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Record 1 of 163

Title: Electronic Polarizability, Optical Basicity, Thermal,Mechanical and Optical Investigations of (65B(2)O(3)-30Li(2)O-5Al(2)O(3)) Glasses Doped with Titanate

Author(s): Shaaban, KS (Shaaban, Kh S.); Wahab, EAA (Wahab, E. A. Abdel); Shaaban, ER (Shaaban, E. R.); Yousef, E (Yousef, El Sayed); Mahmoud, SA (Mahmoud, Safwat A.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 3 **Pages:** 2040-2049 **DOI:** 10.1007/s11664-019-07889-x **Early Access Date:** DEC 2019 **Published:** MAR 2020

Abstract: Titanium-doped and titanium-free lithium borate glasses were prepared using a quenching method and high-purity-grade chemical substances. Structural analysis was carried out by Fourier transform infrared (FT-IR) spectroscopy and mechanical measurement. The states of the produced glasses were examined by x-ray diffraction, and the density (rho) and molar volume (V-m) were determined. The Makishima-Mackenzie model was applied for the prepared glasses. FT-IR confirmed that the concentration of [BO4] was greater than that of [BO3] structural units. These variations confirmed that the compactness of the lithium borate network increased as the concentration of (TiO2/B2O3) increased. The longitudinal (v(L)) and shear (v(T)) velocities of the samples with varying concentrations of (TiO2/B2O3) were found to increase, along with the elastic moduli. The thermal stability, energy gap, and refractive index of the prepared glasses increased as the concentration of (TiO2/B2O3) was increased.

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Record 2 of 163

Title: Deposition of p-type Al doped PbS thin films for heterostructure solar cell device using feasible nebulizer spray pyrolysis technique

Author(s): Rosario, SR (Rosario, S. Rex); Kulandaisamy, I (Kulandaisamy, I); Kumar, KDA (Kumar, K. Deva Arun); Arulanantham, AMS (Arulanantham, A. M. S.); Valanarasu, S (Valanarasu, S.); Youssef, MA (Youssef, Maha A.); Awwad, NS (Awwad, Nasser S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 575 **Article Number:** 411704 **DOI:** 10.1016/j.physb.2019.411704 **Published:** DEC 15 2019

Abstract: Doping of metal atoms with PbS thin films can make significant influence on the structural and electron transport properties which makes it suitable for photovoltaic and other device applications. The objective of the present work is to study the structural, morphological, optical and electrical properties of PbS:Al thin films as a function of different Al doping percentage. PbS and Al doped PbS thin films were deposited using Nebulizer Spray Pyrolysis (NSP) on soda lime glass substrates by varying Al doping level from 0 wt% to 8 wt%. Polycrystalline nature with face centered cubic crystal structure was noticed for all the prepared films from XRD pattern. The orientation along (200) plane was observed for all the prepared films. From AFM analysis, the observed surface roughness values were considerably decreased on increasing the Al doping concentration. The calculated optical band gap values exhibits increasing trend and shifted from 1.54 eV to 1.66 eV on increasing Al doping concentration. The electrical resistivity value of the PbS:Al thin films were reduced from 3.08 x 10(3) to 1.63 x 10(3) Omega cm with raise in Al doping level. The solar cell efficiency for FTO/n-CdS/p-PbS:Al structure constructed from 6% of Al doped PbS film was about 0.44%.

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Record 3 of 163

Title: Multiple solutions for the modified Fourier and Fick's theories for Carreau nanofluid

Author(s): Sardar, H (Sardar, Humara); Khan, M (Khan, Masood); Alghamdi, M (Alghamdi, Metib)

Source: INDIAN JOURNAL OF PHYSICS **Volume:** 94 **Issue:** 12 **Pages:** 1939-1947 **DOI:** 10.1007/s12648-019-01628-y **Early Access Date:** DEC 2019 **Published:** DEC 2020

Abstract: The present paper numerically investigated the dual solutions of Carreau nanofluids in the presence of Cattaneo-Christov double diffusion with focus on heat and mass transfer which contains the effects of Brownian motion and thermophoresis parameter. A nonlinearly shrinking sheet has been utilized to create the flow. The thermal and concentration diffusions are considered by introducing Cattaneo-Christov fluxes. This paper provides information about the energy and concentration equations which are constructed with the help of Cattaneo-Christov double-diffusion theory in the existence of Brownian motion parameter and thermophoresis parameter. The study showed the local similarity variables are used to renovate the governing equations into a set of nonlinear ordinary differential equations. The ascending differential system which is a collection of momentum, temperature and concentration equations is preserved through a numerical approach called the Runge-Kutta-Fehlberg integration technique. The study reveals that the multiple solutions occur for the different vital physical parameters, for example, suction parameter s, Weissenberg number We, Prandtl number Pr, velