Conference Title: 3rd International Conference on Applied Surface Science (ICASS)

Conference Date: JUN 17-19, 2019

Conference Location: Pisa, ITALY

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Mishra, Yogendra Kumar	G-6241-2010	0000-0002-8786-9379

ISSN: 0169-4332

eISSN: 1873-5584

Record 140 of 243

Title: Discussions on the film design and mechanical properties of Y3+/PVA polymeric composite films: enhancement of the electrical conductivity and dielectric properties

Author(s): El-Sayed, F (El-Sayed, F.); Mohammed, MI (Mohammed, M., I); Yahia, IS (Yahia, I. S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 13 **Pages:** 10408-10421 **DOI:** 10.1007/s10854-020-03589-z **Early Access Date:** MAY 2020 **Published:** JUL 2020

Abstract: This paper focuses on the impact of yttrium nitrate salt (Y3+ ions) on the microstructural, mechanical, optical, and dielectric characteristics of poly(vinyl alcohol) (PVA) films. Simple solution casting technique was used to synthesize yttrium nitrate salt-doped PVA of different weight percent. These films are characterized using various methods such as differential scanning calorimetry, X-ray diffraction, stress-strain, UV-visible spectroscopy, and dielectric measurements. The thermal study reveals the reduction in the glass transition temperature T-g by a rise of Y3+ ions in the PVA matrix. The degree of crystallinity Xc and X-ray diffraction results support the increase of the crystallinity of PVA due to the doping effect. The mechanical characteristics of PVA: Y3+ ions' films like Young's modulus are reduced, but the percentage elongation at break is raised, by the increase of Y3+ ions content. UV-Vis spectroscopy has been used for the optical characteristics of the studied films, demonstrating the transmittance of UV-Vis films is decreasing with the rise of Y3 + ions content in the composites. The bandgap E-g of Y3+/PVA films is significantly reduced with the addition of Y3 + ions. The changes in optical characteristics of PVA are ascribed to the interaction of Y3+ ions with the PVA matrix. Also, the dielectric constant measurement of the studied polymeric composites examined

and revealed a highly attractive dielectric constant for the dielectric media. With the increase in the incident frequency, both the dielectric constant and dielectric loss of the studied films is decreased exponentially. At the same time, the AC electrical conductivity is improved with increasing the Y3+ ions content. Y3+/PVA films have unique properties to be used in a different field such as electronic, optoelectronic, and device fabrication.

Accession Number: WOS:000534978200004

Author Identifiers:

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ISSN: 0957-4522

eISSN: 1573-482X

Record 141 of 243

Title: SILAR-coated Mg-doped ZnO thin films for ammonia vapor sensing applications

Author(s): Devi, KR (Devi, K. Radhi); Selvan, G (Selvan, G.); Karunakaran, M (Karunakaran, M.); Kasirajan, K (Kasirajan, K.); Chandrasekar, LB (Chandrasekar, L. Bruno); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 13 **Pages:** 10186-10195 **DOI:** 10.1007/s10854-020-03564-8 **Early Access Date:** MAY 2020 **Published:** JUL 2020

Abstract: Ammonia serves an important role in medical diagnosis and food processing technology. Development of sensors at lower operating temperatures has gathered momentum for the detection and monitoring of ammonia vapor in the recent years. In this work, magnesium-doped zinc oxide thin films were prepared by successive ionic layer adsorption and reaction process and their room temperature ethanol sensing properties were analyzed. The films have been investigated for their structures, morphological, optical, and gas sensing properties. The findings of X-ray diffraction show that the films have polycrystalline nature with a Wurtzite structure. The magnesium doping reduces the size of the crystallites. Scanning electron microscope images show that high doping concentration changes the shape of the grains from spherical to nanoflowers. The optical transmission increases and bandgap also increase from 3.03 to 3.17 eV as the doping concentration of magnesium increases from 0 to 5 wt%. Role of ZnO nanoflowers at room temperature operation coordination with a highly sensitive response and recovery times (13 and 20 s) with the low deposition cost suggests suitability for developing a low-power cost-effective ammonia vapor sensor.

Accession Number: WOS:000534869200004

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
AlFaify, S	ABF-3895-2020	0000-0002-8920-5891

ISSN: 0957-4522

eISSN: 1573-482X

Record 142 of 243

Title: Reducing ion migration in methylammonium lead tri-bromide single crystal via lead sulfate passivation

Author(s): Mahapatra, A (Mahapatra, Apurba); Parikh, N (Parikh, Nishi); Kumari, H (Kumari, Hemant); Pandey, MK (Pandey, Manoj Kumar); Kumar, M (Kumar, Manoj); Prochowicz, D (Prochowicz, Daniel); Kalam, A (Kalam, Abul); Tavakoli, MM (Tavakoli, Mohammad Mandi); Yadav, P (Yadav, Pankaj)

Source: JOURNAL OF APPLIED PHYSICS **Volume:** 127 **Issue:** 18 **DOI:** 10.1063/5.0005369 **Published:** MAY 14 2020

Abstract: Surface passivation of organic-inorganic halide perovskites (OIHPs) is a crucial step to annihilate the surface defects and to control the deteriorated ion migration phenomenon. Here, we study the role of lead sulfate (PbSO4) as an effective passivator in OIHP single crystals (SCs). Using impedance spectroscopy, we evaluate the ion migration and electrical properties of lead sulfate-passivated methylammonium lead tri-bromide (MAPbBr(3)) SCs. We found that the low-frequency impedance response that is assigned to the ionic motion in the MAPbBr(3) SC is strongly affected by the inorganic PbSO4 surface treatment. The activation energy corresponding to the ion migration of MAPbBr(3) SC is increased from 0.28 to 0.36eV after PbSO4 surface treatment. The temperature-dependent I-V hysteresis of the MAPbBr(3) SCs upon PbSO4 passivation was also measured. We found that such PbSO4 surface treatment stabilizes the crystal surface and improves the hysteresis properties of the crystals at elevated temperatures.

Accession Number: WOS:000534025500001

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Parikh, Nishi		0000-0002-9236-4113
Yadav, Pankaj		0000-0002-1858-8397

ISSN: 0021-8979

eISSN: 1089-7550

Record 143 of 243

Title: Periodic and localized structures in a degenerate Thomas-Fermi plasma

Author(s): Rahman, AU (Rahman, Ata ur); Khalid, M (Khalid, Muhammad); Naeem, SN (Naeem, S. N.); Elghmaz, EA (Elghmaz, E. A.); El-Tantawy, SA (El-Tantawy, S. A.); El-Sherif, LS (El-Sherif, L. S.)

Source: PHYSICS LETTERS A **Volume:** 384 **Issue:** 13 **Article Number:** 126257 **DOI:** 10.1016/j.physleta.2020.126257 **Published:** MAY 7 2020

Abstract: The propagation of electrostatic ion-acoustic cnoidal waves (IACWs) and solitons in a degenerated electron-positron-ion plasma with cold inertial ions and Thomas-Fermi distributed electrons and positrons is investigated. Adopting a reductive perturbation technique (RPT), the Korteweg-de Vries (KdV) equation is obtained and its cnoidal waves (CWs) solution is analyzed. The plasma configuration parameters (namely, the positron concentration and the Fermi temperature ratio of electron-to-positron) are shown to affect remarkably the dynamical characteristics of IACWs and solitons. The relevance of the present work to superdense white dwarfs is pointed out. Published by Elsevier B.V.

Accession Number: WOS:000525434900010

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ISSN: 0375-9601

eISSN: 1873-2429

Record 144 of 243

Title: Hydroxyapatite Nanostructure Doped by Lithium Iodide with Their Biological Activity

Author(s): Alshahrani, MY (Alshahrani, Mohammad Y.); Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Ibrahim, EH (Ibrahim, Essam H.); Kilany, M (Kilany, Mona); Sayed, MA (Sayed, M. A.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 15 **Issue:** 5 **Pages:** 613-619 **DOI:** 10.1166/jno.2020.2777 **Published:** MAY 2020

Abstract: The nanostructure of biomaterial samples of Hydroxyapatite (HAp) was treated by microwave radiation treatment with different additives (1, 10, 20, 30 and 40 wt. in percent) of Lithium Iodide (LiI) using the known sol-gel process. The sample crystal structure was achieved through the analysis of X-ray diffraction and some associated parameters like that strain, grain size, and dislocation. The FTIR and Raman spectroscopy investigations identified effective functional groups and their modes. SEM conforms to the sample morphology's fine low-dimensional structure (10-28 nm). The various preparations were studied for their anti-proliferative/anti-cytotoxicity/stimulatory ability against normal and activated splenic cells of the mouse in vitro and for the lytic effects on red blood cells (RBCs). Results showed that various LiI additives have inhibitory effects on normal splenic cells of the mouse. The pure LiI and Li 10 had relaxing effects on splenic cells activated by the mouse while the other formulations (LiI 20, LiI 30 and LiI 40) displayed inhibitory/cytotoxic results besides that all preparation samples were safe effects to RBCs.

Accession Number: WOS:000564689900003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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Ibrahim, Essam H.	G-1960-2018	0000-0003-0130-2257

ISSN: 1555-130X

eISSN: 1555-1318

Record 145 of 243

Title: DFT investigation on electronic and optical properties of Sn2Sb2S5 compound

Author(s): Gassoumi, A (Gassoumi, Abdelaziz)

Source: JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS **Volume:** 22 **Issue:** 5-6 **Pages:** 261-265 **Published:** MAY-JUN 2020

Abstract: The electronic structure and optical properties of the ternary compound Sn2Sb2S5 have been investigated by using the full potential linear augmented plane wave (FP-LAPW) method based on the density functional theory (DFT). From this study, it is found that the compound Sn2Sb2S5 has direct band gap which is calculated with the GGA and mBJ potentials as 1.22 and 1.51 eV, respectively. Sn2Sb2S5 crystallizes in an orthorhombic structure, with the Pnma space group, the lattice parameters are a = 19.590 angstrom, b = 3.938 angstrom and c = 11.426 angstrom. Optical parameters, such as dielectric constant, refractive index and reflectivity are investigated and analyzed for the first quantitative theoretical prediction of Sn2Sb2S5. The results demonstrated that the compound Sn2Sb2S5 has the potential to be used for photovoltaic and optoelectronic applications.

Accession Number: WOS:000563834000010

ISSN: 1454-4164

eISSN: 1841-7132

Record 146 of 243

Title: Analysis of the Stochastic Population Model with Random Parameters

Author(s): Noor, A (Noor, Adeeb); Barnawi, A (Barnawi, Ahmed); Nour, R (Nour, Redhwan); Assiri, A (Assiri, Abdullah); El-Beltagy, M (El-Beltagy, Mohamed)

Source: ENTROPY **Volume:** 22 **Issue:** 5 **Article Number:** 562 **DOI:** 10.3390/e22050562 **Published:** MAY 2020

Abstract: The population models allow for a better understanding of the dynamical interactions with the environment and hence can provide a way for understanding the population changes. They are helpful in studying the biological invasions, environmental conservation and many other applications. These models become more complicated when accounting for the stochastic and/or random variations due to different sources. In the current work, a spectral technique is suggested to analyze the stochastic population model with random parameters. The model contains mixed sources of uncertainties, noise and uncertain parameters. The suggested algorithm uses the spectral decompositions for both types of randomness. The spectral techniques have the advantages of high rates of convergence. A deterministic system is derived using the statistical properties of the random bases. The classical analytical and/or numerical techniques can be used to analyze the deterministic system and obtain the solution statistics. The technique presented in the current work is applicable to many complex systems with both stochastic and random parameters. It has the advantage of separating the contributions due to different sources of uncertainty. Hence, the sensitivity index of any uncertain parameter can be evaluated. This is a clear advantage compared with other techniques used in the literature.

Accession Number: WOS:000541900700015

PubMed ID: 33286334

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El-Beltagy, Mohamed	C-3570-2019	0000-0001-9272-0096

eISSN: 1099-4300

Record 147 of 243

Title: Structure, morphology and opto-nonlinear behaviors of Nd:PbI2/FTO thin film system for optoelectronics

Author(s): Khan, ZR (Khan, Ziaul Raza); Shkir, M (Shkir, Mohd); Khan, A (Khan, Aslam); Mariappan, SM (Mariappan, Sivalingam Muthu); Balaji, M (Balaji, M.); Sheikh, MR (Sheikh, Md Raheijuddin); AlFaify, S (AlFaify, S.)

Source: SOLID STATE SCIENCES **Volume:** 103 **Article Number:** 106192 **DOI:** 10.1016/j.solidstatesciences.2020.106192 **Published:** MAY 2020

Abstract: Device grade PbI2 nanostructured thin films were developed by a cost effective sol-gel spin coating method with different (0,1,3 and 5 wt%) Nd doping concentrations on FTO substrates. Films revealed excellent structural, vibrational, electronic structure, and nonlinear optical properties on Nd doping concentrations. X-ray diffraction and vibrational spectroscopy of the specimen demonstrated an excellent crystalline quality and growth along (001) planes. Surface morphological studies of the films showed the compact and uniform distribution of particles throughout the surfaces. Also, the transformation in morphology was noticed from nanorods to nano-particle by Nd doping content. The transmittance of the films were noticed to be similar to 70-75% in the visible region of the solar spectrum. The bandgap of the films were obtained in the range of 2.36-2.45 eV. Refractive indices n, extinction coefficient k, real and imaginary part of dielectric constant epsilon(1) and epsilon(2) were also analyzed. Third-order nonlinear optical parameters such as third-order nonlinear optical susceptibility chi((3)) and second-order refractive index n((2)) were obtained in range 2.10 x 10(-11) - 1.54 x 10(-8) esu and 5.10 x 10(-18) - 9.18 x 10(-8) esu over the plotted energy region.

Accession Number: WOS:000533573600007

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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ISSN: 1293-2558

eISSN: 1873-3085

Record 148 of 243

Title: RESISTIVITY-TEMPERATURE DEPENDENCE, THERMAL AND ELECTRICAL PARAMETERS OF Se65-xAs35Sbx THIN FILMS: (1 mu m, 5 K.min(-1))

Author(s): Gadalla, A (Gadalla, A.); Shaaban, ER (Shaaban, E. R.); Anas, FA (Anas, F. A.); Rafique, S (Rafique, S.); Syousef, E (Syousef, E.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 5 **Pages:** 229-241 **Published:** MAY 2020

Abstract: Sheet resistance, R-s, measurements for the (Se65-xAs35Sbx thin films with (0 <= x >= 10) at. %) with thickness film 1000 nm and heating rate, 5 K/min has been explained in this work. Measurements of the sheet resistance used to compute the thermal and electrical parameters in the temperature range from 300 to 665 K. In the sheet resistance curves, two main regions have been considered clearly evidence of one crystallization region for the studied films The activation energy, E-c, of crystallization and Avrami index, n, were estimated. The change of activation energy with volume of crystalline fraction has been deduced. The electrical results of the studied films appear two types of conduction channels which contribute two conduction mechanisms in crystallized region. The activation energies Delta E, two pre-exponential factors sigma(0), sigma(0)* and other parameters has been computed in both of the extended and hopping states regions. The crystalline phases for the as-deposited and annealed films were identified using by x-ray diffraction (XRD).

Accession Number: WOS:000532361400002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Shaaban, Essam	AAX-1596-2020	
Said Yousef, El Sayed		0000-0002-5462-317X

ISSN: 1584-8663

Record 149 of 243

Title: Analysis of Li-6+O-16 elastic scattering using different potentials

Author(s): Hamada, S (Hamada, Sh); Alshahrani, B (Alshahrani, B.); Elgamala, A (Elgamala, Abd Elrahman); Darwish, N (Darwish, N.); Bondouk, I (Bondouk, I); Ibraheem, AA (Ibraheem, Awad A.)

Source: REVISTA MEXICANA DE FISICA **Volume:** 66 **Issue:** 3 **Pages:** 322-329 **DOI:** 10.31349/RevMexFis.66.322 **Published:** MAY-JUN 2020

Abstract: Elastic scattering of Li-6 from O-16 nucleus in the energy range of 13.0 - 50.0 MeV was analyzed within the framework of optical potential, double folding optical potential, and cluster folding potentials. The present study involves theoretical calculations based on available experimental angular distributions of the scattering process. Of particular interest is the cluster folding based on the well-known cluster structure of Li-6. Elastic scattering data for the Li-6+O-16 system plotted as a function of momentum transfer showed that the real Coulomb nuclear interference region is independent of the bombarding energy. This structural pattern could be used to define the interaction potential with some certainty and to extract reliable values for the renormalization factors.

Accession Number: WOS:000530851700010

ISSN: 0035-001X

Record 150 of 243

Title: Facile synthesis, structure analysis and optical performance of manganese oxide-doped PVA nanocomposite for optoelectronic and optical cut-off laser devices

Author(s): Khairy, Y (Khairy, Yasmin); Yahia, IS (Yahia, I. S.); Ali, HE (Ali, H. Elhosiny)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 10 **Special Issue:** SI **Pages:** 8072-8085 **DOI:** 10.1007/s10854-020-03348-0 **Published:** MAY 2020

Abstract: In the present work, successful manganese oxide (Mn2O3) nanoparticles (NPs) were synthesized by a combustion technique, while the casting process was employed for the manufacturing of polymer nanocomposites with various weights of Mn2O3 based on Poly(Vinyl Alcohol), PVA. Multiple methods such as X-ray diffraction (XRD), HR-TEM, EDAX, EDS, SEM, FT-IR, DTA analysis, optical spectroscopy from UV to IR regions, and optical reduction

(CUT-OFF) setup were used to characterize the structural, elemental chemical analysis, morphological, optical properties, and cut-off laser characteristic of nanocomposite samples. Mn2O3 nanoparticles have a crystallite size of 22.08 nm as calculated using the Debye-Scherer formula from XRD, while the HR-TEM shows a spherical particle of size 30-38 nm range. EDAX spectra and EDS mapping were used to detect the elemental particles of the nanocomposite. The external morphology of the films by SEM images shows an increase in the agglomeration size of the cluster with the percentage of Mn2O3 nanoparticles in PVA. FT-IR spectra show excellent incorporation between the matrix of polymer and the Mn2O3 via the hydroxyl group. Moreover, with increasing the doping rate of nanoparticles, the thermal stability of PVA increased. A significant change of optical transmittance, absorption edge, Urbach energy, and transition bandgap have been observed due to the influence of Mn2O3. The comparison between the bandgap values that have been estimated from Tauc's relation and thus resulting from optical dielectric loss indicates a direct allowed transition of electrons in the nanocomposites. The light is entirely UV-Vis absorbed by PVA with a high percentage of Mn2O3 nanoparticles. Moreover, the efficiency of the films to decrease the power of two laser beams (635 nm and 533 nm) has been observed. The flexible films of PVA with an elevated rate of Mn2O3 are considered a successful option for low-cost technologies of optical limiting.

Accession Number: WOS:000529743900076

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ISSN: 0957-4522

eISSN: 1573-482X

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[1 | 2 | 3 | 4 | 5]

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Record 151 of 243

Title: Transformation in the structural and optical properties with the phase change from hematite (Fe2O3) to pure spinel structure in Mn-Zn nanoferrites

Author(s): Thakur, P (Thakur, Prashant); Sharma, V (Sharma, Vineet); Sharma, R (Sharma, Rohit); Wollschlager, J (Wollschlaeger, Joachim); Ruwisch, K (Ruwisch, Kevin); Dahshan, A (Dahshan, A.); Thakur, S (Thakur, Shipra); Sharma, P (Sharma, Pankaj)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 584 **Article Number:** 412107 **DOI:** 10.1016/j.physb.2020.412107 **Published:** MAY 1 2020

Abstract: In present investigation, the effect of phase change, induced via sintering, from hematite (Fe2O3) to pure spinel structure on structural and optical properties in coprecipitated Mn0.4Zn0.6Fe2O4 nanoferrites has been studied. The Mn0.4Zn0.6Fe2O4 nanoparticles have been sintered at three temperatures 700 degrees C, 900 degrees C, and 1100 degrees C for 3 h. The presence of hematite (Fe2O3) phase in samples sintered at temperatures 700 degrees C and 900 degrees C has been observed from XRD. The crystallite size of the sintered samples has been found to increase on increasing the sintering temperature from 700 degrees C to 900 degrees C and then decrease for 1100 degrees C. Pure cubic spinel structure having single-phase has been obtained at 1100 degrees C. A cation distribution has also been proposed. Two absorption bands in the range 445 cm(-1)-473 cm(-1), as well as 556 cm(-1)-582 cm(-1), have been recognized in FTIR spectra and that indicates the formation of metal ion oxygen bond in spinel structure. With the rising sintering temperature, the peak position in the absorption spectra has been noticed to shift toward lesser wavelength, i.e., from 266 nm to 261.18 nm. The optical band gap shows shrinkage with the augmentation in the crystallite size on elevating the sintering temperature from 700 degrees C to 900 degrees C, while the optical band gap shows a broadening on raising the sintering temperature to 1100 degrees C. Photoluminescence study on the sintered samples has also been performed to examine the impurity levels and defects in samples. Stokes shift has been observed in all three samples.

Accession Number: WOS:000524349800017

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ISSN: 0921-4526

eISSN: 1873-2135

Record 152 of 243

Title: Theoretical insights of ultrasonic relaxation in PbW-tellurite glasses

Author(s): Saddeek, YB (Saddeek, Yasser B.); Aly, K (Aly, K.); Ali, AM (Mossad Ali, Atif); Somaily, HH (Somaily, H. H.); Algarni, H (Algarni, H.); Mahmoud, IS (Mahmoud, I. S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 5 **Article Number:** 370 **DOI:** 10.1007/s00339-020-03560-z **Published:** APR 27 2020

Abstract: Theoretical insights of the ultrasonic relaxation process in PbO-WO3-TeO2 glasses were investigated according to a model related to the propagation of ultrasonic waves in active two-well potential. The energy transfer of the ultrasonic waves either longitudinal or transverse to the glass network can create two-well potential based on the oxygen atoms displacements. The parameters of the model such as the mutual potential energy, the loss-centers, the prolongation or shrinkage of the double-well system, deformation potential were affected with the concentrations of the PbO. The number of loss centers was correlated to the compositional dependence of the elastic moduli on PbO content. The results showed that the degree of prolongation or shrinkage of the double-well system is affected with the concentration of PbO.

Accession Number: WOS:000530377600003

Author Identifiers:

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Somaily, Hamoud	AAO-7060-2020	0000-0002-1441-3493

ISSN: 0947-8396

eISSN: 1432-0630

Record 153 of 243

Title: A study of the effect of temperature on the dielectric breakdown and lifetime of polyethylene materials under applied DC voltages at the nanoscale

Author(s): Boukhris, I (Boukhris, Imed); Kebaili, I (Kebaili, Imen); El Saeedy, HI (El Saeedy, Halima Ibrahim); Belgaroui, E (Belgaroui, Ezzeddine); Kallel, A (Kallel, Ali)

Source: EUROPEAN PHYSICAL JOURNAL-APPLIED PHYSICS **Volume:** 89 **Issue:** 3 **DOI:** 10.1051/epjap/2020190057 **Published:** APR 23 2020

Abstract: The reported simulation results could be considered as one of the firsts modeling of the effect of temperature on the electrical breakdown phenomenon in polyethylene nanoscale. The breakdown begins with an abrupt increase of the external current density without a subsequent saturation. Our results show that the increase of temperature at a constant applied DC voltage leads to a breakdown and to a decrease of the insulator's lifetime. These outcomes are strongly linked to the injection of free charges into the sample and to the temporal evolution of the conduction current.

Accession Number: WOS:000529973200001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
boukhris, imed	AAY-3603-2020	

ISSN: 1286-0042

eISSN: 1286-0050

Record 154 of 243

Title: Effect of Fe doping on optoelectronic properties of CdS nanostructure: Insights from DFT calculations

Author(s): Azam, S (Azam, Sikander); Abbas, Z (Abbas, Zeesham); Bilal, Q (Bilal, Qasim); Irfan, M (Irfan, Muhammad); Khan, MA (Khan, Muhammad Adil); Naqib, SH (Naqib, S. H.); Khenata, R (Khenata, R.); Muhammad, S (Muhammad, Shabbir); Algarni, H (Algarni, H.); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Wang, XT (Wang, Xiaotian)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 583 **Article Number:** 412056 **DOI:** 10.1016/j.physb.2020.412056 **Published:** APR 15 2020

Abstract: Cadmium sulfide has been the subject of wide studies due to its vast applications in solar cells. Bilayer system of Fe doped CdS, is used for synthesis of metal coated semiconductor nanocrystals to fabricate variety of electro-luminescent and optical devices. The electronic and optical properties of Fe doped CdS nanostructures were investigated by first principles computations. The electronic properties (band structures and densities of states) have been estimated to evaluate the effect of the Fe doping on the electronic and optical properties of CdS nanostructure. Results show that the properties of CdS are changed when Fe is doped in the parent material. Calculations reveal a semiconducting nature with different behavior for both spin up and down band structures. Fe induced change in the studied properties nanostructured CdS is discussed. Absorption characteristics of Fe doped CdS may be related to the change among valence band and vacant d-orbitals of Fe.

Accession Number: WOS:000518842600008

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ISSN: 0921-4526

eISSN: 1873-2135

Record 155 of 243

Title: Optical constants of Sn-doped amorphous Ge-As-Te thin films and their physical characterization

Author(s): Boukhris, I (Boukhris, Imed); Kebaili, I (Kebaili, Imen); Znaidia, S (Znaidia, Sami); Neffati, R (Neffati, R.); Hegazy, HH (Hegazy, H. H.); Aly, KA (Aly, K. A.); Mehta, N (Mehta, Neeraj); Dahshan, A (Dahshan, A.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 583 **Article Number:** 412066 **DOI:** 10.1016/j.physb.2020.412066 **Published:** APR 15 2020

Abstract: The paper presents theoretical estimations of the effects Sn inclusion on the physical parameters including cohesive energy (CEn), lone-pair electrons (LP), coordination number (CN), constraints number (CON) and heats of atomization (H-A) for the Ge12As23Te65-xSn(x) (where 0 <= x <= 8 at. %) glasses. In addition, Minkov method helped in evaluating the optical constants of the thin films. It is found that CN, CON, H-A and CEn increase whereas LP decreases by increasing the Sn content. It is evident that by increasing the Sn content, the rigidity of the glasses (Ge12As23Te65-xSnx) can be increased. The study helped in estimating the chemical bonds occurred within the Ge12As23Te65-xSnx glasses. Furthermore, by the examination of glasses, it was found that the bonds that exist in glasses are Ge-Sn, Ge-As, Te-As and Te-Te with the respective energies of 42.41, 35.61, 32.74 and 33 kcal/mol. According to the two-term Cauchy dispersion equation, the values obtained from evaluating the refractive index (n) of the thin films were values of oscillator (E-o) and dispersion (E-d) energies. Additionally, the absorption coefficient (alpha) values were obtained by applying all the suggested conditions of Connell and Lewis. The paper also showed that an increase of the Sn content from 0 to 8 at. %, stimulates to reduce the energy gap (E-g) from 1.5 to 1.25 eV.

Accession Number: WOS:000518842600025

Author Identifiers:

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ISSN: 0921-4526

eISSN: 1873-2135

Record 156 of 243

Title: Mechanical and electrical parameters of a-Ge-Se-Sn glasses

Author(s): Saddeek, YB (Saddeek, Yasser B.); Aly, KA (Aly, K. A.); Alharbi, T (Alharbi, T.); Dahshan, A (Dahshan, A.); Issa, SAM (Issa, Shams A. M.); Ahmad, M (Ahmad, Mahmoud); Soraya, MM (Soraya, M. M.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 583 **Article Number:** 412059 **DOI:** 10.1016/j.physb.2020.412059 **Published:** APR 15 2020

Abstract: The present work reports the effect of Sn addition on the electrical and mechanical properties of the GeSe2 glass. The measured ultrasonic velocities are used to estimate the elastic moduli and Debye temperature (TD) of the (GeSe2)(1-x)Sn-x glasses. The temperature dependence of the electrical parameters and thermo-electrical power of the studied glasses was determined over the temperature range of 300-450 K. The Young's modulus (Y) and bulk modulus (K) as well as the activation energy for the dark electrical conduction (Delta E-dc) were correlated with the glass transition temperature (T-g). The observed changes were explained in terms of the distribution of the formed chemical bonds in each glass sample. Delta E-dc values decrease while Y and K increase with the increase of Sn content, i.e. the addition of Sn content to the GeSe2 glass enhances both the electrical conductivity and mechanical moduli of Ge-Se-Sn glassy films.

Accession Number: WOS:000518842600023

Author Identifiers:

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ISSN: 0921-4526

eISSN: 1873-2135

Record 157 of 243

Title: Magnetoelectric coupling caused by strain mediation in hetero-structured spinel-perovskite multiferroic composites

Author(s): Manzoor, Z (Manzoor, Zohaib); Khalid, A (Khalid, Ayesha); Mustafa, GM (Mustafa, Ghulam M.); Ramay, SM (Ramay, Shahid M.); Naseem, S (Naseem, Shahzad); Atiq, S (Atiq, Shahid)

Source: JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS **Volume:** 500 **Article Number:** 166409 **DOI:** 10.1016/j.jmmm.2020.166409 **Published:** APR 15 2020

Abstract: Interfacial coupling in heterostructures of spinel-perovskite nanocomposites, primarily controls the performance of the multiferroic samples, especially in such type of binary structure systems. The interfacial response in this class of composites is a key feature to enhance the magnetoelectric response of the materials. For this purpose, here we synthesized a series of 0.5BiFeO(3)- 0.5Ni(0.5)Co(0.5)Fe(2)O(4) by substituting Zn at Co-site in spinel phase, using a facile wet chemical technique. The structural analysis carried out using X-ray diffraction revealed the presence of both the phases. Spherical type agglomerated grains with sharp and distinct grain boundaries were exposed by field emission scanning electron microscopy. Elemental profile was mapped by energy dispersive X-ray spectroscopy to confirm the stoichiometric composition of these composites. Improvement in saturation magnetization and remanence with increasing substitution contents was analyzed via vibrating sample magnetometer. In addition, the ferroelectric investigations were carried out to calculate the recoverable energy and energy loss density. Magneto-polarizability investigations uncovered the potential of these composites for multistate device applications.

Accession Number: WOS:000512907600074

ISSN: 0304-8853

eISSN: 1873-4766

Record 158 of 243

Title: Luminescence of Phosphate Glasses: P2O5-ZnO-BaF2-K2TeO3-Al2O3-Nb2O5 Doped with Sm3+ Ions for Display and Laser Material

Author(s): AbouDeif, YM (AbouDeif, Y. M.); Alqahtani, MM (Alqahtani, Moteb M.); Emara, AM (Emara, Ashraf M.); Reben, M (Reben, M.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 7 **Pages:** 4144-4153 **DOI:** 10.1007/s11664-020-08124-8 **Early Access Date:** APR 2020 **Published:** JUL 2020

Abstract: Luminescent phosphate glasses having the composition 40P(2)O(5)-30ZnO-20BaF(2)-3.8K(2)TeO(3)-1.2Al(2)O(3)-5Nb(2)O(5)in mol.% doped with 3 x 10(3) ppm and 4 x 10(3) ppm Sm(2)O(3)were successfully prepared by a melt-quenching technique. The investigated glasses were characterized by x-ray diffraction, UV-visible-NIR, absorption, emission, and fluorescence lifetime analysis. The radiative properties were calculated using Judd-Ofelt (J-O) spectral intensity parameters for each of the glasses, which revealed the following trend:Omega(2) > Omega(4) > Omega(6). The J-O intensity parameters were used to evaluate the spontaneous emission properties including branching ratios, transition probabilities, and radiative lifetime. The value of the optical energy band gap was found to decrease with an increase in Sm(3+)content, which is explained on the basis of structural changes. The calculated stimulated emission cross-section sigma(SE), at 1.62 mu m of glasses studied was high, and increased from 3.81 x 10(-21) cm(2) to 4.38 x 10(-21) cm(2)with increasing Sm3+ ion concentration. The structure of the glasses was investigated by computing Internuclear (r(i)), Polaron radius (r(p)) and field strength F and measurement of Raman spectra.

Accession Number: WOS:000557492800002

ISSN: 0361-5235

eISSN: 1543-186X

Record 159 of 243

Title: Investigation of electrical, magnetic, and optical properties of silver-substituted magnesium-manganese ferrite nanoparticles

Author(s): Somnath (Somnath); Batoo, KM (Batoo, Khalid Mujasam); Raslan, EH (Raslan, Emad H.); Adil, SF (Adil, Syed Farooq); Sharma, I (Sharma, Indu); Kumar, G (Kumar, Gagan)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 10 **Special Issue:** SI **Pages:** 7880-7888 **DOI:** 10.1007/s10854-020-03326-6 **Early Access Date:** APR 2020 **Published:** MAY 2020

Abstract: In this work, a series of silver-doped Mg-Mn ferrite nanoparticles, Mg0.9Mn0.1AgxFe2-xO4 (x = 0.0, 0.1, 0.2), has been synthesized by solution combustion method and effects of Ag+ ions on the structural, electrical, magnetic as well as optical properties have been investigated. The phase recognition has been confirmed by utilizing X-ray diffraction (XRD) study. The particle size and strain has been estimated using the Williamsons-Hall plots, while Nelson-Riley plots have been utilized to predict the lattice parameter. An increase in the particle size (17.5-21.8 nm) and lattice parameter (8.37-8.39 angstrom) has been viewed with the adding up of Ag+ ions. Incorporation of Ag+ ion has decreased the resistivity and has produced a normal dispersion curve in the dielectric properties. The M-H study has confirmed an increase in the saturation magnetization (16.9-22.7 emu/g), which has reflected the strengthening of magnetic exchange interactions with the addition of silver content in the Mg-Mn ferrite nanoparticles matrix. The bandgap estimated from the Tauc plots has been viewed to decrease (6.08-4.85 eV) by the rise in silver ions content. Raman spectroscopy study has predicted a slight shift in the Raman modes towards the lower frequency. The electric and dielectric properties have been explained in the light of Verwey's hopping mechanism and Maxwell-Wagner model, respectively. The obtained magnetic parameters have suggested that present nanoferrites are quite suitable for electromagnet application.

Accession Number: WOS:000525249100004

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Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0957-4522

eISSN: 1573-482X

Record 160 of 243

Title: Theoretical investigation of structural and magnetic properties of MnTiX (X = Si, Ge, Se, Te) half-Heusler alloys

Author(s): Ahmed, S (Ahmed, S.); Zafar, M (Zafar, M.); Rizwan, M (Rizwan, M.); Khan, MI (Khan, M., I); Arshad, H (Arshad, H.); Hai-Bo, J (Hai-Bo, J.); Shabbir, M (Shabbir, M.); Al-Sehemi, AG (Al-Sehemi, A. G.); Shakil, M (Shakil, M.)

Source: INDIAN JOURNAL OF PHYSICS **DOI:** 10.1007/s12648-020-01739-x **Early Access Date:** APR 2020

Abstract: The structural, electronic, and magnetic properties of half-Heusler alloys (HHAs) MnTiX (X = Si, Ge, Se, Te) are studied using full potential linearized augmented plane wave (FP-LAPW) method as implemented in Wien2k code which is a well-known code to investigate the physical properties of materials. The geometry optimization calculations for ferromagnetic (FM) and anti-ferromagnetic phases have been performed in order to determine the most stable phase of these materials. The results revealed that FM phase is the most stable, and further calculations (spin band structures and density of states) are carried for FM phase. The obtained results of band structures and density of states show that all considered alloys have half-metallic (HM) behavior with 100% spin polarization at the Fermi level. Furthermore, the exchange coupling of s-d and p-d exchange have also been discussed in detail for these materials.

Accession Number: WOS:000523389800001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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al-sehemi, Abdullah	AAM-4039-2020	
Al-Sehemi, Abdullah		0000-0002-6793-3038

ISSN: 0973-1458

eISSN: 0974-9845

Record 161 of 243

Title: In Vitro Bioactivity Study on ZnI2-HAp Nanoparticles

Author(s): Alshahrani, MY (Alshahrani, Mohammad Y.); Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Ibrahim, EH (Ibrahim, Essam H.); Kilany, M (Kilany, Mona); Sayed, MA (Sayed, M. A.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 15 **Issue:** 4 **Pages:** 523-531 **DOI:** 10.1166/jno.2020.2776 **Published:** APR 2020

Abstract: The manufactured powder of immaculate HAp which is doped with 1.0, 5.0, 10, 20, 30, and 40 in wt.% ZnI2 has been prepared via the sol-gel process. The characterization of samples was achieved by X-ray diffraction (XRD), Fourier Transform Infrared spectroscopy (FT-IR) and Fourier Transform Raman spectroscopy (FT -Raman). The morphology of the obtained HAp powder was studied through SEM analysis. The investigation proves that all prepared samples have the dimension of a nanoscale. The prepared powders were examined for its anti-growth, stimulatory/cytotoxic potentials on normal/activated mouse splenocytes in vitro as well as the lytic effects on red blood cells (RBCs). Results showed that different preparations of ZnI2 had anti-growth effects on normal mouse splenocytes. The pure HAp, 1% and 10% ZnI2 showed no effects on stimulated mouse splenic cells while the other preparations 5%, 20%, 30% and 40% ZnI2 showed inhibitory/cytotoxic effects. All ZnI2 preparations showed safe effects on RBCs.

Accession Number: WOS:000564138100003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ibrahim, Essam H.	G-1960-2018	0000-0003-0130-2257

ISSN: 1555-130X

eISSN: 1555-1318

Record 162 of 243

Title: RAMAN GAIN AND STRUCTURAL OF TELLURITE-PHOSPHATE GLASSES WITH DIFFERENT MODIFIERS DOPING WITH Er2O3

Author(s): Othman, HA (Othman, H. A.); Alqahtani, MM (Alqahtani, M. M.); Reben, M (Reben, M.); Yousef, E (Yousef, El S.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 4 **Pages:** 207-215 **Published:** APR 2020

Abstract: A glass series of Te-glasses (70TeO(2)- 10P(2)O(5)-10ZnO-5PbF(2)) modified with 5mol % of different modifiers (WO3, Al2O3, CdO, SrO, BaO), that was then doped with 600ppm Er2O3 was prepared by melt quench technique. The effect of modifier oxide on the Teglass structure was studied using Raman spectroscopy. The Obtained Raman spectra reveal the characteristic structural units TeO4 and TeO3. Er2O3 doping along with the type of oxide modifier influenced the tellurite glass network and hence the Raman spectral features. The change in the Boson peak features depend on the rare earth ion doping. The obtained Raman spectra were deconvoluted to follow the structural changes. The deconvoluted data show a transformation of TeO4 to TeO3 upon the addition of metal oxides. Due to the higher coordination of WO3 and Al2O3 that offers more oxygens when compared with alkaline modifiers, the TeO3 structural group is dominated Raman gain was calculated for the prepared glasses. Al2O3 modified glass sample has the highest Raman gain.

Accession Number: WOS:000526066600005

Author Identifiers:

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ISSN: 1584-8663

Record 163 of 243

Title: General improved Kudryashov method for exact solutions of nonlinear evolution equations in mathematical physics

Author(s): Hyder, A (Hyder, Abd-Allah); Barakat, MA (Barakat, M. A.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 4 **Article Number:** 045212 **DOI:** 10.1088/1402-4896/ab6526 **Published:** APR 2020

Abstract: This paper is devoted to improving the general Kudryashov method by a new and general auxiliary equation. So, a new method is introduced, which we call 'the general improved Kudryashov method', to produce exact solutions for nonlinear evolution equations arising in mathematical physics. As application examples, exact traveling wave solutions for the combined Korteweg-de Vries and modified Korteweg-de Vries (KdV-mKdV) equation and the (2+1)-dimensional Zakharov-Kuznetsov equation are obtained. These solutions can be classified as solitary and periodic wave solutions. Some of the obtained solutions are graphically sketched.

Accession Number: WOS:000525015500012

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Author	Web of Science ResearcherID	ORCID Number
Hyder, Abd-Allah		0000-0001-9273-9512

ISSN: 0031-8949

eISSN: 1402-4896

Record 164 of 243

Title: Nanostructure and enhancement of the optical properties of Tb-doped NiO for photodiode applications

Author(s): Farag, AAM (Farag, A. A. M.); Yahia, IS (Yahia, I. S.); Al-Kotb, MS (Al-Kotb, M. S.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 64 **Pages:** 87-102 **DOI:** 10.1016/j.cjph.2019.12.024 **Published:** APR 2020

Abstract: In the present work, pure and 1, 2.5, 5 and 10% Tb-doped NiO nanostructures were fabricated in the form of thin-films by the sol-gel spin coating process. The prepared structures were identified by an X-ray diffraction pattern and atomic force microscopy. The results of the X-ray diffraction indicate that the prepared films are polycrystalline with a cubic lattice face-centered for wholly Tb-doped concentration films. The surface topography of the films was studied by atomic force microscopy, and surface mapping was introduced to check the quality of the surface for optical investigations. The measured optical transmission indicated a high transmission that exceeds 80% through the visible region depending on the Tb-doping concentrations. It is affirmed that the measured optical bandgap and the index of refraction are strongly influenced by the Tb-doping concentrations. The parameters of nonlinearity were also critically affected by the Tb-doping concentrations. This innovative result can hopefully be applied in an industrialized approach for the field of photodiode devices.

Accession Number: WOS:000522637000010

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Yahia, Ibrahim Sayed	G-4458-2011	
Al-Kotb, M. S.	AAA-5011-2021	0000-0002-9047-1791

ISSN: 0577-9073

Record 165 of 243

Title: Design of output-graded narrow polychromatic filter by using photonic quasicrystals

Author(s): Ben Ali, N (Ben Ali, Naim); Dhasarathan, V (Dhasarathan, Vigneswaran); Alsaif, H (Alsaif, Haitham); Trabelsi, Y (Trabelsi, Youssef); Nguyen, TK (Truong Khang Nguyen); Bouazzi, Y (Bouazzi, Y.); Kanzari, M (Kanzari, Mounir)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 582 **Article Number:** 411918 **DOI:** 10.1016/j.physb.2019.411918 **Published:** APR 1 2020

Abstract: The properties of one-dimensional photonic quasicrystals built according to one-dimensional-generalized Fibonacci (GF)/Generalized Thue-Morse (GTM) were investigated in order to design an output polychromatic filter. This main aperiodic multilayered structure was made up of alternate two dielectrics materials Silica and Bi4Ge3O12 (BGO)with higher and lower refractive indices respectively. The Transfer Matrix Method (TMM) was adopted to calculate the photometric response. The transmittance spectrum exhibited a stacking of similar Bragg gaps (BGs) for specific arrangement (m = n) of GF and GTM. We noted that the positions and the number and size of BGs were sensitive to the constituent of the Photonic quasicrystal (PQC) system and lattice parameter of quasiperiodic sequence. Therefore, these configurations of multilayered stacks can be useful as a graded polychromatic filter.

Accession Number: WOS:000517950500008

Author Identifiers:

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Ben Ali, Naim		0000-0001-6739-679X

ISSN: 0921-4526

eISSN: 1873-2135

Record 166 of 243

Title: An impact of La doping content on physical properties of NiO films facilely casted through spin-coater for optoelectronics

Author(s): Ganesh, V (Ganesh, V); Haritha, L (Haritha, L.); Manthrammel, MA (Manthrammel, M. Aslam); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 582 **Article Number:** 411955 **DOI:** 10.1016/j.physb.2019.411955 **Published:** APR 1 2020

Abstract: With a view to study the optical properties of La doped NiO thin films and make them available for futuristic optoelectmnic devices, these films were deposited by spin coating technique assisted by sol-gel. The structural, morphological, linear and non-linear optical properties of the as-prepared films were studied. XRD shows that the films were polycrystalline, and the growth of grains was studied by AFM. The Raman spectra of the pure and La doped films were analyzed over the range 200-1400 cm(-1). The optical study of the doped films shows that they are highly transparent in the visible region. Moreover, the direct and indirect band gaps of the films were evaluated and are found to be in the range of 3.84-3.96 eV for the direct and 3.26-3.4 eV for the indirect bandgap. Higher value of non-linear susceptibilities and refractive index opens a window for wide use of these films in optoelectmnic devices.

Accession Number: WOS:000517950500002

Author Identifiers:

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ISSN: 0921-4526

eISSN: 1873-2135

Record 167 of 243

Title: A Temperature Sensor Based on Al/p-Si/CuCdO2/Al Diode for Low Temperature Applications

Author(s): Dere, A (Dere, A.); Tataroglu, A (Tataroglu, A.); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Eren, H (Eren, Haydar); Soylu, M (Soylu, M.); Al-Ghamdi, AA

(Al-Ghamdi, Ahmed A.); Yakuphanoglu, F (Yakuphanoglu, F.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 4 **Pages:** 2317-2325 **DOI:** 10.1007/s11664-020-07989-z **Published:** APR 2020

Abstract: CuCdO2 delafossite oxide film as an interface layer was coated by sol-gel spin coating on p-Si substrate, and thus an Al/p-Si/CuCdO2/Al diode was fabricated. Scanning electron microscopy (SEM) with energy dispersive spectroscopy (EDS) was used to obtain an image of the CuCdO2 oxide film. The temperature-dependent behavior of the diode was studied by current-voltage (I- V) and capacitance/conductance-voltage (C/G-V) measurements over the 100-400 K temperature range. It is observed that the ideality factor (n) decreases and zero-bias barrier height (Ub0) increases with an increase in temperature. This abnormal behavior of n and Ub0 is attributed to barrier inhomogeneities by assuming Gaussian distribution (GD) at the metal-semiconductor interface. For each temperature, the barrier height values obtained from both the conventional I-V and Norde method show good agreement with each other. The I-V-T characteristics have shown the GD, giving a mean barrier height (similar to U b0) of 1.04 eV and a standard deviation (rs) of 0.12 V. A modified Richardson plot of [ln(I0/T2) similar to q2rs2/2k2 T2 versus q/kT] yields similar to U b0 and A* as 1.06 eV and 31.21 A cm similar to 2 K similar to 2 (indicating an agreement with the theoretical value of 32 A cm similar to 2 K similar to 2), showing the promise of CuCdO2/Si as temperature sensing with a Schottky junction. In addition, C-V and G-V measurements show that the C value decreases and the G value increases as the frequency increases, depending on a continuous distribution of interface states. Also, the capacitance and the conductance values decrease with increasing temperature. The results suggest that Al/p-Si/CuCdO2/Al diode can be used for temperature sensing applications.

Accession Number: WOS:000515822800002

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Al-Sehemi, Abdullah	J-9967-2012	
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Al-Sehemi, Abdullah		0000-0002-6793-3038

ISSN: 0361-5235

eISSN: 1543-186X

Record 168 of 243

Title: An effect of Zn content doping on opto-third order nonlinear characteristics of nanostructured CdS thin films fabricated through spray pyrolysis for optoelectronics

Author(s): Shkir, M (Shkir, Mohd); Anis, M (Anis, Mohd); Shafik, S (Shafik, S.); Manthrammel, MA (Manthrammel, M. Aslam); Sayeed, MA (Sayeed, M. A.); Hamdy, MS (Hamdy, Mohamed S.); AlFaify, S (AlFaify, S.)

Source: PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES **Volume:** 118 **Article Number:** 113955 **DOI:** 10.1016/j.physe.2020.113955 **Published:** APR 2020

Abstract: The facile and cost-effective fabrication of cadmium sulphide (CdS) thin films with diverse contents of Zn was carried out on substrates of glass which maintained at 300 degrees C temperature. The grown CdS films are observed to belong monophasic hexagonal system at all Zn contents through structural and vibrational inspections. The values of crystallites size were determined in range of 16-31 nm. The Zn existence and its homogeneity were confirmed by EDX and e-mapping. SEM study displayed the modification in surface topography of CdS films by Zn content. Ultra violet-visible-near infrared spectroscopy study revealed that the grown films are of good optical transparency. The indices of refraction values were estimated and shows the variation in range of 1-2.8 owing to Zn. The PL study propose the applications of grown films in green LEDs as the emission peak has been observed at 513 + 17 nm. Third-order-nonlinear optics (TONLO) constraints were determined through off and on orifice Zscan data. The order of the values of TONLO index of refraction and susceptibility was noted of 10(-8) cm(2)/W and 10(-5) esu, orders correspondingly and found to be enhanced with Zn doping in CdS. Enhancement in optical limiting behaviour of CdS was also noticed when doped with Zn.

Accession Number: WOS:000515321700004

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ISSN: 1386-9477

eISSN: 1873-1759

Record 169 of 243

Title: Effect of Nickel Doping on the Properties of Hydroxyapatite Nanoparticles

Author(s): Kurinjinathan, P (Kurinjinathan, P.); Arul, KT (Arul, K. Thanigai); Ramya, JR (Ramya, J. Ramana); Manikandan, E (Manikandan, E.); Hegazy, HH (Hegazy, H. H.); Umar, A (Umar, Ahmad); Algarni, H (Algarni, H.); Ahmad, N (Ahmad, Naushad)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 4 **Pages:** 2482-2487 **DOI:** 10.1166/jnn.2020.17182 **Published:** APR 2020

Abstract: Herein, we studied the effect of nickel (Ni) doping on the properties of hydroxyapatite (HAp) nanoparticles synthesized by facile ultrasonication assisted wet chemical synthesis process. Various doping concentrations of nickel, i.e. 0.01 M, 0.05 M and 0.10 M, were used to dope into hydroxyapatite nanoparticles. The synthesized nanoparticles were characterized by X-ray diffraction (XRD) pattern, scanning electron spectroscopy (SEM), Fourier transform infrared (FTIR) spectroscopy, UV-Visible spectroscopy and Raman-scattering spectroscopy. The detailed structural characterizations confirmed that the crystallite sizes of the Ni-doped hydroxyapatite nanoparticles were reduced up to 53% compared to pure hydroxyapatite upon the doping of different concentrations of Ni ions. The agglomeration in the nanoparticles was also reduced by increasing the doping concentration of Ni ions. The XRD studies revealed that the average crystallite size of the synthesized Ni-doped HAp was decreased with increasing the concentration of Ni2+ ion doping and this observation was well-consistent with the SEM results. The FTIR and Raman studies well-confirmed the formation of pure HAp and Ni-doped HAp. Further,

doping with Ni creates a new level of energy between the conductive band and the valence band and hence with increasing the concentration of Ni2+, the intensity in the UV-vis spectra was enhanced.

Accession Number: WOS:000484789100061

PubMed ID: 31492265

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ISSN: 1533-4880

eISSN: 1533-4899

Record 170 of 243

Title: Effect of Synthesis Temperature on the Morphologies, Optical and Electrical Properties of MgO Nanostructures

Author(s): Sagadevan, S (Sagadevan, Suresh); Venilla, S (Venilla, S.); Marlinda, AR (Marlinda, A. R.); Johan, MR (Johan, Mohd. Rafie); Wahab, YA (Wahab, Yasmin Abdul); Zakaria, R (Zakaria, Rozalina); Umar, A (Umar, Ahmad); Hegazy, HH (Hegazy, Hosameldin H.); Algarni, H (Algarni, H.); Ahmad, N (Ahmad, Naushad)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 4 **Pages:** 2488-2494 **DOI:** 10.1166/jnn.2020.17185 **Published:** APR 2020

Abstract: Herein, we report the effect of synthesis temperature on the morphologies, optical and electronic properties of magnesium oxide (MgO) nanostructures. The MgO nanostructures were synthesized at different temperatures, i.e., 100 degrees C, 300 degrees C, and 600 degrees C by simple chemical reaction process and their morphology, particle size, optical, and electrical properties were examined by different techniques such as scanning electron microscopy (SEM), X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy and UV-Vis. spectroscopy. The morphological investigations revealed that various morphologies of MgO nanostructures, i.e. nanoparticles, nanosheet networks, and nanoneedles were synthesized at 100 degrees C, 300 degrees C, and 600 degrees C. The XRD results confirmed that with increasing the synthesis temperature, the crystallinity of the synthesized nanostructures increases. Further, the dielectric properties and AC conductivity at various frequencies for MgO nanostructures were studied which revealed that the dielectric losses decrease with increase in frequency and temperature. In addition, the observed band gap decreases from 4.89 eV to 4.438 eV (100 degrees C to 600 degrees C) representing its increase in the conductivity.

Accession Number: WOS:000484789100062

PubMed ID: 31492266

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JOHAN, MOHD RAFIE	B-9106-2010	0000-0003-1133-9977

ISSN: 1533-4880

eISSN: 1533-4899

Record 171 of 243

Title: The impact of lead oxide on the optical and gamma shielding properties of barium borate glasses

Author(s): Ali, AM (Ali, Atif Mossad); Rammah, YS (Rammah, Y. S.); Sayyed, MI (Sayyed, M. I.); Somaily, HH (Somaily, H. H.); Algarni, H (Algarni, H.); Rashad, M (Rashad, M.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 4 **Article Number:** 280 **DOI:** 10.1007/s00339-020-3463-2 **Published:** MAR 18 2020

Abstract: In this study, the optical properties and gamma-ray competence of barium-lead borate glasses with chemical form BaO-B2O3-PbO have been investigated. The optical features such as optical energy gap (E-optical), linear refractive index (n), molar refraction (R-molar), molar polarizability (alpha(molar)), metallization criterion (M), dielectric constants (static and optical), reflection loss (R-loss), optical transmission (T-optical) and others for the investigated glasses were calculated. Results show that E-optical measures in (eV) and E-optical values were changed from 3.18 to 2.53 eV, while n increases from 2.350 to 2.536. Phy-X/PSD software has been applied to report the radiation attenuation factors of the tested glasses. The results implied that all samples have the high attenuation ability at lower energies and the maximum mu/rho is reported at 15 keV and lies within the range of 29.398 and 68.228 cm(2)/g. The minimum effective atomic number (Z(eff)) occurs at 1.5 MeV and equals to 10.90, 11.30, 12.41, 13.57, 16.79 and 20.55 for the tested glasses. At 0.2 MeV, the Z(eff) changes from 19.42 to 49.10 due to the increase of PbO from 0.5 to 30 wt%. The half value layer (HVL) results revealed that the current glasses have very low HVL values at the 15 keV (in the range of 0.00202 to 0.00671 cm). The HVL increases with the energy which indicates that the photon with high energy can penetrate the samples easily. The HVL results also showed that increasing the density of the samples leading to reduce the HVL and BBP30 has the thinner HVL, while BBP0.5 has the thicker HVL.

Accession Number: WOS:000522168300001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 172 of 243

Title: Fabrication and growth of linear and nonlinear optical behaviour of Cu2FeSnS4 spherical nanostructured thin films

Author(s): El Saeedy, HI (El Saeedy, H. I.); Yakout, HA (Yakout, H. A.); El Sayed, MT (El Sayed, Mardia T.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 4 **Article Number:** 281 **DOI:** 10.1007/s00339-020-3458-z **Published:** MAR 18 2020

Abstract: For cost-effective synthesis of Cu2FeSnS4 (CFTS) thin films, a chemical bath deposition technique was carried out at temperature of 343 K. The formation of tetragonal phase and highly oriented CFTS thin films was confirmed by XRD technique. The morphology and composition of the CFTS thin films were characterized by field emission scanning electron microscopy and EDX techniques. Linear and nonlinear optical studies of the CFTS thin films were executed to determine a future device application. The chemically prepared CFTS thin films reveal a direct energy gap which decreased from 1.54 to 1.31 eV with increasing the thickness. The nonlinear optical constants of the chemically prepared CFTS thin films such as the nonlinear absorption coefficient beta(c), the nonlinear refractive index n(2) and the third-order susceptibility chi((3)) were evaluated and analysed.

Accession Number: WOS:000522168300002

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ISSN: 0947-8396

eISSN: 1432-0630

Record 173 of 243

Title: Nanostructured Al and Fe co-doped ZnO thin films for enhanced ammonia detection

Author(s): Vijayakumar, Y (Vijayakumar, Y.); Nagaraju, P (Nagaraju, P.); Yaragani, V (Yaragani, Veeraswamy); Parne, SR (Parne, Saidi Reddy); Awwad, NS (Awwad, Nasser S.); Reddy, MVR (Reddy, M. V. Ramana)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 581 **Article Number:** 411976 **DOI:** 10.1016/j.physb.2019.411976 **Published:** MAR 15 2020

Abstract: Pure and Al, Fe doped/co-doped zinc oxide (ZnO) thin films were prepared using spray pyrolysis technique with optimised deposition parameters. Micro-structural properties of the films were carried out using X-ray diffraction (XRD), transmission electron microscopy (TEM) and Raman spectroscopy. XRD results have shown that the deposited thin films were polycrystalline in nature with Wurtize structure. Crystallite size was determined and it was found to be decreased with single dopants and increased while co-doping in the zinc oxide matrix. Morphological studies have been studied by using Atomic Force Microscopy and Field Emission Scanning Electron Microscopy. They have clearly shown that the deposited thin films are agglomerated spherical particles with uniform distribution. Optical properties of the films were measured by UV-Vis spectrophotometer. Optical band gap was determined using Touc plot. Gas sensing characterization of pure and doped/co-doped ZnO thin films were carried out at mom temperature in static liquid distribution method towards different gases such as acetone, ethanol, xylene and ammonia. Response and recovery times were also calculated and reported.

Accession Number: WOS:000517949300017

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ISSN: 0921-4526

eISSN: 1873-2135

Record 174 of 243

Title: Fabrication of a novel and low-cost disposable visual UVC sensors with short response time

Author(s): AlFaify, S (AlFaify, S.); Shkir, M (Shkir, Mohd); Yahia, IS (Yahia, I. S.); Hamdy, MS (Hamdy, Mohamed S.)

Source: MATERIALS LETTERS **Volume:** 263 **Article Number:** 127219 **DOI:** 10.1016/j.matlet.2019.127219 **Published:** MAR 15 2020

Abstract: Herein, a one-step fabrication of disposable visual UVC sensors based on MB/PMMA thin films (thickness similar to 0.2-0.3 mm), comprising silver (Ag) and gold (Au) nanoparticles, was achieved. The fabricated thin films were characterized by means of XRD and SEM. Results showed the formation of Au and Ag nanoparticles in prepared films. UVC sensing behavior was investigated under the illumination of 254 nm light by following the color discharge of MB dye. A faster decolorization response was observed in Ag-MB/PMMA UVC sensor film, in which the color discharging rate was almost two times higher than MB/PMMA film. On the other hand, the Au-MB/PMMA UVC sensor film exhibited a slower response, as compared with the MB/PMMA film. The fabricated UVC sensor is expected to be highly applicable in modern sensing devices. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000513952500031

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Hamdy, Mohamed S	AAO-9518-2020	0000-0002-7234-4924

ISSN: 0167-577X

eISSN: 1873-4979

Record 175 of 243

Title: Optical and magnetic properties of manganese doped zinc sulphide: density functional theory approach

Author(s): Yaseen, M (Yaseen, Muhammad); Ambreen, H (Ambreen, Hina); Sufyan, A (Sufyan, Abu); Butt, MK (Butt, Mehwish Khalid); UrRehman, S (UrRehman,

Shafiq); Iqbal, J (Iqbal, Javed); Misbah (Misbah); Bibi, S (Bibi, Shamsa); Murtaza, A (Murtaza, Adil); Ramay, SM (Ramay, Shahid M.)

Source: FERROELECTRICS **Volume:** 557 **Issue:** 1 **Special Issue:** SI **Pages:** 112-122 **DOI:** 10.1080/00150193.2020.1713356 **Published:** MAR 11 2020

Abstract: In this work, electronic, optical and the magnetic properties of cubic ZnS doped with the transition metal (TM) Mn were numerically studied using the density functional theory code WIEN2K. The investigated concentrations included the compositional parameters x of 6.25%, 12.5% and 25% in Zn1-xMnxS. Computed electronic band structures and density of states (DOS) showed a half-metallic, ferromagnetic behavior with a direct band gap. The energy gap was found to increase with dopant concentration. Furthermore, optical properties such as the imaginary (epsilon(2)) and the real (epsilon(1)) part of the dielectric function, reflection, refractive index, absorption coefficient and optical conductivity show new transition peaks appear with Mn doping. The obtained results make the Zn1-xMnxS compound a promising candidate for spintronics devices.

Accession Number: WOS:000526425600013

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sufyan, abu	AAC-4456-2021	

ISSN: 0015-0193

eISSN: 1563-5112

Record 176 of 243

Title: Photovoltaic and capacitance measurements of solar cells comprise of Al-doped CdS (QD) and hierarchical flower-like TiO2 nanostructured electrode

Author(s): Farooq, WA (Farooq, W. A.); Atif, M (Atif, M.); Fatehmulla, A (Fatehmulla, A.); Yahia, IS (Yahia, I. S.); AlSalhi, MS (AlSalhi, M. S.); Fakhar-e-Alam, M (Fakhar-e-Alam, M.); Ali, SM (Ali, Syed Mansoor); Ali, K (Ali, Khuram); Munir, T (Munir, Tariq); Manthrammel, MA (Manthrammel, M. Aslam)

Source: RESULTS IN PHYSICS **Volume:** 16 **Article Number:** 102827 **DOI:** 10.1016/j.rinp.2019.102827 **Published:** MAR 2020

Abstract: This work focuses on the performance of Al-doped CdS quantum dot (QD)/TiO2 solar cells. The devices were analyzed through current-voltage and capacitance-voltage measurements. It was observed from the analysis of absorption spectra that TiO2 nanowires improve the absorption of light of Al doped CdS QDs both in visible and near infrared (NIR) range. Current-voltage characteristics curve of Al doped CdS/TiO2 at different illuminations show that decrease in illumination (from 100 to 5 mW/cm(2)), affects the voltage and current correspondingly. Power-voltage curve at various intensities of light indicates that power of the solar cell increases with the increase of the bias voltage and reaches its maximum value at each value of light illumination intensity. The peak value of power at maximum illumination is 35 mu W at 0.20 V and with decreasing illumination the peak value decreases. Capacitance-voltage measurements reveal that by increasing the bias voltage from -2.0 V to 0 V, the capacitance voltage indicates the rising trend. However, at 5 kHz and 10 kHz frequencies, it was observed that a marginal increase of capacitance was noticed with exceeding bias voltage. The results revealed that subsequent addition of the TiO2 nanowires significantly improved the output performance of QDSSC.

Accession Number: WOS:000564476700019

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Fatehmulla, Amanullah	C-7674-2014	

ISSN: 2211-3797

Record 177 of 243

Title: Systematic analysis of elastic alpha scattering on A approximate to 118 - 130 nuclei around the Coulomb barrier

Author(s): Mahmoud, ZMM (Mahmoud, Zakaria M. M.); Hemmdan, A (Hemmdan, A.); Behairy, KO (Behairy, Kassem O.)

Source: RESULTS IN PHYSICS **Volume:** 16 **Article Number:** 102892 **DOI:** 10.1016/j.rinp.2019.102892 **Published:** MAR 2020

Abstract: Alpha elastic scattering angular distributions on target nuclei Sn-118,Sn- 124 and Te120-130 at energies near the Coulomb barrier are analyzed. We used three versions of the nuclear optical model potentials (OMP) to analyze twenty-nine data sets. JLM and the density and energy-dependent DDM3Y1 with finite range exchange term effective interactions were used to generate these potentials. Two real folded potentials based on JLM and DDM3Y1 effective interactions supplied with the conventional Wood-Saxon (WS) imaginary potential are used in the cross sections calculations. These potentials are denoted as JLM-R and DDM3Y1-FR, respectively. In addition, we used the full complex folded OMP, denoted as JLM-RI, to analyze the same data. These potentials successfully predict the cross section of the systems under study. We found that the JLM-R and DDM3Y1-FR could reproduce the measured cross sections over the full angular range very well compared to microscopic JLM-RI potential. Our calculated potentials have a clear energy dependence and in addition a weak target mass dependence. The total reaction cross section and volume integral are investigated in comparison to previous studies. The derived potentials are very promising for the construction of a new global alpha-nucleus potential and provide new parameters of alpha-induced reactions and scattering at the energy range 17-27 MeV.

Accession Number: WOS:000545328500015

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ISSN: 2211-3797

Record 178 of 243

Title: An Effect of Cationic CTAB and Anionic SDS Surfactants on the Physicochemical Properties of Hydroxyapatite Nanostructures for Bone Tissue Engineering

Author(s): Yahia, IS (Yahia, I. S.); Keshk, SMAS (Keshk, Sherif M. A. S.); Shkir, M (Shkir, Mohd); Darwish, R (Darwish, R.); Alshahrie, A (Alshahrie, Ahmed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 15 **Issue:** 3 **Pages:** 316-324 **DOI:** 10.1166/jno.2020.2753 **Published:** MAR 2020

Abstract: Herein, we report the effect of different concentrations of CTAB and SDS surfactants on structural and morphological parameters of hydroxyapatite (HAp) prepared by microwave route. Structural confirmation was done by X-ray diffraction analysis and many structural components are computed. The mean values of crystallite size and crystallinity for CTAB-HAp were found to be in the range of 27-33 nm, 53-67%, however, these values for SDS-HAp are found to be in the range of 16-24 and 53-64%, respectively. These parameters showed that the crystallite size is reducing with SDS surfactants; however, the crystallinity seems to be in the same range. The crystallinity percentage confirms that both CTAB-HAp and SDS-HAp possess good crystallinity. Vibrations studies are carried out using FT-Raman and FT-IT spectroscopy and the observed vibrational modes confirm the formation of HAp. The morphology was studied through FE-SEM. FE-SEM results showed low dimensional nanorods of size within the range of 5-10 nm. The controlled morphology and small size of synthesized HAp using CTAB and SDS surfactants will make them suitable in bone cement applications as it has good ability to bond with proteins along with fragments of plaque and bacteria.

Accession Number: WOS:000541477900002

ISSN: 1555-130X

eISSN: 1555-1318

Record 179 of 243

Title: Microstructure, optical and photocatalytic properties of MgO nanoparticles

Author(s): Balakrishnan, G (Balakrishnan, G.); Velavan, R (Velavan, R.); Batoo, KM (Batoo, Khalid Mujasam); Raslan, EH (Raslan, Emad H.)

Source: RESULTS IN PHYSICS **Volume:** 16 **Article Number:** 103013 **DOI:** 10.1016/j.rinp.2020.103013 **Published:** MAR 2020

Abstract: The present work is focused on the synthesize of MgO nanoparticles using combustion method. The magnesium nitrate is used as a precursor with urea as a fuel. The precursor material is dissolved in 50 ml DI water along with the fuel and the solution is heated at 80 degrees C for 2 h. Then, the solution is transferred to crucible and kept it in the temperature of 500 degrees C. The as-synthesized MgO nanopowders are analyzed using X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), Field emission scanning electron microscopy (FESEM), photoluminescence (PL) and photocatalytic studies. The XRD results of MgO nanoparticles indicated the cubic structure with the crystallite size of 27 nm. The FESEM studies indicated the formation of MgO crystallites in spherical shape. In addition, MgO nanoparticles are porous and agglomerated. PL spectrum of MgO materials exhibit emission peaks, which indicates the occurrence of band to band transition with the bandgap of 2.9 eV. The photocatalytic degradation of methylene blue dye is evaluated using the as-prepared MgO nanoparticles under UV light. The photocatalytic studies indicate the 75% degradation efficiency of the catalyst after 120 min irradiation. Hence, the MgO Nanoparticles (NPs) can be used for the treatment of effluents from the dye industries.

Accession Number: WOS:000540004300013

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203

ISSN: 2211-3797

Record 180 of 243

Title: Concentration dependence of the elastic moduli, thermal properties, and non -isothermal kinetic parameters of Yb3+ doped multicomponent tellurite glass system

Author(s): Elkhoshkhany, N (Elkhoshkhany, N.); Syala, E (Syala, Eslam); Yousef, E (Yousef, El Sayed)

Source: RESULTS IN PHYSICS **Volume:** 16 **Article Number:** 102876 **DOI:** 10.1016/j.rinp.2019.102876 **Published:** MAR 2020

Abstract: The thermal properties and the kinetic parameters of TeO2-Li2O-ZnO-Nb2O5-Yb2O3 glass series have been evaluated as a function of increasing Yb2O3 content. The theoretical elastic properties and the quantitative analysis (the link between the elastic features and the changed chemical composition of the glass) have been determined by the use of bond compression and Makishima-Mackenzie models. The thermal analysis Differential Scanning Calorimetry (DSC) test was used for estimating the glass characteristics temperatures, thermal stability, and non-isothermal kinetic parameters at the heating rates (beta) 10, 15, 20 and 25 K/min. The activation energies of the glass transition < Eg > and crystallization < Ec >, as well as the order of the crystallization reaction (n), have been computed by different models with clear consistency and harmony between them. It was found that the characteristics temperatures of transition (Tg), softening (Ts), the onset of the crystallization (Tx) and the crystallization (Tc) increased with increasing the heating rate. Also, the results showed the higher thermal stability values (> 100 K) for the understudied glass which is confirmed by K-SP and ((Tc-Tg)/Tg) parameters values. Calculating of (n) showed that the crystallization started with surface nucleation and finished with bulk volume nucleation with rising Yb2O3 (mol %). The computed elastic moduli were linked with the interpretation of the thermal parameters to give a comprehensive image of the studied glass system.

Accession Number: WOS:000540003600001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Syala, Eslam	L-1680-2019	

ISSN: 2211-3797

Record 181 of 243

Title: Physicochemical properties of a nanocomposite (graphene oxide- hydroxyapatite-cellulose) immobilized by Ag nanoparticles for biomedical applications

Author(s): Yahia, IS (Yahia, I. S.); Shkir, M (Shkir, Mohd); Keshk, SMAS (Keshk, Sherif Mohamed Abdel Salam)

Source: RESULTS IN PHYSICS **Volume:** 16 **Article Number:** 102990 **DOI:** 10.1016/j.rinp.2020.102990 **Published:** MAR 2020

Abstract: In this study, an anti-bacterial hybrid graphene oxide/hydroxyapatite /cellulose composite membrane containing silver nanoparticles (AgNPs) was prepared and characterized by FT-IR, Raman spectroscopy, XRD, and SEM. The incorporation of GO (graphene oxide) into HAp (hydroxyapatite) created a functional group that facilitated the deposition of AgNPs. GO improved the deposition of AgNPs on cellulose fibers and prevented leaching of Ag ions resulting in effective antimicrobial activity. The synthesized composite membrane demonstrated strong antibacterial activity against gram-positive (S. aureus) and gram-negative (E. coli and C. albicans) bacteria. The synthesized nanocomposite will be highly applicable as antibacterial agent against the studied bacteria.

Accession Number: WOS:000540003400005

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Keshk, Sherif M. A. S.	M-2326-2015	

ISSN: 2211-3797

Record 182 of 243

Title: A Novel Hybrid Secure Image Encryption Based on Julia Set of Fractals and 3D Lorenz Chaotic Map

Author(s): Masood, F (Masood, Fawad); Ahmad, J (Ahmad, Jawad); Shah, SA (Shah, Syed Aziz); Jamal, SS (Jamal, Sajjad Shaukat); Hussain, I (Hussain, Iqtadar)

Source: ENTROPY **Volume:** 22 **Issue:** 3 **Article Number:** 274 **DOI:** 10.3390/e22030274 **Published:** MAR 2020

Abstract: Chaos-based encryption schemes have attracted many researchers around the world in the digital image security domain. Digital images can be secured using existing chaotic maps, multiple chaotic maps, and several other hybrid dynamic systems that enhance the non-linearity of digital images. The combined property of confusion and diffusion was introduced by Claude Shannon which can be employed for digital image security. In this paper, we proposed a novel system that is computationally less expensive and provided a higher level of security. The system is based on a shuffling process with fractals key along with three-dimensional Lorenz chaotic map. The shuffling process added the confusion property and the pixels of the standard image is shuffled. Three-dimensional Lorenz chaotic map is used for a diffusion process which distorted all pixels of the image. In the statistical security test, means square error (MSE) evaluated error value was greater than the average value of 10000 for all standard images. The value of peak signal to noise (PSNR) was 7.69(dB) for the test image. Moreover, the calculated correlation coefficient values for each direction of the encrypted images was less than zero with a number of pixel change rate (NPCR) higher than 99%. During the security test, the entropy values were more than 7.9 for each grey channel which is almost equal to the ideal value of 8 for an 8-bit system. Numerous security tests and low computational complexity tests validate the security, robustness, and real-time implementation of the presented scheme.

Accession Number: WOS:000526524300056

PubMed ID: 33286048

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Shah, Aziz		0000-0003-2052-1121

eISSN: 1099-4300

Record 183 of 243

Title: Alloyed Ag2SexS1-x quantum dots with red to NIR shift: The band gap tuning with dopant content for energy harvesting applications

Author(s): Chand, S (Chand, Subhash); Dahshan, A (Dahshan, A.); Thakur, N (Thakur, Nagesh); Sharma, V (Sharma, Vineet); Sharma, P (Sharma, Pankaj)

Source: INFRARED PHYSICS & TECHNOLOGY **Volume:** 105 **Article Number:** 103162 **DOI:** 10.1016/j.infrared.2019.103162 **Published:** MAR 2020

Abstract: Alloyed quantum dots have pulled in a large consideration because of their fascination from visible to near infrared regime. In this work, quantum dots of alloyed Ag2SexS1-x (x = 0, 0.4, 0.6, 1.0) system are synthesized by making use of a simple intermediate temperature method. The structure and morphology of Ag2SexS1-x quantum dots are examined through X-ray diffraction, Fourier-transform infrared spectroscopy, transmission electron microscopy, and Raman spectroscopy. The X-ray diffraction data indicates monoclinic and orthorhombic structure of Ag(2)Se(x)S(1-x)quantum dots. The size and composition controlled optical bandgap of Ag(2)Se(x)S(1-x)quantum dots is meticulously looked into by Ultraviolet-Visible-Near Infrared absorption spectroscopy. The size of alloyed Ag2SexS1-x quantum dots varies from 3.5 nm to 4.8 nm. The bandgap of Ag2SexS1-x quantum dots has varied from 1.35 eV to 0.88 eV as calculated by Tauc plot. The observed values of bandgap indicate quantum confinement in two regimes-weak and strong confinement regimes. The results show that quantum confinement depends on both the size and composition of Ag2SexS1-x quantum dots. The alloying of Se to Ag2S has been confirmed using the Raman spectroscopy. These alloyed quantum dots might be reasonable for catching solar energy particularly from visible to NIR regime.

Accession Number: WOS:000526110800012

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ISSN: 1350-4495

eISSN: 1879-0275

Record 184 of 243

Title: Phosphorylation-Dependent SERS Readout for Activity Assay of Protein Kinase A in Cell Extracts

Author(s): Liu, RY (Liu, Renyong); Xie, CG (Xie, Chenggen); Yan, YH (Yan, Yehan); Hu, L (Hu, Lin); Wang, SH (Wang, Suhua); Alamry, KA (Alamry, Khalid A.); Marwani, HM (Marwani, Hadi M.); Chen, LJ (Chen, Lijuan)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 3 **Article Number:** 575 **DOI:** 10.3390/nano10030575 **Published:** MAR 2020

Abstract: Protein kinases are key regulators of cell function, the abnormal activity of which may induce several human diseases, including cancers. Therefore, it is of great significance to develop a sensitive and reliable method for assaying protein kinase activities in real biological samples. Here, we report the phosphorylation-dependent surface-enhanced Raman scattering (SERS) readout of spermine-functionalized silver nanoparticles (AgNPs) for protein kinase A (PKA) activity assay in cell extracts. In this assay, the presence of PKA would phosphorylate and alter the net charge states of Raman dye-labeled substrate peptides, and the resulting anionic products could absorb onto the AgNPs with cationic surface charge through electrostatic attraction. Meanwhile, the Raman signals of dyes labeled on peptides were strongly enhanced by the aggregated AgNPs with interparticle hot spots formed in assay buffer. The SERS readout was directly proportional to the PKA activity in a wide range of 0.0001-0.5 U mu L-1 with a detection limit as low as 0.00003 U mu L-

1. Moreover, the proposed SERS-based assay for the PKA activity was successfully applied to monitoring the activity and inhibition of PKA in real biological samples, particularly in cell extracts, which would be beneficial for kinase-related disease diagnostics and inhibitor screening.

Accession Number: WOS:000526090400175

PubMed ID: 32235706

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eISSN: 2079-4991

Record 185 of 243

Title: A Novel Metal Nanoparticles-Graphene Nanodisks-Quantum Dots Hybrid-System-Based Spaser

Author(s): Tohari, MM (Tohari, Mariam M.); Lyras, A (Lyras, Andreas); AlSalhi, MS (AlSalhi, Mohamad S.)

Source: NANOMATERIALS **Volume:** 10 **Issue:** 3 **Article Number:** 416 **DOI:** 10.3390/nano10030416 **Published:** MAR 2020

Abstract: Active nanoplasmonics have recently led to the emergence of many promising applications. One of them is the spaser (surface plasmons amplification by stimulated emission of radiation) that has been shown to generate coherent and intense fields of selected surface plasmon modes that are strongly localized in the nanoscale. We propose a novel nanospaser composed of a metal nanoparticles-graphene nanodisks hybrid plasmonic system as its resonator and a quantum dots cascade stack as its gain medium. We derive the plasmonic fields induced by pulsed excitation through the use of the effective medium theory. Based on the density matrix approach and by solving the Lindblad quantum master equation, we analyze the ultrafast dynamics of the spaser associated with coherent amplified plasmonic fields. The intensity of the plasmonic field is significantly affected by the width of the metallic contact and the time duration of the laser pulse used to launch the surface plasmons. The proposed nanospaser shows an extremely low spasing threshold and operates in the mid-infrared region that has received much attention due to its wide biomedical, chemical and telecommunication applications.

Accession Number: WOS:000526090400016

PubMed ID: 32120985

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eISSN: 2079-4991

Record 186 of 243

Title: INDIUM INCORPORATION EFFECTS ON OPTICAL PROPERTIES OF QUATERNARY CHALCOGNIDE Se-Zn-Te-In FILMS

Author(s): Soraya, MM (Soraya, M. M.); Shaaban, ER (Shaaban, E. R.); Eman, MI (Eman, M., I); Qasem, A (Qasem, A.); Mahmoud, SA (Mahmoud, S. A.); Yousef, E (Yousef, E.)

Source: CHALCOGENIDE LETTERS **Volume:** 17 **Issue:** 3 **Pages:** 133-145 **Published:** MAR 2020

Abstract: Amorphous semiconducting thin films of Se90-xZn5Te5Inx (x=0, 2, 4, 6, 8 and 10 at. %) are deposited on glass substrates by thermal evaporating technique with thickness about of 1000 nm. The transmittance spectra are investigated by Swanepoel method to compute the optical coefficients and parameters in the spectral region of (400-2500) nm, such as absorption coefficient alpha, extinction coefficient k, optical band gap, E-g and refractive index, n. The optical absorption edge is described by using the non-direct transition model in terms of Tauc relation. The obtained values of both n and k were found to be dependent of the In content in the investigated samples. Also, other parameters have been computed like the real, (epsilon(r)) and imaginary (epsilon(i)) parts of complex dielectric constants. The dispersion parameters (dispersion energy, E-d, oscillation energy E-o) were discussed according to the single oscillator Wemple-DiDomenico model. The non-linear refractive index, n(2) was computed by using Tichy-Ticha and Fourier-Spitzer relationships.

Accession Number: WOS:000526066100005

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ISSN: 1584-8663

Record 187 of 243

Title: Facilely fabricated Dy:PbI2/glass thin films and their structural, linear and nonlinear optical studies for opto-nonlinear applications

Author(s): Shkir, M (Shkir, Mohd); Khan, A (Khan, Aslam); Ansari, AA (Ansari, Anees A.); El-Toni, AM (El-Toni, Ahmed Mohamed); Yahia, IS (Yahia, I. S.); Khan, MA (Khan, M. Ajmal); Algarni, H (Algarni, H.); AlFaify, S (AlFaify, S.)

Source: VACUUM **Volume:** 173 **Article Number:** 109122 **DOI:** 10.1016/j.vacuum.2019.109122 **Published:** MAR 2020

Abstract: The fabrication of Dy:PbI2/glass (Dy = 0.0 to 0.8 wt%) films were performed using a spin coating process. X-ray diffraction confirmed the formation of monophasic hexagonal films growth along (001) planes. The estimated size of crystallites was noticed to be in the range of 16-22 nm. Scanning electron microscopy (SEM) study indicates the strong effect of Dy content on the morphology of film surface and the grown grain sizes were in 13-70 run range. EDX/SEM e-mapping approves the existence of Dy in PbI2 films. The transparency of grown films was found to be in the range of 60 to 87%. Optical bandgap was estimated to be 2.21 eV-2.35 eV range. The values of index of refraction was found in 2-8 range. The constant of dielectric values was noted in the range of 5-50 and showed an enhancement by Dy doping. The value of x chi((1)) was noticed to be increased by Dy content doping and found in the range of 0.2-7. The chi((3)) values were calculated in the range of 3.4 x 10(-13) to 3800 x 10(-10) esu. The n(2) values were noted to be in the range of 6 x 10(-12) to 1.5 x 10(-6) esu. The remarkable enhancement on nonlinear values proposed the grown Dy:Pbl(2)/glass films for opto-nonlinear applications.

Accession Number: WOS:000518672200021

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Yahia, Ibrahim Sayed	G-4458-2011	

ISSN: 0042-207X

Record 188 of 243

Title: Numerical investigation of MHD Prandtl melted fluid flow towards a cylindrical surface: comprehensive outcomes

Author(s): Awais, M (Awais, M.); Bilal, S (Bilal, S.); Rehman, KU (Rehman, Khalil Ur); Malik, MY (Malik, M. Y.)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 98 **Issue:** 3 **Pages:** 223-232 **DOI:** 10.1139/cjp-2018-0582 **Published:** MAR 2020

Abstract: In this work, we explore the mathematical structuring of Prandtl fluid flow towards an inclined stretched cylinder. Modelling of this newly proposed model is manifested in three different ways. A momentum equation for the concerned model is established under the role of an induced Lorentz field, whereas the thermal and mass transport mechanisms account for the role of the heat generation-absorption process and chemical reaction phenomenon. For a more realistic and schematic analyses of the present problem, the field expressions are expressed mathematically in terms of PDEs. The obtained intricate differential system is converted into ODEs by means of transformations. Improved numerical simulation is conducted using the Cash and Carp method to foresee the pattern of thermophysical distribution towards existing involved constraints. It is noticed that Prandtl fluid velocity declines for increases in both the Prandtl fluid parameter and elastic parameter. Further, the fluid temperature increases the effects of the magnetic field, curvature, and the melting parameters while the concentration profile shows decline curves for both the Schmidt and chemical reaction parameters. It is important to note that this nature is preserved for both the magnetized and non-magnetized cases.

Accession Number: WOS:000518797400002

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ISSN: 0008-4204

eISSN: 1208-6045

Record 189 of 243

Title: Band parameters for Zn1-xMoxTe studied by means of spin-polarized first-principles calculations

Author(s): Khan, MA (Khan, M. Ajmal); Gueddim, A (Gueddim, A.); Bouarissa, N (Bouarissa, N.); Algarni, H (Algarni, H.); Ziani, H (Ziani, H.)

Source: JOURNAL OF COMPUTATIONAL ELECTRONICS **Volume:** 19 **Issue:** 1 **Pages:** 38-46 **DOI:** 10.1007/s10825-019-01430-3 **Published:** MAR 2020

Abstract: We report on spin-polarized first-principles calculations within the generalized gradient approximation of structural parameters, dielectric function spectra, and total magnetic moment of hypothetical zinc-blende Zn1-xMoxTe. Good accord is generally obtained between our results and those available from the literature. A close inspection of the composition dependence of the features of interest shows that the lattice parameter violates the Vegard's law, the magnetism and character of the material in question depend strongly on the composition x and the spin channel, the optical response function shifts toward either higher or lower photon energies (depending on x) and the total magnetic moment increases with increasing the Mo concentration.

Accession Number: WOS:000516630600003

ISSN: 1569-8025

eISSN: 1572-8137

Record 190 of 243

Title: p-type Cu3BiS3 thin films for solar cell absorber layer via one stage thermal evaporation

Author(s): Hussain, A (Hussain, Arshad); Luo, JT (Luo, Jing Ting); Fan, P (Fan, Ping); Liang, GX (Liang, Guangxing); Su, ZH (Su, Zhenghua); Ahmed, R (Ahmed, R.); Ali, N (Ali, Nisar); Wei, QP (Wei, Qiuping); Muhammad, S (Muhammad, Shabbir); Chaudhry, AR (Chaudhry, Aijaz Rasool); Fu, YQ (Fu, Yong Qing)

Source: APPLIED SURFACE SCIENCE **Volume:** 505 **Article Number:** 144597 **DOI:** 10.1016/j.apsusc.2019.144597 **Published:** MAR 1 2020

Abstract: Ternary copper sulphides, especially copper-bismuth-sulphide (Cu-Bi-S), are alternative solar absorber materials due to their earth-abundant and non-toxic constituent elements, compared to the conventional copper indium gallium sulphide and cadmium telluride films. In this study, Cu-Bi-S thin films were deposited onto soda lime glass substrates using a one stage co-evaporation process from Cu2S and Bi2S3 sources, with the deposition temperatures varied from room temperature to 400 degrees C. X-ray diffraction analysis confirmed that Cu3BiS3 was the dominant phase in the Cu-rich films, and the crystalline quality of the films was significantly improved with increasing the deposition temperature. An optical bandgap of 1.4 eV was achieved for the film deposited at 400 degrees C, which demonstrated a Hall mobility of 3.95 cm(2)/V-s and a carrier concentration of 7.48 x 10(16) cm(-3). Cu3BiS3 films deposited at 375 and 400 degrees C were implemented into superstrate solar cell structures (glass/ITO/nCdS/p-Cu3BiS3/Al).

Accession Number: WOS:000510846500127

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CHAUDHRY, AIJAZ RASOOL	AAF-6001-2020	0000-0002-0781-0116

ISSN: 0169-4332

eISSN: 1873-5584

Record 191 of 243

Title: Exploration of the spray deposited Cadmium Telluride thin films for optoelectronic devices

Author(s): Shaikh, SS (Shaikh, S. S.); Shkir, M (Shkir, Mohd); Masumdar, EU (Masumdar, E. U.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 580 **Article Number:** 411831 **DOI:** 10.1016/j.physb.2019.411831 **Published:** MAR 1 2020

Abstract: Cadmium Telluride is one of the important partners used in heterojunction solar cells and various other optoelectronic devices. Spray pyrolysis method was employed to deposit CdTe thin films, on glass substrates, at 300 degrees C. The as-deposited films were black in color and having thickness of 497.28 nm. XRD analysis discovered that the as-prepared films were polycrystalline with a cubic crystal structure having preferred reflection (111), with a grain size of 12 nm. The abundance of Cd and Te elements in as-deposited films was ensured using the EDX technique. The SEM micrograph processing showed a compact morphology and an average grain size of 30 nm. The spectral peaks in Raman spectra were found at 139.30 cm(-1) (1TO) and 165.33 cm(-1) (1LO). The observed direct band gap was 1.52 eV. The calculated electrical resistivity at room temperature was noticed to be 1.2 x 1(6) Omega-cm. TEP study engrained the p-type conductivity in as-deposited films.

Accession Number: WOS:000510641000009

ISSN: 0921-4526

eISSN: 1873-2135

Record 192 of 243

Title: Tailoring the properties of nebulizer spray pyrolysis coated FTO thin films through rare earth element terbium for optoelectronic applications

Author(s): Thomas, R (Thomas, R.); Mathavan, T (Mathavan, T.); Jothirajan, MA (Jothirajan, M. A.); Ganesh, V (Ganesh, V); Shkir, M (Shkir, Mohd); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); AlFaify, S (AlFaify, S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 580 **Article Number:** 411916 **DOI:** 10.1016/j.physb.2019.411916 **Published:** MAR 1 2020

Abstract: In optoelectronic device, transparent conducting oxide (TCO) acts as an electrode. In this work the rare earth element terbium (Tb) was doped with FTO by simple and inexpensive nebulizer spray pyrolysis (NSP) technique. Structural, optical end electrical properties were investigated for all the synthesized films. X-Ray diffraction (XRD) analysis confirmed that all the prepared films exhibited polycrystalline nature with tetragonal crystal structure and size of the crystalline reduced with increasing Tb concentration. Raman active doubly degenerate mode (E-g), IR active mode (E-u) and vibration mode (B-2g) were found from Raman analysis. Atomic force microscope (AFM) images visualises the granular sized particle and the roughness of the Tb doped films. Elememental analysis spectrum exhibited Sn, O, F and Tb elements for 1.5 wt.% Tb doped thin film. Photoluminacence (PL) analysis revealed that UV, blue and green (visible) emission and UV emission intensity was reduced systamatically for the doped films. From UV-Vis analysis, highest optical transmittace were deduced for 1.5 wt.% Tb doped film. Reflectance, absorbance and band gap also been observed for the prepared films. Refractive index, extinction coefficient and dielectric constant values were decreased with increasing Tb doping concentration. High electrical conductivity and carrier concentration were measured using four probe hall effect system. Figure of merit value for the 1.5 wt.% Tb doped film is 1.5 x 10(-3) Omega(-1) and therefore the prepared film suits to be an electrode in optoelectronic devices.

Accession Number: WOS:000510641000028

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ISSN: 0921-4526

eISSN: 1873-2135

Record 193 of 243

Title: Advances in nanostructured homojunction solar cells and photovoltaic materials

Author(s): Ali, N (Ali, Nisar); Ahmed, R (Ahmed, R.); Luo, JT (Luo, Jing Ting); Wang, MK (Wang, Mingkui); Kalam, A (Kalam, Abul); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Fu, YQ (Fu, Yong Qing)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 107 **Article Number:** 104810 **DOI:** 10.1016/j.mssp.2019.104810 **Published:** MAR 1 2020

Abstract: Recently, various materials have been explored for their potential applications in homojunction solar cells, which have distinct advantages of good lattice matching at the junction interfaces with minimum recombination losses of carriers. This paper presents an overview of design, technique, and materials in the advanced homojunction solar cells with their latest reported efficiencies. We review the development of homojunction solar cells with two-dimensional (or thin film) based materials, one-dimensional materials (nanowire/nanorods/nanotube), and zero-dimensional (nanodots and quantum dots) based materials. Among the thin film materials explored for homojunction solar cells, we mainly focus this review on CuInS2, InGaN, and InP based homojunction solar cells.

Accession Number: WOS:000505017100015

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Ali, Nisar	AAA-9527-2020	
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ISSN: 1369-8001

eISSN: 1873-4081

Record 194 of 243

Title: Cation effect on electronic, optical and thermoelectric properties of perovskite oxynitrides: Density functional theory

Author(s): Mahmood, A (Mahmood, Amjid); Azam, S (Azam, Sikander); Irfan, M (Irfan, Muhammad); Kamran, MA (Kamran, Muhammad Arshad); Alharbi, T (Alharbi, Thamer); Majid, A (Majid, Abdul); Iqbal, MW (Iqbal, Muhammad Waqas); Muhammad, S (Muhammad, Shabbir); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Khan, SA (Khan, Saleem Ayaz); Goumri-Said, S (Goumri-Said, Souraya)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 107 **Article Number:** 104800 **DOI:** 10.1016/j.mssp.2019.104800 **Published:** MAR 1 2020

Abstract: Perovskite oxynitride are of great interest due to their use as photo-catalysts. We investigated the electronic, thermoelectric and optical properties of ATaO(2)N (A = Ba, Sr, Ra) with generalized gradient plus Hubbard approximation (GGA + U). In electronic properties, we have computed, for each compound, densities of states (total and partial), band structure to extract their band gaps, nature and transition probability when the cation changes. Optical properties were explored by calculating dielectric constant epsilon (omega), refractive index n (omega), reflectivity R (omega), optical loss L (omega), and absorption coefficient I (omega) response against different photon energies. In order to examine the possibility of using these compounds in thermoelectric devices, we calculated their transport properties from Boltzman transport theory. We examined their thermal conductivity kappa, electrical conductivity sigma, seebeck coefficient S, power factor PF and dimensionless figure of merit ZT.

Accession Number: WOS:000505017100006

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ISSN: 1369-8001

eISSN: 1873-4081

Record 195 of 243

Title: A facile synthesis of Bi@PbS nanosheets and their key physical properties analysis for optoelectronic technology

Author(s): Shkir, M (Shkir, Mohd); Chandekar, KV (Chandekar, Kamlesh, V); Khan, A (Khan, Aslam); El-Toni, AM (El-Toni, Ahmed Mohamed); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 107 **Article Number:** 104807 **DOI:** 10.1016/j.mssp.2019.104807 **Published:** MAR 1 2020

Abstract: Herein, the synthesis of pure and Bi-doped PbS (Bi: PbS) nanopowders was attained facilely by the chemical route at low temperature. The presence of Bi content and its homogeneity in the final products was confirmed by EDX/ SEM mapping analysis. The presence of a cubic crystal system was confirmed through X-ray diffraction study, and lattice parameters were evaluated. XRD patterns confirmed the absence of extra peaks due to free Bi or any other phase formation in the final products. The crystallite size, density of dislocation, and strain values were also estimated, and the values of the crystallite size were found to lie in a range of 16-24 nm. Vibrational spectroscopy revealed the presence of two phonon-modes as LO, 2LO, and 3LO at 135, 270, 430, and 601 cm(-1), respectively, with minute shifts in their positions due to doping and the quantum confinement effect. The surface morphology of nanoparticles (NPs) of size 8-10 nm to nanosheets (NSs) of few microns size assembled from very fine nanoparticles (<10 nm) in Bi doped PbS were remarkably modified based on FE-SEM analysis. The diffused reflectance technique was employed to evaluate the energy gap (E-g(d)) THORN of all the final products, which was found to fall in the range of 0.85-1.9 eV, and theses vales were larger than that of bulk PbS, i.e. 0.41 eV. The enhancement in the value of E-g(d) is due to the quantization effect. PL emission spectra recorded at lambda(exc) = 450 nm possessed three emission bands at approximately 518 +/- 10 nm, (green and intense) and 558 +/- 2 nm (yellow-green), and 708 +/- 2 nm (red and broad). The intensity of the PL emission was quenched with Bi doping; however, it was enhanced for doped PbS containing 2.5 wt% Bi. The dielectric constant was found to be in range of 26-46 overall at the tested frequencies, and the 1.0 wt% Bi: PbS sample attained the maximum value. The total AC conductivity value increased with increasing frequency and obeyed the universal frequency power law, and the 1.0 wt% Bi: PbS attained the maximum value.

Accession Number: WOS:000505017100012

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AlFaify, S	ABF-3895-2020	0000-0002-8920-5891

ISSN: 1369-8001

eISSN: 1873-4081

Record 196 of 243

Title: Sunlight-Driven Photocatalytic Degradation of Methyl Orange Based on Bismuth Ferrite (BiFeO3) Heterostructures Composed of Interconnected Nanosheets

Author(s): Ruby, S (Ruby, S.); Rosaline, DR (Rosaline, D. Rani); Inbanathan, SSR (Inbanathan, S. S. R.); Anand, K (Anand, K.); Kavitha, G (Kavitha, G.); Srinivasan, R (Srinivasan, R.); Umar, A (Umar, Ahmad); Hegazy, HH (Hegazy, H. H.); Algarni, H (Algarni, Hamed)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 3 **Pages:** 1851-1858 **DOI:** 10.1166/jnn.2020.17174 **Published:** MAR 2020

Abstract: Herein, we report the facile microwave-assisted synthesis, characterization and photocatalytic degradation applications of Bismuth ferrite heterostructures composed of interconnected nanosheets (BHNs). The synthesized materials were subjected to several analytical studies such as scanning electron microscopy (SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD), energy dispersive spectroscopy (EDS), Fourier transform infrared (FTIR) spectroscopy and UV-visible spectroscopy in order to examine the morphological, structural, optical and photo catalytic properties. The structural and morphological characterizations confirmed the rhombohedral perovskite crystal structure and the formation of heterostructures composed of

interconnected nanosheets for the synthesized material. The compositional characterization revealed that the synthesized material is bismuth ferrite with high purity. The BHNs were further used as efficient photocatalyst for the photocatalytic degradation of highly hazardous pollutant methyl orange under sunlight irradiation. The sunlight driven photocatalytic experiments revealed similar to 86% photo-degradation of methyl orange dye in 150 min. The presented work revealed that the synthesized BHNs are excellent material for the photocatalytic degradation of various organic contaminants and hazardous pollutants.

Accession Number: WOS:000484782900062

PubMed ID: 31492352

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ISSN: 1533-4880

eISSN: 1533-4899

Record 197 of 243

Title: Fabrication of ON/OFF switching response based on n-Ni-doped MoO3/p-Si junction diodes using Ni-MoO3 thin films as n-type layer prepared by JNS pyrolysis technique

Author(s): Balaji, M (Balaji, M.); Chandrasekaran, J (Chandrasekaran, J.); Raja, M (Raja, M.); Marnadu, R (Marnadu, R.); Ramamurthy, M (Ramamurthy, M.); Shkir, M (Shkir, Mohd.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 3 **DOI:** 10.1007/s00339-020-3392-0 **Published:** FEB 20 2020

Abstract: The influence of nickel (Ni) doping concentrations on structural, optical, electrical and diode properties of molybdenum trioxide (MoO3) thin films has been studied systematically. Ni-doped MoO3 films and diodes were prepared for various doping concentrations of Ni such as 0, 3, 6 and 9 wt.% by jet nebulizer spray (JNS) pyrolysis technique. The structural properties of Ni-doped MoO3 films were analyzed by X-ray diffraction (XRD) pattern and scanning electron microscopy (SEM). The prepared films were exhibited in the orthorhombic crystal structure and sub-microsized plate-like surface morphology. The energy-dispersive X-ray spectroscopy (EDX) analysis confirmed the presence of Ni, Mo and O elements in the prepared films. Ultraviolet-visible (UV-vis) analysis results showed that the absorbance decreases with the increasing of Ni doping concentration and the minimum band gap energy (E-g=2.25) was obtained for 9 wt.% Ni-doped MoO3 film. From current-voltage (I-V) characterization, the conductivity is increased by increasing the Ni doping concentration in MoO3 thin films. The diode measurements were performed in darkness and under light illumination of a halogen lamp. The methods of I-V, Cheung's and Norde were used to calculate the diode parameters of ideality factor (n), barrier height (Phi (b)) and sheet resistance (R-s). Also, the light ON/OFF switching response of the fabricated n-NiMoO3/p-Si diodes was analyzed.

Accession Number: WOS:000517978300005

ISSN: 0947-8396

eISSN: 1432-0630

Record 198 of 243

Title: First-principles study of rocksalt Mg(x)Zn1(-) O-x: band structure and optical spectra

Author(s): Drissi, N (Drissi, Nidhal); Gueddim, A (Gueddim, Ahmed); Bouarissa, N (Bouarissa, Nadir)

Source: PHILOSOPHICAL MAGAZINE **Volume:** 100 **Issue:** 12 **Pages:** 1620-1635 **DOI:** 10.1080/14786435.2020.1727974 **Early Access Date:** FEB 2020 **Published:** JUN 17 2020

Abstract: The present work deals with electronic band structure and derived optical spectra of MgxZn1- O-x in the hypothetical rocksalt structure. The computations are performed using full-potential linearised augmented plane wave method. The exchange-correlation potential is described using the Wu-Cohen and Tran-Blaha modified Becke-Johnson generalised gradient approximation (TB-mBJ-GGA). The calculated lattice parameter deviates by less than 1% from experiment showing a net improvement when compared with previous calculations. Moreover, its variation with respect to x does not violate Vegard's law. The TB-mBJ-GGA approach improves the magnitude of the fundamental band gap with respect to experiment. The rocksalt MgxZn1- O-x is found to be an indirect gap semiconductor for x = 0, 0.25, 0.50 and 0.75 and a direct gap semiconductor for x = 1. The nature of the gap for rocksalt MgxZn1- O-x is still in controversy and further investigations are required in this respect. The optical spectra of MgxZn1- O-x are analysed and discussed. Our findings yield values of 1.55 and 1.25 for the static refractive index and 2.4 and 1.55 for the static dielectric constant for rocksalt ZnO and rocksalt MgO, respectively.

Accession Number: WOS:000514730600001

ISSN: 1478-6435

eISSN: 1478-6443

Record 199 of 243

Title: Judd-Ofelt analysis and physical properties of erbium modified cadmium lithium gadolinium silicate glasses

Author(s): Shaaban, KS (Shaaban, Kh S.); Wahab, EAA (Wahab, E. A. Abdel); El-Maaref, AA (El-Maaref, A. A.); Abdelawwad, M (Abdelawwad, M.); Shaaban, ER (Shaaban, E. R.); Yousef, E (Yousef, El Sayed); Wilke, H (Wilke, H.); Hillmer, H (Hillmer, H.); Borcsok, J (Borcsok, J.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 6 **Pages:** 4986-4996 **DOI:** 10.1007/s10854-020-03065-8 **Early Access Date:** FEB 2020 **Published:** MAR 2020

Abstract: Erbium doped 50SiO(2)-30Li(2)O-1Gd(2)O(3)-(19 - x) CdO and x Er2O3 glass system, where (0 <= x >= 2.5), mol%, has been prepared by the conventional melt quenching technique. The physical, structural and optical properties are explained by analyzing the data obtained from X-ray diffraction (XRD), Fourier transform infrared (FTIR), UV-Visible (UV-Vis-NIR) and photoluminescence results. X-ray powder diffraction patterns show broad peaks which conform glassy nature of the sample. FTIR spectroscopy reveals the presence of SiO4, CdO4 and Er-O vibration groups in the glass samples. The optical absorption spectra in the wavelength range of 200-2500 nm were measured and the optical band gaps, Urbach energy, Electronegativity (chi) Electron Polarizability (alpha degrees), and Optical basicity (& x2c4;) were determined. The optical absorption spectra of Er3+ ions in these glasses show eleven bands and are assigned to the transitions from ground state to excited levels. It was found that the optical band gap increases from 3.19 to 3.51 eV with the increase in Er2O3 concentration. The strong sharp peak belongs to Er+3 emission is investigated in photoluminescence spectra at ordinary condition (1 atm. and at room temperature). It excites by wavelength of 385 nm and gives pale green color at 559 nm. Judd-Ofelt theory has been used to analyze the spectra arising from erbium ions doped 50 SiO2 -30 Li2O- 1Gd(2)O(3)-(19 - x) CdO and x Er2O3. The intensity parameters omega(2,4,6) of the present complex and lifetimes of selected levels are theoretically calculated as well.

Accession Number: WOS:000516196000003

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ISSN: 0957-4522

eISSN: 1573-482X

Record 200 of 243

Title: A facile microwave-assisted synthesis of novel ZnMn2O4 nanoparticles and their structural, morphological, optical, surface area, and dielectric studies

Author(s): Khan, ZR (Khan, Z. R.); Shkir, M (Shkir, Mohd); Ganesh, V (Ganesh, V); Yahia, IS (Yahia, I. S.); AlFaify, S (AlFaify, S.)

Source: INDIAN JOURNAL OF PHYSICS **Volume:** 95 **Issue:** 1 **Pages:** 43-49 **DOI:** 10.1007/s12648-020-01695-6 **Early Access Date:** FEB 2020 **Published:** JAN 2021

Abstract: Spinel ZnMn2O4 nanoparticles (ZMONPs) were successfully synthesized using a microwave-assisted chemical route. X-ray diffraction (XRD) revealed the growth of ZMONPs along the (211) plane with a tetragonal structure. The crystallite size was 14 nm, estimated using the XRD data. Vibrational analysis confirmed the tetragonal structure of ZMONPs. Scanning electron microscopy images showed nanometer-sized particles, which was in agreement with the XRD results. EDX investigation of the samples demonstrated the good stoichiometric ratio of Zn, Mn, and O (1:2:4). The surface area and pore radius were also investigated in detail through Brunauer-Emmett-Teller analysis and were found to be 10.385 m(2)/g and 16.24 angstrom, respectively. The direct band gap for the ZMONPs was estimated using Tauc's relation and was found to be 2.07 eV, which is larger than that of bulk ZMO (1.91 eV). Dielectric constant and loss values decreased with increasing frequency, while conductivity increased with increasing frequency. The dielectric constant was found to be in the range of 17-25 considering the entire testing range. The dielectric constant value was larger than expected, which could be the result of quantum confinement.

Accession Number: WOS:000516161300001

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Yahia, Ibrahim Sayed	G-4458-2011	

ISSN: 0973-1458

eISSN: 0974-9845

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Print

Record 201 of 243

Title: Improvement in the linear and nonlinear optical properties of Mn-doped GeSe2 chalcogenide thin films for all optical applications

Author(s): Sharma, P (Sharma, Pankaj); Aly, KA (Aly, K. A.); Sati, DC (Sati, Dinesh Ch.); Dahshan, A (Dahshan, A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 3 **Article Number:** 173 **DOI:** 10.1007/s00339-020-3357-3 **Published:** FEB 10 2020

Abstract: Novel magnetic semiconductors in bulk as well as in thin-film form are of great interest for spintronic device applications. Here, we report on the melt-quenched alloys of Mn-doped GeSe2 chalcogenide thin films deposited on microscopic glass substrates via the thermal evaporation. The optical properties of the thin films are investigated utilising the X-ray diffraction, and reflectance spectroscopy. Reflection spectroscopy data analysis shows that the deposited thin films are semiconducting, and the transitions are indirect. The values of optical band gap decrease from 2.03 to 1.58 eV with the Mn content. The disorder parameter shows a decrease with the Mn substitution. The addition of Mn in GeSe2 chalcogenide thin-film semiconductors shows an improvement in the linear and the nonlinear refractive index. The linear refractive index increases from 2.60 to 3.14 with the addition of Mn in GeSe2 chalcogenide thin-film semiconductors.

Accession Number: WOS:000519014700002

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ISSN: 0947-8396

eISSN: 1432-0630

Record 202 of 243

Title: Facile synthesis, characterization and intensity-dependent nonlinear absorption of Ni-doped (gamma and beta)-BaB2O4 nanostructures

Author(s): Babeela, C (Babeela, C.); Assiri, MA (Assiri, Mohammed A.); Girisun, TCS (Sabari Girisun, T. C.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 6 **Pages:** 4618-4631 **DOI:** 10.1007/s10854-020-03014-5 **Early Access Date:** FEB 2020 **Published:** MAR 2020

Abstract: Intensity-dependent nonlinear optical absorption and optical limiting behavior of Ni2+-doped (gamma and beta)-BaB2O4 nanostructures were examined by open-aperture Z-scan technique under nanosecond pulsed green laser excitation. Observation of reverse saturable absorption (RSA) with variation in nonlinear absorption coefficient as function of on-axis peak intensity ascertains the presence of sequential 2PA process (1PA + ESA). Due to the introduced near-resonant energy state through incorporation of Ni2+ ions, the material exhibits excited state absorption (ESA). Here, the observed sequential 2PA in Ni2+-doped gamma-BaB2O4 involves the T-1(1g)(G) states of 3d(8)-3d(8) and T-1(1g)(D) states of Ni2+, while Ni-doped beta-BaB2O4 undergoes the electronic transition involving intraionic 3d(8)-3d(8) transition of Ni2+ and self-trapped excitonic state of BBO. Interestingly, as the dopant concentration and on-axis intensity increased, 2PA coefficient was found to be increased. 0.05 M Ni2+-doped beta-BaB2O4 nanostructures possess higher 2PA coefficient (2.31 x 10(-10) m/W) and lower onset limiting threshold (0.79 x 10(12) W/m(2)), which makes it a promising candidate for optical limiting applications. The result suggests that band structure tunability to induce excited state absorption with enhanced nonlinear absorption coefficient is possible through Ni doping in beta-BaB2O4 nanostructures.

Accession Number: WOS:000516818100002

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ISSN: 0957-4522

eISSN: 1573-482X

Record 203 of 243

Title: The effect of heterovalent doping on the stability and properties of multiferroic Aurivillius phases

Author(s): Lisnevskaya, IV (Lisnevskaya, Inna, V); Butova, VV (Butova, Vera V.); Rusalev, YV (Rusalev, Yury, V); Shapovalov, VV (Shapovalov, Victor V.); Zahran, HY (Zahran, Heba Y.); Yahia, IS (Yahia, Ibrahim S.); Soldatov, AV (Soldatov, Alexander, V)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 3 **Article Number:** 168 **DOI:** 10.1007/s00339-020-3359-1 **Published:** FEB 8 2020

Abstract: The effect of magnetoactive cations on the stability and properties of Aurivillius phases (1) Bi5Ti2(TiFe)(1-x)(NiNb)(x)O-15, (2) Bi4Ti3-2.5x(Nb1/2Fe1/2)(x)(Nb2/3Ni1/3)(1.5x)O-12, (3) Bi3Ti1-2.5xNb1+1.5x(Fe1/2Ni1/2)(x)O-9, (4) Bim+1Fem-3Ti(3-x)(Ni1/3Nb2/3)(x)O3m+3 has been investigated. The range of existence of solid solutions was found to be limited to the values of x = 0-0.10 (1), 0-0.3 (2), and 0-0.2 (3). Although the solid solutions exist in the whole concentration range studied (x = 0-0.07) in the series (4), the stability is limited to the value of m = 6-7. The unit cell volumes increase with increasing x, which is expected due to the ionic radii of the dopant cations that are larger than those of the substituted cations. The coexistence of piezoelectric and magnetic properties was observed in the samples of solid solutions (1) and (4): the values of the piezoelectric coefficient d(33) and piezoelectric voltage coefficient g(33) reach 7 pC/N and 3.5 mV m/N, respectively; the saturation magnetization M-s and remanent magnetization M-r increase with increasing x, while the coercivity remains almost unchanged. Thermal studies indicate phase transitions in Bi5Ti2(TiFe)(1-x)(NiNb)(x)O-15, and Bim+1Fem-3Ti(3-x)(Ni1/3Nb2/3)(x)O3m+3 at 300-400, 750 and 840 degrees C. Additionally, these samples demonstrate a magnetodielectric effect of up to 50% when applying a DC magnetic field of 1 T in the temperature range of 340-350 degrees C that is supposed to be a ferromagnetic Curie point.

Accession Number: WOS:000513184700002

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ISSN: 0947-8396

eISSN: 1432-0630

Record 204 of 243

Title: Crystallization kinetics of Pb12Ge12Se76 chalcogenide glass

Author(s): Diab, AK (Diab, A. K.); Abd El-Raheem, MM (Abd El-Raheem, M. M.); Shaaban, ER (Shaaban, Essam R.); Ali, HM (Ali, H. M.); Wakkad, MM (Wakkad, M. M.); Taya, YA (Taya, Y. A.); Yousef, E (Yousef, El Sayed)

Source: PHASE TRANSITIONS **Volume:** 93 **Issue:** 3 **Pages:** 323-337 **DOI:** 10.1080/01411594.2020.1723017 **Early Access Date:** FEB 2020 **Published:** MAR 3 2020

Abstract: The differential thermal analysis technique is used in testing the crystallization kinetics of Pb12Ge12Se76 glass at different heating rates (2.5, 5, 10, 15, and 20 K/min). The glass is thermally stable. The activation energy for glass transitions E-g using the Kissinger, Augis-Bennett, and Moynihan models is 89.4, 92.1, and 94.7 kJ/mol, respectively. The activation energy of crystallization E-c using the models, Kissinger, Augis-Bennett, Moynihan, Gao et al., Matusita, Friedmann, Flynn-Wall-Ozawa, and Kissinger-Akahira-Sunose is 266.7, 271.4, 276.1, 257.4, 270.9, 306.8, 288.7, and 279.3 kJ/mol, respectively. In studying normalized z(alpha) and y(alpha) as functions of conversion for processes of the crystallization peak at different heating rates, the values of alpha(max,z) are 0.657, 0.634, 0.617, 0.612, and 0.639 for rates (2.5-20 K/min) of the average value 0.632, so the JMA model was applied. Also, the values of alpha(max,y) found to be smaller than those of alpha(max,z).

Accession Number: WOS:000512554700001

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ISSN: 0141-1594

eISSN: 1029-0338

Record 205 of 243

Title: Impact of indium content on the thermoelectric power, dark conductivity, and photoconductivity of Ge-As-Te thin films

Author(s): Znaidia, S (Znaidia, Sami); Kebaili, I (Kebaili, Imen); Boukhris, I (Boukhris, Imed); Neffati, R (Neffati, R.); Somaily, HH (Somaily, H. H.); Algarni, H (Algarni, H.); Hegaz, HH (Hegaz, H. H.); Aly, KA (Aly, K. A.); Dahshan, A (Dahshan, A.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 3 **Article Number:** 147 **DOI:** 10.1007/s00339-020-3321-2 **Published:** FEB 3 2020

Abstract: Thin amorphous films of Ge5As22Te73-xInx (where x = 0, 3, 6 and 9 at. %) were thermally evaporated on glass substrates. The Seebeck coefficient (S) or simply thermoelectric power, dc electrical conductivity (sigma(d)), and photoconductivity (sigma(ph)) were measured within the temperature (T) range 300-420 K on the prepared thin films. The activation energies for dark conduction (increment E-d), thermoelectric (increment E-S) and photoconduction (increment E-ph) were estimated using the values of sigma(d), S, and sigma(ph), respectively. The current density (J) is found to be directly proportional to applied electric field (E) for the thin films indicating Ohmic behavior for E < 10(5) V/m. The positive values for S indicate that the semiconductor Ge5As22Te73-xInx thin films are of p-type in the whole studied temperature range. It was found that sigma(d) and sigma(ph) increase, whereas S decreases with increasing In content. The energy gap (E-g) has been estimated from the spectral distribution of the dc-photoconductivity. The peak of photocurrent moves to lower spectrum energy when increasing In content from 0 to 9 at%. corresponding to a decrease in E-g from 1.1 to 0.9 eV. The dark conductivity pre-exponential factor (sigma(o)) was estimated by the variation of sigma(d) with both T and S.

Accession Number: WOS:000513260400001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 206 of 243

Title: Exact solutions of stochastic fractional Korteweg de-Vries equation with conformable derivatives

Author(s): Ghany, HA (Ghany, Hossam A.); Hyder, A (Hyder, Abd-Allah); Zakarya, M (Zakarya, M.)

Source: CHINESE PHYSICS B **Volume:** 29 **Issue:** 3 **Article Number:** 030203 **DOI:** 10.1088/1674-1056/ab75c9 **Published:** FEB 2020

Abstract: We deal with the Wick-type stochastic fractional Korteweg de-Vries (KdV) equation with conformable derivatives. With the aid of the Exp-function method, white noise theory, and Hermite transform, we produce a novel set of exact soliton and periodic wave solutions to the fractional KdV equation with

conformable derivatives. With the help of inverse Hermite transform, we get stochastic soliton and periodic wave solutions of the Wick-type stochastic fractional KdV equation with conformable derivatives. Eventually, by an application example, we show how the stochastic solutions can be given as Brownian motion functional solutions.

Accession Number: WOS:000521475300001

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ISSN: 1674-1056

eISSN: 1741-4199

Record 207 of 243

Title: An impact of Cr-doping on physical properties of PbI2 thin films facilely deposited by spin coating technique

Author(s): Khan, MT (Khan, Mohd Taukeer); Shkir, M (Shkir, Mohd); Yahia, IS (Yahia, I. S.); Almohammedi, A (Almohammedi, Abdullah); AlFaify, S (AlFaify, S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 138 **Article Number:** 106370 **DOI:** 10.1016/j.spmi.2019.106370 **Published:** FEB 2020

Abstract: Herein, we report the effect of Cr-doping concentrations (0.0, 1.0, 3.0, 5.0, 7.5 wt%) on the physical properties of PbI2 thin films fabricated through cost effective spin coating method. The XRD pattern reveals that the fabricated PbI2 thin films have 2H-polytype structure. The Cr-doping in PbI2 thin films were confirmed via Raman spectra and EDX/SEM mapping. The surface morphology of pure PbI2 films reveals that the spherical nanoparticles are uniformly assembled throughout the surface of PbI2 films and morphology of the film enormously change with Cr-doping. The optical study shows that the parameters such as dielectric constant, refractive and absorption indexes primary rises for Cr-content up to 1% and later start decreasing for concentrations >1%. The direct band gap of Cr-doped PbI2 thin films was found to be decreased to 2.34 eV in comparison to 2.43 eV of pure PbI2 thin films. The optical conductivity for pure PbI2 thin films was evaluated and found to be decreases with Cr-doping concentrations. Finally, nonlinear optical properties of the fabricated thin films were investigated and observed that the optical susceptibilities first increase for 1% Cr-doping concentration and systematically decreases for higher doping concentrations.

Accession Number: WOS:000514019100007

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Shaaban, Essam	AAX-1596-2020	
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ISSN: 0749-6036

Record 208 of 243

Title: Analysis of neodymium rare earth element doping in PbS films for opto-electronics applications

Author(s): Paulraj, K (Paulraj, K.); Ramaswamy, S (Ramaswamy, S.); Shkir, M (Shkir, Mohd); Yahia, IS (Yahia, I. S.); Hamdy, MS (Hamdy, Mohamed S.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 3 **Pages:** 1817-1827 **DOI:** 10.1007/s10854-019-02698-8 **Published:** FEB 2020

Abstract: In this novel work, we discuss the effect of neodymium doping concentration on PbS thin films coated on glass substrates by a simple nebulizer spray pyrolysis method. The XRD analysis indicated that all the prepared PbS and PbS:Nd films possess polycrystalline simple cubic crystal structure along (200) preferential orientation and the estimated crystallites size tapered from 21 to 18 nm with growing Nd concentration. It is detected that Raman spectra of all films shows four characteristic mode at 186 cm(-1), 281 cm(-1), 326 cm(-1), and 472 cm(-1) certify the formation of PbS thin films. The micrographs obtained from scanning electron microscope indicated uniform particle on the surface of the films. Energy dispersive spectroscopy and mapping analyses confirmed the elemental composition. From the linear optical study by UV-Visible spectrometer exposed the absorption level of all the PbS:Nd films was constantly maintained in the whole visible and IR spectrum which is better for optical device fabrication. The rising of Nd content showed enhancement in band-gap as 2.13 to 2.41 eV. I-V characteristics of all the prepared films were done under dark and illumination conditions. Photosensitivity of the PbS films is enhanced after Nd doping, which result in enhancement of photo current. The results suggest that the proposed strategy can be applied to prepare high-performance photosensitivity thin films.

Accession Number: WOS:000512889300004

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Yahia, Ibrahim Sayed	G-4458-2011	

ISSN: 0957-4522

eISSN: 1573-482X

Record 209 of 243

Title: Fabrication and SILAR cycle-dependent characterization of CdS/p-Si heterojunction photodetector

Author(s): Ali, SM (Ali, Syed Mansoor); Ramay, SM (Ramay, Shahid Mehmood); Rehman, NU (Rehman, Naeem Ur); Ramzan, K (Ramzan, Khalid); Shar, MA (Shar, Muhammad Ali); Mahmood, A (Mahmood, Asif)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 3 **Pages:** 2530-2536 **DOI:** 10.1007/s10854-019-02789-

6 **Published:** FEB 2020

Abstract: We report the fabrication CdS/p-Si heterojunction via a successive ionic layer adsorption and reaction (SILAR) technique with different CdS thickness controlled by SILAR cycles. A brief investigation has been carried out to study the nano-structural, photodetecting and optical characteristics of prepared CdS/p-Si heterojunction. Structural and morphological characterizations confirmed the formation of crystalline hexagonal CdS thin films with nano-sized grain particles that develops closed packed with SILAR cycles. Photoluminescence (PL) have been studied that emission peak at 472 nm associated with excitonic emission and a broad green emission peak positioned at 553 nm from the recombination of S-2 vacancy with valence band of CdS film. Current-voltage (I-V) and optoelectronic properties of prepared samples presented the rectification properties having the ideality factor more than unity, while the peaks of response have two peaks located at 450 and 800 nm with maximum responsivity at 6 SILAR cycles.

Accession Number: WOS:000512889300078

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ISSN: 0957-4522

eISSN: 1573-482X

Record 210 of 243

Title: Homogeneous-heterogeneous reaction effects in flow of tangent hyperbolic fluid on a stretching cylinder

Author(s): Salahuddin, T (Salahuddin, T.); Tanveer, A (Tanveer, Anum); Malik, MY (Malik, M. Y.)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 98 **Issue:** 2 **Pages:** 125-129 **DOI:** 10.1139/cjp-2018-0552 **Published:** FEB 2020

Abstract: This study relates hyperbolic tangent fluid flow on a permeable stretching cylinder with homogeneous-heterogeneous reaction effects. The prevailing continuity, momentum, and concentration equations are transformed into ordinary differential equations using the similarity transformation method. The resulting nonlinear system of equations is numerically tackled with an efficient, unconditionally stable, accurate, and extensively validated finite difference scheme: the Keller box technique. Graphs are sketched for the interpretation of physical parameters. The coefficient of skin friction is included to illustrate the fluid behavior near the surface of the cylinder. Comparison to the preceding literature is provided for better accuracy of numerical results.

Accession Number: WOS:000512303200003

Author Identifiers:

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Malik, Muhammad Yousaf	X-5316-2018	0000-0002-5301-4145

ISSN: 0008-4204

eISSN: 1208-6045

Record 211 of 243

Title: Giant magnetization and ultra-low loss in non-magnetic ion-substituted barium nanohexaferrite matrix

Author(s): Singh, VP (Singh, Virender Pratap); Batoo, KM (Batoo, Khalid Mujasam); Singh, M (Singh, M.); Kumar, S (Kumar, Sanjeev); Kumar, G (Kumar, Gagan)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 5 **Pages:** 3951-3959 **DOI:** 10.1007/s10854-020-02943-5 **Early Access Date:** FEB 2020 **Published:** MAR 2020

Abstract: Ba0.7Nd0.3CdxFe12-xO19 nanohexaferrites have been synthesized by sol-gel method. Rietveld refined X-ray diffraction study predicted the single phase formation with c/a ratio 3.93. The magnetic and dielectric properties have been significantly improved with the addition of cadmium ions. An increase in the saturation magnetization (65.01-103.46 emu/g) and retentivity (32.15-51.90 emu/g) has been observed with the incorporation of cadmium ions and incredible enhancement in the saturation magnetization, up to 103.46 emu/g, is observed for x = 0.3. The value of magnetization so obtained is the prime achievement of the present work. The dielectric constant (epsilon MODIFIER LETTER PRIME), dielectric loss (epsilon"), magnetic permeability (mu MODIFIER LETTER PRIME) and magnetic loss (mu") are investigated over GHz frequency range. The results are explained in the light of Maxwell-Wagner model. Further, the Mossbauer spectroscopic analysis of the synthesized nanohexaferrites is also carried out to support the magnetic study.

Accession Number: WOS:000510371800004

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203

ISSN: 0957-4522

eISSN: 1573-482X

Record 212 of 243

Title: A comprehensive study of opto-electrical and nonlinear properties of Cu@CdS thin films for optoelectronics

Author(s): Shkir, M (Shkir, Mohd); Khan, ZR (Khan, Z. R.); Anis, M (Anis, Mohd); Shaikh, SS (Shaikh, S. S.); AlFaify, S (AlFaify, S.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 63 **Pages:** 51-62 **DOI:** 10.1016/j.cjph.2019.10.017 **Published:** FEB 2020

Abstract: Good quality cadmium sulfide (CdS) thin films were deposited on substrates of glass with different Cu concentrations using a sophisticated spray pyrolysis technique. Structural study confirms the formation of hexagonal phase CdS films with good crystallinity. The crystallite size was calculated to be in range from 19 to 21 nm and the texture coefficient was found to be higher along (110) plane for 1.0 wt.% CdS:Cu film. Further confirmation of hexagonal phase with improved crystallinity was approved by vibrational spectroscopy analysis. SEM mapping/EDX spectra shows the homogeneous presence of Cu in final film. SEM signify the nanostructured thin films fabrication with nanocrystallites formations. The optical transparency of fabricated films was noticed in range of 60 to 80%. The absorption and refractive indices values were estimated and found in range of 0.03 to 0.24, 1 to 3. The direct energy gap was noticed to reduce from 2.44 to 2. 31 eV by Cu doping. The PL spectra contains a single peak in range from 502 to 532 nm for pure and Cu doped CdS films, which is assigned to green emission and noted to be shifted towards lower wavelength. Dielectric constant, loss. loss tangent and conductivity were also determined and discussed. Moreover, the third order nonlinear susceptibility and nonlinear refractive index were calculated and found to be of high orders. The optical

limiting study was also carried and shows noticeable effect of Cu doping. All results suggest that the CdS:Cu films are of good quality hence can be employed in opto-nonlinear devices.

Accession Number: WOS:000508893300006

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AlFaify, S	ABF-3895-2020	0000-0002-8920-5891
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ISSN: 0577-9073

Record 213 of 243

Title: Customizing optical and dielectric traits of ammonium dihydrogen phosphate (ADP) crystal exploiting Zn2+ ion for photonic device applications

Author(s): Baig, MI (Baig, M., I); Anis, M (Anis, Mohd); Algarni, H (Algarni, H.); Shirsat, MD (Shirsat, M. D.); Hussaini, SS (Hussaini, S. S.)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 63 **Pages:** 70-77 **DOI:** 10.1016/j.cjph.2019.10.015 **Published:** FEB 2020

Abstract: Current investigation is aimed to explore the influence of Zn2+ ion on structural, optical and dielectric characteristics of ammonium dihydrogen phosphate (ADP) crystal to explore its widespread suitability for photonic device applications. The slow solvent evaporation technique has been adopted to grow the Zn2+ ion influenced ADP (Zn-ADP) crystal. The energy dispersive spectroscopic technique has been employed to determine the constituent elements of Zn-ADP crystal. The optical transmittance of pure and Zn-ADP crystal has been examined within 200-1100 nm by means of UV-visible spectral analysis. The Kurtz-Perry test has been employed to determine the enhancement in second harmonic generation (SHG) efficiency of ADP crystal due to presence of Zn2+ ion. The SHG efficiency of Zn-ADP crystal is found to be 3.15 times greater than potassium dihydrogen phosphate (KDP) and 1.79 times higher than ADP. The Z-scan analysis has been performed at 632.8 nm to study the third order nonlinear optical attributes (such as nonlinear refraction (n(2)), absorption (beta) and cubic susceptibility (chi(3))) of Zn-ADP crystal. Dielectric analysis has been carried out within the temperature range of 30 to 90 degrees C to evaluate the effect of Zn2+ ion on dielectric constant and dielectric loss of ADP crystal. The thermal stability of the grown crystal has been investigated within the temperature range of 40-500 degrees C. The application of developed Zn-ADP crystal for photonic devices has been discussed in vision of obtained results.

Accession Number: WOS:000508893300008

Author Identifiers:

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Anis, Mohd		0000-0003-2106-9093
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ISSN: 0577-9073

Record 214 of 243

Title: Effects of Pr-Al co-substitution on the magnetic and structural properties of M-type Ca-Sr hexaferrites

Author(s): Yang, YJ (Yang, Yujie); Liu, XS (Liu, Xiansong); Feng, SJ (Feng, Shuangjiu); Kan, XC (Kan, Xucai); Lv, QR (Lv, Qingrong); Zhao, Y (Zhao, Yang); Batoo, KM (Batoo, Khalid Mujasam); Adil, SF (Adil, Syed Farooq); Singh, C (Singh, Charanjeet)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 63 **Pages:** 337-347 **DOI:** 10.1016/j.cjph.2019.11.026 **Published:** FEB 2020

Abstract: In this research, a series of Pr-Al co-substituted M-type hexaferrites with the chemical composition of Ca0.4Sr0.6-xPrxFe12.0-yAlyO19 (0.00 <= x <= 0.40, 0.00 <= y <= 0.60) were synthesized by the standard ceramic method. The phase identification of the samples was confirmed by X-ray diffraction analysis. A single magnetoplumbite phase is exhibited in the hexaferrites with the substitutiom of Pr (0.00 <= x <= 0.32) and Al (0.00 <= y <= 0.48) contents. For the hexaferrite containing Pr (x = 0.40) and Al (y = 0.60), an impurity phase alpha-Fe2O3 is observed in the structure. The morphology of the hexaferrites was analyzed by field emission scanning electron microscopy (FE-SEM). FE-SEM micrographs show that the hexaferrites with different Pr-Al contents have formed hexagonal structures, and the grain size of the magnets decreases with increasing Pr-Al content. A magnetic property measurement system was used to measure the magnetic properties of the hexaferrites. The remanence (B-r) and maximum energy product [(BH)(max)] decrease with increasing Pr-Al content (0.00 <= x <= 0.40, (0.00 <= y <= 0.60). The intrinsic coercivity (H-cj) increases with increasing Pr-Al content (0.00 <= x <= 0.40, (0.00 <= y <= 0.60). The magnetic induction coercivity (H-cb) and H-k/H-cj ratio first increase with increasing Pr-Al content (0.00 <= x <= 0.24, 0.00 <= y <= 0.36) and then decrease with increasing Pr-Al content (0.24 <= x <= 0.40, 0.36 <= y <= 0.60).

Accession Number: WOS:000508893300033

Author Identifiers:

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Syed, Farooq Adil	N-6610-2014	0000-0002-2768-1235

ISSN: 0577-9073

Record 215 of 243

Title: Dopant-induced photoresponsivity in coumarin-dye-sensitized nanowire NiO/p-Si heterojunction

Author(s): Soylu, M (Soylu, M.); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Abul Kalam (Abul Kalam); Al-Ghamdi, AA (Al-Ghamdi, Ahmed A.); Dere, A (Dere, A.); Yakuphanoglu, F (Yakuphanoglu, F.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 106 **Article Number:** 104784 **DOI:** 10.1016/j.mssp.2019.104784 **Published:** FEB 2020

Abstract: This article presents dopant-induced photoresponsivity in Coumarin (CO)-dye-sensitized nanowire NiO/p-Si. The photoresponse modulation of Al/CO doped NiO/p-Si/Al heterojunction relates to different configurations of NiO under light. This performance is controlled by different concentration of CO-

doping based on calcination and carbon (C) incorporation of NiO. Some electronic parameters are determined (the rectification ratio RR, the engineered ideality factor n and barrier height phi(b)). CO doped NiO/p-Si photodiode can be designed as light-switchable systems with the tunable ON and OFF states. The capacitance (C)-time (s) measurements show that the heterojunction has photocapacitive behavior as a result of the doping amount of CO in NiO. Results show that we should pay more attention to the influence of CO dye on metal oxides and/or NiO for the optical switching devices and photodiode.

Accession Number: WOS:000499708800010

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ISSN: 1369-8001

eISSN: 1873-4081

Record 216 of 243

Title: Synthesis of Iron Oxide@Pt Core-Shell Nanoparticles for Reductive Conversion of Cr(VI) to Cr(III) and Antibacterial Studies

Author(s): Sivaranjan, K (Sivaranjan, K.); Santhanalakshmi, J (Santhanalakshmi, J.); Panneer, DS (Panneer, Devendrapandi Santhana); Vivekananthan, S (Vivekananthan, S.); Sagadevan, S (Sagadevan, Suresh); Bin Johan, MR (Bin Johan, Mohd Rafie); Lett, JA (Lett, J. Anita); Hegazy, HH (Hegazy, H. H.); Umar, A (Umar, Ahmad); Algarni, H (Algarni, H.); Roselin, LS (Roselin, L. Selva); Hsu, HL (Hsu, Hsiu-Ling); Selvin, R (Selvin, Rosilda)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 2 **Pages:** 918-923 **DOI:** 10.1166/jnn.2020.16895 **Published:** FEB 2020

Abstract: Herein, we report the facile synthesis of Iron oxide@Pt core shell nanoparticles (NPs) by facile two step synthesis process. The first step follows the growth of iron oxide nanoparticle by thermal decomposition process while the second step deals with the formation of iron oxide@Pt core shell nanoparticles by the chemical reduction method. The synthesized core shell nanoparticles were characterized by several techniques and used for the catalytic reductive translation of Cr(VI) to Cr(III) in the presence of formic acid by a UV-vis spectrophotometer. The UV photo-spectrometer analysis confirmed the conversion efficiency from 12% to as high as 98.8% at the end of 30 minutes. Thus, the presence of Iron oxide@Pt core shell nanoparticles (NPs) can be effectively used as a catalyst for the reducion of Cr(VI) to Cr(III) ions. Additionally, antibacterial studies were performed for the prepared core shell nanoparticles against two bacterial strains, i.e., gram (+ve) Staphylococcus Aureus (S. Aureus) and gram (-ve) Escherichia Coli (E. Coli).

Accession Number: WOS:000484777500028

PubMed ID: 31383087

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ISSN: 1533-4880

eISSN: 1533-4899

Record 217 of 243

Title: Visible-Light Driven Photocatalytic Degradation of Eosin Yellow (EY) Dye Based on NiO-WO3 Nanoparticles

Author(s): Rosaline, DR (Rosaline, D. Rani); Inbanathan, SSR (Inbanathan, S. S. R.); Suganthi, A (Suganthi, A.); Rajarajan, M (Rajarajan, M.); Kavitha, G (Kavitha, G.); Srinivasan, R (Srinivasan, R.); Hegazy, HH (Hegazy, H. H.); Umar, A (Umar, Ahmad); Algarni, H (Algarni, H.); Manikandan, E (Manikandan, E.)

Source: JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY **Volume:** 20 **Issue:** 2 **Pages:** 924-933 **DOI:** 10.1166/jnn.2020.16898 **Published:** FEB 2020

Abstract: Herein, we report a simple synthesis, characterization and photocatalytic degradation application of composite NiO-WO3 nanoparticles. The nanoparticles were synthesized by facile low -temperature method and characterized by several techniques such as X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM) and UV-Vis diffuse reflectance spectra (DRS). The synthesized NiO-WO3 nanoparticles were used as efficient photocatalyst for the photocatalytic degradation of Eosin yellow (EY) dye. Interestingly, the synthesized photocatalytic exhibited a significant visible-light driven photocatalytic degradation of Eosin yellow (EY) dye. Under optimized conditions (pH = 5, catalyst dosage = 3 mu M and initial dye concentration = 1.0 g/L), the obtained photo degradation of EY dye was above 95% in 180 min under visible light irradiation. Remarkably, reusability of the prepared photocatalyst was also observed and the photo-degradation reactions follow the pseudo-first-order model.

Accession Number: WOS:000484777500029

PubMed ID: 31383088

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ISSN: 1533-4880

eISSN: 1533-4899

Record 218 of 243

Title: An effect of Fe on physical properties of nanostructured NiO thin films for nonlinear optoelectronic applications

Author(s): Shkir, M (Shkir, Mohd.); Arif, M (Arif, Mohd.); Ganesh, V (Ganesh, V.); Singh, A (Singh, Arun); Algarni, H (Algarni, H.); Yahia, IS (Yahia, I. S.); AlFaify, S (AlFaify, S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 2 **DOI:** 10.1007/s00339-020-3293-2 **Published:** JAN 21 2020

Abstract: Nanostructured NiO thin films are fabricated with various concentrations of Fe through a simple spin-coating route and studied for its possible nonlinear optoelectronic applications. The grown films are of good crystallinity grown along (111) plane with single phase of NiO approved by X-ray analysis. The crystallite size values were calculated and noticed to be reduced from 36 to 8 nm with increasing Fe-doping content. Furthermore, FT-Raman spectroscopy also confirmed single phase. EDX approves the presence of Ni, O and Fe in final films and SEM elemental mapping shows homogeneous doping of Fe throughout the NiO films. AFM topographic study reveals the grain size and roughness varies with increase of Fe contents into NiO. The optical study reveals that the grown films are of high transparency which is about 70-85%. The estimation of various optical parameters was done, and direct energy gap found in 3.60 to 3.64 eV region for 0.0, 1, 2.5 and 5 wt% Fe:NiO films, correspondingly. The nonlinear properties were investigated and the values of chi 1,chi 3, and n2 were found to be improved from 0.16 to 0.54, 1.3x10(-13) to 1.25x10(-11) esu and 2.67x10(-12) to 1.70x10(-10) esu, respectively. The enhancement in linear and nonlinear parameters owing to Fe-doping content makes the fabricated films more useful in optoelectronics.

Accession Number: WOS:000513514900006

Author Identifiers:

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AlFaify, S	ABF-3895-2020	0000-0002-8920-5891
Yahia, Ibrahim Sayed	G-4458-2011	

ISSN: 0947-8396

eISSN: 1432-0630

Record 219 of 243

Title: Improved ionic conductivity and efficiency of dye-sensitized solar cells with the incorporation of 1-methyl-3-propylimidazolium iodide

Author(s): Tan, CY (Tan, Chee Yu); Saidi, NM (Saidi, Norshahirah M.); Farhana, NK (Farhana, N. K.); Omar, FS (Omar, Fatin Saiha); Algaradah, MM (Algaradah, Mohammed M.); Bashir, S (Bashir, Shahid); Ramesh, S (Ramesh, S.); Ramesh, K (Ramesh, K.)

Source: IONICS **Volume:** 26 **Issue:** 6 **Pages:** 3173-3183 **DOI:** 10.1007/s11581-020-03447-2 **Early Access Date:** JAN 2020 **Published:** JUN 2020

Abstract: 1-Methyl-3-propylimidazolium iodide (MPII) ionic liquid incorporated gel polymer electrolyte (GPE) has successfully enhanced the efficiency of a dye-sensitized solar cell (DSSC). A series of gel polymer electrolytes containing different amounts of MPII were prepared and characterized. A maximum ionic conductivity of 3.99 mS cm(-1) was obtained in a GPE containing 10 wt% MPII, which was accompanied by the lowest activation energy. The results from dielectric studies showed typical behaviour for both e' and e'' in which their values decreased with increasing frequency but increased proportionately with temperature. From the results of FESEM, the morphologies of the GPE became slightly rougher after the addition of MPII. Dye-sensitized solar cells were fabricated and characterized using electrochemical impedance spectroscopy (EIS) and photovoltaic studies. DSSC with the best performance (4.35% of efficiency, 9.97 mA cm(-2) of J(SC), 0.67 V of V-OC, and 65.39% of fill factor) was assembled using the GPE with 10 wt% of MPII.

Accession Number: WOS:000507795600001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kasi, Ramesh	B-4765-2011	0000-0001-7843-5723
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ISSN: 0947-7047

eISSN: 1862-0760

Record 220 of 243

Title: Effect of carbon nanotubes/graphene nanoplates hybrid to ZnO matrix: production, electrical and optical properties of nanocomposite

Author(s): Guler, O (Guler, Omer); Yavuz, C (Yavuz, Cagdas); Basgoz, O (Basgoz, Oykum); Altin, S (Altin, Serdar); Yahia, IS (Yahia, Ibrahim S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 4 **Pages:** 3184-3196 **DOI:** 10.1007/s10854-020-02866-1 **Early Access Date:** JAN 2020 **Published:** FEB 2020

Abstract: Electrical and optical properties of pure andcarbon nanotube (CNT)/graphene nanoplate (GNP) mixture-reinforced zinc oxide (ZnO)matrix at different temperatures were investigated. UV-Vis absorption andelectrical conductivity measurements were used in order to determine theproperties were mentioned above. Samples were divided two main groups based ontheir matrix: one of them commercially acquired ZnO and the other one wasproduced via sol-gel method. Both groups have the same four sub-groupsaccording to the percentage of the weight of the reinforcing. SEM imagesindicated that commercially obtained ZnO matrix has hexagonal structure whileZnO manufactured by sol-gel was mainly in sphere form. Raman spectroscopy and TEM analyses proved that graphene nanoplate structure was producedsuccessfully, and XRD characterization shows that ZnO was produced in asuitable way by sol-gel method. The results indicated that electricalconductivity of the samples which from pure to 0.4% reinforced was decreasedwith increasing in reinforcing percentage. However, samples with 0.8% CNT/GNPmixture reinforcing showed greatest electrical conductivity. The highest reflectionpercentages of the samples were obtained from the pure specimens while thelowest ratios were observed in the highest reinforced samples. Activationenergy and optical band gap values were calculated according to electrical andoptical graphs.

Accession Number: WOS:000507791800004

Author Identifiers:

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guler, omer	A-1727-2018	0000-0003-0190-9630
Yahia, Ibrahim Sayed	G-4458-2011	
Yavuz, Cagdas		0000-0002-6174-4383
Altin, Serdar		0000-0002-4590-907X

ISSN: 0957-4522

eISSN: 1573-482X

Record 221 of 243

Title: Magnetohydrodynamic thin film deposition of Carreau nanofluid over an unsteady stretching surface

Author(s): Iqbal, K (Iqbal, Kaleem); Ahmed, J (Ahmed, Jawad); Khan, M (Khan, Masood); Ahmad, L (Ahmad, Latif); Alghamdi, M (Alghamdi, Mehtib)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 2 **Article Number:** 105 **DOI:** 10.1007/s00339-019-3204-6 **Published:** JAN 16 2020

Abstract: Thin films are commonly used to improve the surface features of solids. Permeation, corrosion, hardness, reflection, transmission, absorption and electrical behavior are certain properties of a bulk material surface that can be made effective by use of a thin film. Thin film technology can also play a vital role in nanotechnology. In this study, an analysis is performed about the Carreau thin film flow over an electrically conducting elastic stretching sheet. The effects of Brownian motion and thermophoresis parameters are utilized to describe the characteristics of heat and mass transfer phenomena. The time-dependent thin film flow is modeled over a moving surface in the form of nonlinear PDEs and then converted into nonlinear ODEs using suitable transformations. The computational outcomes are captured with the help of numerical method and displayed in graphical form. Effects of various flow parameters like the magnetic, Brownian and thermophoresis parameters are tested and found to be very remarkable during the flow analysis. Moreover, a declining conduct is noted with the impact of magnetic and Brownian motion parameters on the velocity, temperature and concentration fields. On the other hand, the influence of the thermophoresis parameter on the temperature of the fluid is found to be in increasing order. Furthermore, the boundary layer thickness is varying during the flow and all the numerical values of film thickness obtained are in good agreement with the existing literature.

Accession Number: WOS:000515948800006

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
KHAN, Masood	AAA-7384-2020	0000-0003-4404-1456

ISSN: 0947-8396

eISSN: 1432-0630

Record 222 of 243

Title: Response to comment on "An effect of novel Nd3+ doping on physical properties of nebulizer spray pyrolysis fabricated ZnS thin films for optoelectronic technology"

Author(s): Jebathew, AJ (Jebathew, A. Jesu); Karunakaran, M (Karunakaran, M.); Kumar, KDA (Kumar, K. Deva Arun); Valanarasu, S (Valanarasu, S.); Ganesh, V (Ganesh, V.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.); Kathalingam, A (Kathalingam, A.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 577 **Article Number:** 411867 **DOI:** 10.1016/j.physb.2019.411867 **Published:** JAN 15 2020

Abstract: In this communication authors present their correction to a previously published article [1] and also a response to the comments on the previously published article "Comment on Effect of novel Nd3+ doping on physical properties of nebulizer spray pyrolysis fabricated ZnS thin films for optoelectronic technology" [2].

Accession Number: WOS:000501335800034

Author Identifiers:

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ISSN: 0921-4526

eISSN: 1873-2135

Record 223 of 243

Title: Computational and Physical Examination About the Aspects of Fluid Flow Between Two Coaxially Rotated Disks by Capitalizing Non-fourier Heat Flux Theory: Finite Difference Approach

Author(s): Bilal, S (Bilal, Sardar); Tassaddiq, A (Tassaddiq, Asifa); Majeed, AH (Majeed, A. H.); Nisar, KS (Nisar, Kottakkaran Sooppy); Ali, F (Ali, Farhad); Malik, MY (Malik, M. Y.)

Source: FRONTIERS IN PHYSICS **Volume:** 7 **Article Number:** 209 **DOI:** 10.3389/fphy.2019.00209 **Published:** JAN 9 2020

Abstract: This pagination is executed to exemplify flow features exhibited by viscous fluid between two coaxially rotated disks. Thermal analysis is performed by using Cattaneo-Christov heat flux theory. Porosity aspects are also taken into account. Mathematically structured non-linear PDEs are transmuted into non-linear ODEs by employing Karman transformations. Afterward, solution is heeded by applying implicit finite difference scheme renowned as Keller box method. Interpretation of flow controlling parameters on axial, tangential, and radial components of velocity, thermal distribution is exhibited. Assurance of computed data is done by managing comparison for skin friction coefficients at walls of disks. From the attained outcomes, it is addressed that the magnitude of axial and radial velocities diminishes at lower disk contrary to upper disk for intensifying magnitude of Reynolds number. Increment in tangential component of velocity is also demonstrated for uplifts values of Reynolds number. It is also concluded that thermal field decrements for increasing of Pr and thermal relaxation parameter. It is worthy to mention that shear drag coefficient at wall of lower disk decreases conversely to the wall shear coefficient magnitude at wall of upper disk.

Accession Number: WOS:000508848800001

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Ali, Farhad	AAF-6716-2020	
Malik, Muhammad Yousaf	X-5316-2018	0000-0002-5301-4145
Nisar, K.S.	F-7559-2015	0000-0001-5769-4320

ISSN: 2296-424X

Record 224 of 243

Title: Micro-Nano Fabrication of Self-Aligned Silicon Electron Field Emitter Arrays Using Pulsed KrF Laser Irradiation

Author(s): Shamim, MZM (Shamim, Mohammed Zubair Mohammed); Persheyev, S (Persheyev, Saydulla); Zaidi, M (Zaidi, Monji); Usman, M (Usman, Mohammed); Shiblee, M (Shiblee, Mohammad); Ali, SJ (Ali, Syed Jaffar); Rahman, MR (Rahman, Mohammad Rizwanur)

Source: INTEGRATED FERROELECTRICS **Volume:** 204 **Issue:** 1 **Special Issue:** SI **Pages:** 47-57 **DOI:** 10.1080/10584587.2019.1674988 **Published:** JAN 2 2020

Abstract: Self-aligned silicon micro-nano structured electron field emitter arrays were fabricated using pulsed krypton fluoride (KrF) excimer laser crystallization (ELC) of hydrogenated amorphous thin silicon films (a-Si:H) on metal coated backplane samples. We investigate the effect of laser processing parameters on the growth of micro-nano conical structures on the surface of the thin silicon films. Randomly oriented conical structures as high as 1 mm were fabricated using laser pulse frequency of 100 Hz and sample stage scanning speed of 0.25mm/sec. Best field emission (FE) results were measured from samples with the highest surface features with FE currents in the order of 10(-6) A and low turn-on emission threshold of similar to 14 V/mu m. Light emission from the prototype demonstrators was tested using bespoke driver electronics and planar anodes coated with indium tin-oxide (ITO) and medium voltage FE phosphors, to exemplify their usage for future flat panel display technologies.

Accession Number: WOS:000509120000006

Conference Title: International Conference on Nano-Structured Materials and Devices (ICNSMD)

Conference Date: OCT 01-05, 2018

Conference Location: New Delhi, INDIA

Conference Sponsors: Univ Delhi, Soc Technologically Adv Mat India

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Persheyev, Saydulla		0000-0003-3970-0488
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ISSN: 1058-4587

eISSN: 1607-8489

Record 225 of 243

Title: Synthesis of Lithography Free Micro-Nano Electron Field Emitters Using Pulsed KrF Laser Assisted Metal Induced Crystallization of Thin Silicon Films

Author(s): Shamim, MZM (Shamim, Mohammed Zubair Mohammed); Persheyev, S (Persheyev, Saydulla); Zaidi, M (Zaidi, Monji); Usman, M (Usman, Mohammed); Shiblee, M (Shiblee, Mohammad); Ali, SJ (Ali, Syed Jaffar); Rahman, MR (Rahman, Mohammad Rizwanur)

Source: INTEGRATED FERROELECTRICS **Volume:** 204 **Issue:** 1 **Special Issue:** SI **Pages:** 121-132 **DOI:** 10.1080/10584587.2019.1674971 **Published:** JAN 2 2020

Abstract: Hydrogenated amorphous thin silicon films (a-Si:H) deposited on metal coated glass substrates were investigated to analyze the effect of a novel processing technique called Laser Assisted Metal Induced Crystallization (LAMIC) on their electron field emission (FE) properties. Post-surface characterization of the processed films showed increased surface roughness and the presence of uniformly spaced "island-like" micro-nano structures on the surface of metal coated backplane samples. Best FE results were obtained from samples sputtered with a thin layer of Aluminum (Al) on top and cross laser annealed at 190 mJ/cm(2) (y-axis) and 100 mJ/cm(2) (x-axis). FE measurements indicate a low turn-on electric field of less than 16 V/mu m with emission currents in the order of 10(-6) A. FE results were found to be particularly dependent on the laser fluence and the surface morphology exhibited very high discharge resistance. Oxidation of the films was observed to deteriorate their FE characteristics, thereby increasing the emission threshold to 36 V/mm. Diode configured field emission display prototypes are fabricated to exemplify their potential as cold cathode emitters.

Accession Number: WOS:000509120000014

Conference Title: International Conference on Nano-Structured Materials and Devices (ICNSMD)

Conference Date: OCT 01-05, 2018

Conference Location: New Delhi, INDIA

Conference Sponsors: Univ Delhi, Soc Technologically Adv Mat India

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ISSN: 1058-4587

eISSN: 1607-8489

Record 226 of 243

Title: Synthesis and characterization of La3+ ions incorporated (PVA/PVP) polymer composite films for optoelectronics devices

Author(s): Ali, FM (Ali, F. M.); Kershi, RM (Kershi, R. M.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 31 **Issue:** 3 **Pages:** 2557-2566 **DOI:** 10.1007/s10854-019-02793-w **Early Access Date:** JAN 2020 **Published:** FEB 2020

Abstract: Polymer rare-earth composite films PVA/PVP-xLa(3+) (xwt%; x = 0, 3, 5, 10, and 15) were fabricated by the solution casting method. The structural parameters of these films were determined from X-ray diffraction (XRD) pattern analysis, and the complexation of La3+ ions with the polymer composite films was studied by Fourier transform infrared (FT-IR) spectroscopy. The optical energy gap (E-opt.) and the high-frequency refractive index (n) were determined from UV-Vis transmission spectra analysis. AC electrical conductivity and dielectric characterization of the polymer composite films have been investigated. The structural parameters of the inter-planar (d) spacing, crystallite length (D), and the average crystallite separation (R) and the FT-IR spectra indicate strong bonding of La3+ ions with the carbonyl groups of the polymer composite chains. The optical gaps of the films determined by Tauc's relation and optical absorption fitting (ASF) exhibit a slight decrease by increasing La3+ ions content, whereas the refractive indices show a slight increase. High values of the dielectric parameter epsilon ' and dielectric loss epsilon '' were produced in pure PVA/PVP composite polymer films, and they tend to decrease by increasing La3+ ions content in the PVA/PVP composite films due to decreasing directional polarization and ionic polarization in the films with increasing La3+ ions content. The minimum energy loss occurred at 70 kHz and these materials may be selected to be used in energy applications. I-V characteristics show a linear-like ohmic behavior because La ions are bonded well in the structure of polymers and became part of it.

Accession Number: WOS:000505378900004

ISSN: 0957-4522

eISSN: 1573-482X

Record 227 of 243

Title: Facile Synthesis, Optical-Dielectric-Electrical Studies on Carbon-Coated ZnO: An Effect of Gelatin

Author(s): Manthrammel, MA (Manthrammel, M. Aslam); Shkir, M (Shkir, Mohd); Zahran, HY (Zahran, H. Y.); Yahia, IS (Yahia, I. S.); Ganesh, V (Ganesh, V); Alfaify, S (Alfaify, S.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 3 **Pages:** 2144-2150 **DOI:** 10.1007/s11664-019-07901-4 **Early Access Date:** JAN 2020 **Published:** MAR 2020

Abstract: Carbon (C)-coated zinc oxide (ZnO) nanoparticles (NPs) having different sizes and morphologies were successfully synthesized by a flash combustion biomimetic approach using different contents of gelatin as the medium. Structural and vibrational studies indicate that the NPs are grown in a hexagonal wurtzite structure. The amount of gelatin content has a strong effect on the growth mechanism and the physical and optical properties. The presence of C in the ZnO was clearly confirmed by Raman analysis in which the Raman bands corresponding to the presence of C were observed at similar to 1343 cm(-1) (G-band), 1580 cm(-1) (D-band), and 2700 cm(-1) (G '-band). At low concentrations, the NPs grew in the shape of spherical aggregates which arranged themselves in the form of a spherical flower-like structure. At 1 g of gelatin content, the spherical flower-like structure disappeared to be distributed at 3 g of gelatin content into a uniform planar spherical NP arrangement in the shape of a multi-aggregated cauliflower-like structure. At higher concentrations, the NPs rearranged themselves in the shape of a hexagonal disk or a prism-like structure. The band gap values were found to decrease with increasing gelatin content and were in the range of 3.18-3.26 eV, though it showed the dependency on the size, shape and presence of C in ZnO. Studies of the dielectric properties and ac conductivity on the prepared NPs were also carried out.

Accession Number: WOS:000505344800013

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ISSN: 0361-5235

eISSN: 1543-186X

Record 228 of 243

Title: Study of alpha+S-32 scattering using different potentials at 386 MeV

Author(s): Alqahtani, F (Alqahtani, F.); Ibraheem, AA (Ibraheem, Awad A.)

Source: INDIAN JOURNAL OF PHYSICS **DOI:** 10.1007/s12648-019-01667-5 **Early Access Date:** JAN 2020

Abstract: Elastic and inelastic scattering of alpha-particles from S-32 has been theoretically studied at E-lab = 386 MeV using three different potentials. For this, the phenomenological Woods-Saxon parameterized potential, single folding cluster potential, and the high-energy approximation model have been used. The results of our calculations have been compared with the experimental differential cross sections obtained from previously measured angular distributions. Our method of calculations successfully reproduces the experimental data. The values of the total reaction cross-section sigma(R) as well as the deformation parameters have been calculated and compared with those available in the literature.

Accession Number: WOS:000505390500002

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ISSN: 0973-1458

eISSN: 0974-9845

Record 229 of 243

Title: Development of a computational tool for estimating computed tomography dose parameters

Author(s): Almohiy, HM (Almohiy, Hussain M.); Hussein, KI (Hussein, Khalid, I); Alqahtani, MS (Alqahtani, Mohammed S.); Rawashdeh, M (Rawashdeh, Mohammad); Elshiekh, E (Elshiekh, Elhussaien); Alshahrani, MM (Alshahrani, Madshush M.); Saad, M (Saad, Mohammed); Foley, S (Foley, Shane); Saade, C (Saade, Charbel)

Source: JOURNAL OF X-RAY SCIENCE AND TECHNOLOGY **Volume:** 28 **Issue:** 6 **Pages:** 1025-1035 **DOI:** 10.3233/XST-200731 **Published:** 2020

Abstract: BACKGROUND: Computed Tomographic (CT) imaging procedures have been reported as the main source of radiation in diagnostic procedures compared to other modalities. To provide the optimal quality of CT images at the minimum radiation risk to the patient, periodic inspections and calibration

tests for CT equipment are required. These tests involve a series of measurements that are time consuming and may require specific skills and highly-trained personnel.
OBJECTIVE: This study aims to develop a new computational tool to estimate the dose of CT radiation outputs and assist in the calibration of CT scanners. It may also provide an educational resource by which radiological practitioners can learn the influence of technique factors on both patient radiation dose and the produced image quality.
METHODS: The computational tool was developed using MATLAB in order to estimate the CT radiation dose parameters for different technique factors. The CT radiation dose parameters were estimated from the calibrated energy spectrum of the x-ray tube for a CT scanner.
RESULTS: The estimated dose parameters and the measured values utilising an Adult CT Head Dose Phantom showed linear correlations for different tube voltages (80 kVp, 100 kVp, 120 kVp, and 140 kVp), with R-2 nearly equal to 1 (0.99). The maximum differences between the estimated and measured CTDIvol were under 5 %. For 80 kVp and low tube currents (50 mA, 100 mA), the maximum differences were under 10%.

Accession Number: WOS:000599220500001

PubMed ID: 32986646

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ISSN: 0895-3996

eISSN: 1095-9114

Record 230 of 243

Title: Nitrogen K-shell photoionization of NO+

Author(s): Gharaibeh, MF (Gharaibeh, M. F.); Bizau, JM (Bizau, J. M.); Cubaynes, D (Cubaynes, D.); Guilbaud, S (Guilbaud, S.); El Ghazaly, MOA (El Ghazaly, M. O. A.); Al Hagan, OA (Al Hagan, O. A.)

Edited by: Ancarani LU; Bordas C; Lepine F; Vernhet D; Bachau H; Bredy R; Dulieu O; Penent F

Source: 31ST INTERNATIONAL CONFERENCE ON PHOTONIC, ELECTRONIC AND ATOMIC COLLISIONS (ICPEAC XXXI) **Book Series:** Journal of Physics Conference Series **Volume:** 1412 **Article Number:** 152043 **DOI:** 10.1088/1742-6596/1412/15/152043 **Published:** 2020

Abstract: Photoionization measurements of NO+ at Nitrogen K-shell, performed at the SOLEIL Light Source will be presented. The main observed structure corresponds to the 1s to pi* resonant transition.

Accession Number: WOS:000567819500289

Conference Title: 31st International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)

Conference Date: JUL 23-30, 2019

Conference Location: Deauville, FRANCE

ISSN: 1742-6588

eISSN: 1742-6596

Record 231 of 243

Title: ON THE NUMBER OF ORBITS ARISING FROM THE ACTION OF PSL(2, Z) ON IMAGINARY QUADRATIC NUMBER FIELDS

Author(s): Deajim, A (Deajim, Abdulaziz); Aslam, M (Aslam, Muhammad)

Source: UNIVERSITY POLITEHNICA OF BUCHAREST SCIENTIFIC BULLETIN-SERIES A-APPLIED MATHEMATICS AND PHYSICS **Volume:** 82 **Issue:** 3 **Pages:** 61-74 **Published:** 2020

Abstract: For square-free positive integers n, we study the action of the modular group PSL(2, Z) on the subsets { a+ root-n/c is an element of Q(root-n) vertical bar a, a(2)+n/c, c is an element of Z} of the imaginary quadratic number fields Q(root-n). In particular, we compute the number of orbits of this action and show, for n > 3, that it is equal to
d(n) + 2/3 Sigma(n-1/2right perpendicular)(i=1left perpendicular) [d(i(2) + n) - 2d(<=)i (i(2) + n)],
where d(k) is the number of positive divisors of k, and d(<= i) (k) is the number of positive divisors of k which do not exceed i. We also provide a C++ code to calculate these numbers for square-free integers n with 1 <= n <= 100.

Accession Number: WOS:000555516500007

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Aslam, Muhammad	ABI-8003-2020	

ISSN: 1223-7027

Record 232 of 243

Title: High harmonic generations by laser in xenon clusters

Author(s): Ahmad, N (Ahmad, Nafis); Alshehri, AM (Alshehri, A. M.); Ibrahim, A (Ibrahim, A.)

Source: AIP ADVANCES **Volume:** 10 **Issue:** 1 **Article Number:** 015312 **DOI:** 10.1063/1.5118758 **Published:** JAN 2020

Abstract: Surface plasmon resonance enhanced high harmonic generation of intense short pulse lasers in xenon clusters is investigated. A laser pre-pulse partially ionizes the cluster atoms, turning them into plasma balls. As the main pulse arrives, plasma electrons execute large amplitude oscillations, creating a space charge field much higher than the laser field at surface plasmon resonance. The bound electrons under this field move out of the ions and return back with large residual energy. On recombination, they produce high harmonics. The number of photons emitted by the xenon clusters per second per frequency interval decreases with the emitted photon frequency. (C) 2020 Author(s).

Accession Number: WOS:000525829300121

eISSN: 2158-3226

Record 233 of 243

Title: Polynomial solutions of the radial Schrodinger equation

Author(s): Maiz, F (Maiz, F.); Alqahtani, MM (Alqahtani, Moteb M.)

Source: PHYSICA SCRIPTA **Volume:** 95 **Issue:** 1 **Article Number:** 015003 **DOI:** 10.1088/1402-4896/ab3edd **Published:** JAN 2020

Abstract: In this paper, we investigate the possibility of finding polynomial solutions to central potentials of the radial Schrodinger equation. By setting up the proper conditions that join the potential's parameters to each other as well as eventual wave function's zeros, exactly solvable potentials under these conditions have been achieved and expressions for energy levels are formed. Further, we find a good agreement between our results and that published in the literature. Results found here could be very useful in generating realistic tools to solve further complicated physical systems.

Accession Number: WOS:000515322100002

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ISSN: 0031-8949

eISSN: 1402-4896

Record 234 of 243

Title: Synthesis of nano-NiXFe2O4 (X = Mg/Co) by citrate-gel method: structural, morphological and low-temperature magnetic properties

Author(s): Gaffoor, A (Gaffoor, Abdul); Naidu, KCB (Naidu, K. Chandra Babu); Ravinder, D (Ravinder, D.); Batoo, KM (Batoo, Khalid Mujasam); Adil, SF (Adil, Syed Farooq); Khan, M (Khan, Mujeeb)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 1 **Article Number:** 39 **DOI:** 10.1007/s00339-019-3225-1 **Published:** JAN 2020

Abstract: A series of Mg-doped NiFe2O4 (NMF) and Co-doped NiFe2O4 (NCF) nanoparticles were synthesized via citrate-gel method. The X-ray diffraction patterns of conventionally heated NMF and NCF nanoparticles confirmed the formation of single-phase cubic spinel structures. Further, the variation of structural parameters as a function of compositions was described. The morphology of NMF and NCF materials was investigated using scanning and transmission electron microscopes (SEM and TEM). In addition, the formation of tetrahedral (A-site) and octahedral (B-site) locations of NMF and NCF was obtained from the Fourier transform infrared spectra (FTIR). Furthermore, the room- and low-temperature magnetic properties were studied for NMF and NCF nanoparticles using magnetization versus magnetic field (M-H) loops and zero field cooled (ZFC) and field cooled (FC) curves, respectively. The results revealed that NMF and NCF nanoparticles exhibited superparamagnetic (SPM) nature at room temperature.

Accession Number: WOS:000509106900001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 235 of 243

Title: Optical model potentials for O-16+O-16 elastic scattering

Author(s): Hamada, S (Hamada, Sh.); Ibraheem, AA (A. Ibraheem, Awad)

Source: INDIAN JOURNAL OF PHYSICS **Volume:** 94 **Issue:** 1 **Pages:** 87-94 **DOI:** 10.1007/s12648-019-01443-5 **Published:** JAN 2020

Abstract: Angular distributions of the elastic scattering differential cross section data for the O-16 + O-16 nuclear system in the energy range of 75-480 MeV have been analyzed using the double-folding optical potential model. The real part of the interaction potential is derived on the basis of double folding of different models of interaction such as CDM3Y1, CDM3Y6, DDM3Y1, and BDM3Y1. The imaginary part of the potential is taken as the sum of the imaginary volume term expressed in the phenomenological Woods-Saxon squared form and a derivative Woods-Saxon surface term. Renormalization factors N-r for the various concerned interaction models are evaluated. The potential created by the BDM3Y1 model of interaction has the shallowest depth, which reflects the necessity of using higher renormalization factor. The obtained real volume integral and total reaction cross sections are calculated at different energies using the derived potentials. The obtained results are in agreement with the experimental data.

Accession Number: WOS:000511929700009

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ISSN: 0973-1458

eISSN: 0974-9845

Record 236 of 243

Title: Multiphoton process in cavity QED photons for implementing a three-qubit quantum gate operation

Author(s): Alqahtani, MM (Alqahtani, Moteb M.)

Source: QUANTUM INFORMATION PROCESSING **Volume:** 19 **Issue:** 1 **Article Number:** 12 **DOI:** 10.1007/s11128-019-2498-9 **Published:** JAN 2020

Abstract: Based on cavity QED of free atoms, we theoretically investigate the implementation of a three-qubit quantum phase gate in which the three qubits are represented by the photons in modes of the cavity. A single four-level atom in double-V type passing through the high-Q cavity is used to implement the gate. We apply the theory of multiphoton resonance and use two-level effective Hamiltonians to predict the proper values for detunings, coupling constants, and interaction times. By the use of both the density matrix approach and wave function method, the influence of the decoherence processes is theoretically and numerically analyzed. Further, we address the effects of deviation in detunings and coupling coefficients and find that the gate operation is substantially insensitive to such variations. Finally, we show that the proposed scheme here can be extended for the implementation of multiqubit quantum phase gates.

Accession Number: WOS:000511165400009
ISSN: 1570-0755
eISSN: 1573-1332

Record 237 of 243

Title: Eu2O3 role in the optical and photoluminescence properties of 50 SiO2-7 MgO-20 ZnO - (23-x) La2O3 - x Eu2O3 nano-crystalline thin films

Author(s): Dahshan, A (Dahshan, A.); Abou Hammad, AB (Abou Hammad, Ali B.); Aly, KA (Aly, K. A.); El Nahrawy, AM (El Nahrawy, Amany M.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 1 **Article Number:** 19 **DOI:** 10.1007/s00339-019-3207-3 **Published:** JAN 2020

Abstract: Nano-crystalline 50 SiO2 - 7 MgO - 20 ZnO - (23 - x) La2O3 - xEu(2)O(3) (0.0 <= x <= 4 mol%.) termed as (Eu-SMZL) thin films have been synthesized by highly acidic sol-gel technique and calcined at 450 degrees C for 2 h. The nano-porous Eu-SMZL films showed the improved structure and morphology with increasing Eu2O3 content. The XRD and FTIR investigation proved an increase in the crystallinity and changes in the internal structure with the increase in Eu3+ level. The photoluminescence (Pl) result agrees with the XRD, proving the increase in the crystallinity. The transmittance (T) and absorbance (A) spectra have been measured within 300-2000 nm spectral range. The absorption coefficient (alpha) and refractive index (n) have been estimated. It is worth to mention that the increment of Eu2O3 at the expense of La2O3 shifts the absorption edge to the long wavelength side (red shift) which leads to a decrement in the band gap (E-opt) values while the n values increases. This behavior of n is well discussed in terms of the glass density (G(d)), molar volume (V-m), electronic polarizability (alpha(el)) and optical basicity (Lambda). Furthermore, the single oscillator model helps us to investigate the static index of refraction (n(0)), energy of single oscillator (E-o), and dispersion energy (E-d).

Accession Number: WOS:000509106300010
ISSN: 0947-8396
eISSN: 1432-0630

Record 238 of 243

Title: Sheet resistance-temperature dependence, thermal and electrical analysis of As40S60-xSex thin films

Author(s): Shaaban, ER (Shaaban, E. R.); Hassaan, MY (Hassaan, M. Y.); Moustafa, MG (Moustafa, M. G.); Qasem, A (Qasem, Ammar); Yousef, E (Yousef, El Sayed)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 126 **Issue:** 1 **Article Number:** 34 **DOI:** 10.1007/s00339-019-3217-1 **Published:** JAN 2020

Abstract: This framework focuses fundamentally on sheet resistance, R-s, measurements for the As40S60-xSex thin films with [(0 <= x >= 60) at.%] for thickness of the film and heating rate of 1000 nm and 5 K/min, respectively. Then, we can adapt these measurements to study the thermal and electrical properties by which we can reduce the time and effort spent. The thermal and electrical analysis in this work appears in a new format without the need for a procedure to calculate the thermal measurements from bulk material of the studied sample. The same is true for electrical properties where electrical measurements need not be necessarily carried out. In this work, we will focus first on obtaining the sheet resistance, R-s of thin films whose surface thickness is equal to 1000 nm for chalcogenide As40S60-xSex thin films with [(0 <= x >= 60) at.%] at a heating rate of 5 K/min, in the temperature range from 300 to 435 K. This range was sufficient to highlight on two important regions in the sheet resistance curve and through the derivation of sheet resistance as a function of temperature, there was clear evidence of one crystallization region for the studied samples. Second, the thermal data we obtained were used to complete the thermal calculations and then the electrical calculations. The activation energies of crystallization were evaluated. The nucleation and growth order parameter n, and the dimension order parameter m, were also computed and discussed. The activation energy, E-c, and Avrami index, n, were obtained by analyzing the data via JMA methods. The results indicated that the transformation from amorphous to crystalline phases is a complex process that includes different mechanisms of nucleation and growth. The change of activation energy with volume of crystalline fraction was determined. The crystalline phases for the as-deposited and annealed films were identified using X-ray diffraction (XRD). The electrical results of the investigated sample appear in two types of conduction channels which contribute to two conduction mechanisms in the crystallized region. In the extended and hopping states regions, the activation energies Delta E, two pre-exponential factors sigma(0), sigma*(0) and other parameters were computed.

Accession Number: WOS:000509106600003

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ISSN: 0947-8396
eISSN: 1432-0630

Record 239 of 243

Title: Dynamical and optimal procedure to analyze the exhibition of physical attributes imparted by Sutterby magneto-nanofluid in Darcy medium yielded by axially stretched cylinder

Author(s): Bilal, S (Bilal, S.); Sohail, M (Sohail, M.); Naz, R (Naz, R.); Malik, MY (Malik, M. Y.)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 98 **Issue:** 1 **Pages:** 1-10 **DOI:** 10.1139/cjp-2018-0581 **Published:** JAN 2020

Abstract: This work aims to interpret the heat and mass transmission of Sutterby fluid by exploring the effects of a magnetic field. Flow field equations in cylindrical coordinates are obtained by incorporating Darcy resistance law. Afterwards, a mathematical structure for the physical problem is formulated. This formulation yields an intricate nonlinear set of partial differential expressions. A suitable scaling group of variables is employed on subsequent equations to convert them into non-dimensional form. Dynamical and optimal analyses are performed to achieve physical features of the present problem from the solution. A graphical depiction is presented for the flow behavior of convoluted physical parameters on velocity, temperature, and concentration profiles. Additionally, the quantities (local shear stress coefficient, thermal convective transfer coefficient, and local mass flux coefficient in the limiting case) that are responsible for extracting the physical phenomena in the vicinity of a stretched surface are computed and demarcated by varying controlling flow parameters.

Accession Number: WOS:000505674200001

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ISSN: 0008-4204

eISSN: 1208-6045

Record 240 of 243

Title: Heat transfer of three-dimensional micropolar fluid on a Riga plate

Author(s): Nadeem, S (Nadeem, S.); Malik, MY (Malik, M. Y.); Abbas, N (Abbas, Nadeem)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 98 **Issue:** 1 **Pages:** 32-38 **DOI:** 10.1139/cjp-2018-0973 **Published:** JAN 2020

Abstract: In this article, we deal with prescribed exponential surface temperature and prescribed exponential heat flux due to micropolar fluids flow on a Riga plate. The flow is induced through an exponentially stretching surface within the timedependent thermal conductivity. Analysis is performed inside the heat transfer. In our study, two cases are discussed here, namely prescribed exponential order surface temperature (PEST) and prescribed exponential order heat flux (PEHF). The governing systems of the nonlinear partial differential equations are converted into nonlinear ordinary differential equations using appropriate similarity transformations and boundary layer approach. The reduced systems of nonlinear ordinary differential equations are solved numerically with the help of bvp4c. The significant results are shown in tables and graphs. The variation due to modified Hartman number M is observed in theta (PEST) and phi (PEHF). theta and phi are also reduced for higher values of the radiation parameter T-r. Obtained results are compared with results from the literature.

Accession Number: WOS:000505674200005

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ISSN: 0008-4204

eISSN: 1208-6045

Record 241 of 243

Title: First-principle calculation for inherent stabilities of LixCoPO4, NaxCoPO4 and the mixture LixNayCoPO4

Author(s): Aboraia, AM (Aboraia, Abdelaziz M.); Shapovalov, VV (Shapovalov, V. V.); Vetlitsyna-Novikova, K (Vetlitsyna-Novikova, K.); Guda, AA (Guda, A. A.); Butova, VV (Butova, V. V.); Zahran, HY (Zahran, H. Y.); Yahia, IS (Yahia, I. S.); Soldatov, AV (Soldatov, A., V)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 136 **Article Number:** 109192 **DOI:** 10.1016/j.jpcs.2019.109192 **Published:** JAN 2020

Abstract: We have synthesized NaCoPO4 and LiCoPO4 via microwave-assisted solvothermal synthesis. The local atomic structure around Co atoms was characterized by means of Co K-edge XANES spectroscopy. Using X-ray diffraction, we have identified two NaCoPO4 phases with Pnma and P6(5) space groups (lattice parameters a = 10.26 angstrom, b = 5.93 angstrom, c = 4.74 angstrom, and a = 10.16 angstrom,b = 10.16 angstrom,c = 23.87 angstrom, respectively) and one LiCoPO4 phase has Pnma space group with lattice parameters a = 10.22 angstrom, b = 5.93 angstrom and c = 4.71 angstrom. Within GGA + U approximation we have calculated the variation of the cell voltage versus Li foil and atomic Bader charges for a wide range of alkali metal concentration in the material. Considering the low cost of the material and high intercalation voltage the synthesized sodium-based material is a good candidate for novel cathode materials.

Accession Number: WOS:000502886100057

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ISSN: 0022-3697

eISSN: 1879-2553

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Title: Optical linearity and bandgap analysis of RhB-doped PMMA/FTO polymeric composites films: A new designed optical system for laser power attenuation

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Source: OPTICS AND LASER TECHNOLOGY **Volume:** 121 **Article Number:** 105823 **DOI:** 10.1016/j.optlastec.2019.105823 **Published:** JAN 2020

Abstract: Thin films of PMMA doped with Rhodamine B-dye have deposited successfully on a fluorine-doped tin oxide (FTO) glass substrate as a new optical system by using a spin coating method. This new system is promising to be used in various technological applications as solar energy cells, electronic apparatuses, devices of optical filter properties and optoelectronic tools. X-ray diffraction (XRD) illustrates a uniform and semicrystalline structure in nature for the obtained thin films. A spectrophotometric investigation was applied on the prepared thin films at the range of (300-2500 nm) for the wavelength. Both linear refractive index and absorption index values were measured to be reduced as the wavelength was raised. Tauc's plot indicated that direct and indirect

transitions were displayed by the thin film. Both direct and indirect bandgaps were calculated and analyzed. Continuous waves of the green laser beam (operating at 532), and He-Ne laser beam (operating at 632.8 nm) were used to study the optical properties of the prepared thin films with different dye concentrations. The results illustrated that the polymeric composites films are highly attenuated for the laser beam of 532 nm. The designed RhB-doped PMMA/FTO composites can be extensively appropriate to the optoelectronic applications.

Accession Number: WOS:000491217800034

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ISSN: 0030-3992

eISSN: 1879-2545

Record 243 of 243

Title: In Vitro and In Vivo Bioactivity of Tricalcium Phosphate and Fluoroapatite Nanoparticles for Medical Implants

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Source: SCIENCE OF ADVANCED MATERIALS **Volume:** 12 **Issue:** 1 **Pages:** 101-109 **DOI:** 10.1166/sam.2020.3563 **Published:** JAN 2020

Abstract: A novel 40P(2)O(5)-20Na(2)O-10Ca(OH)(2)-20CaCl(2)-6.0ZnO-2.0BaF(2)-2.0TiO(2) (BGBaFTi) bioglasses is prepared. The reaction of the glasses in SBF solution is characterized by XRD and SEM indicated that the carbonate hydroxyapatite has formed rapidly on the glasses. BGBaFTi bioglasses was tested for its antimicrobial activity, anti-proliferative/cytotoxicity against normal and activated splenic cells in vitro and in vivo. This results showed that BGBaFTi has antimicrobial activities against Gram negative and positive bacteria as well as fungi. We found that the antimicrobial activity of nanoparticles of BGBaFTI is high than the normal powder of it. Moreover BGBaFTi (powder and nanoparticle) with cytotoxic effect on normal splenic cells was investigated. The products of activated splenic cells did not cause any changes in the structure of BGBaFTi. It did not cause any acute cytotoxicity or lysis to RBCs which was not affected by lytic products of immune cells. The bioactivity and biocompatibility of the present glasses use it a good potential candidate in the field of tissue engineering.

Accession Number: WOS:000490290800012

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ISSN: 1947-2935

eISSN: 1947-2943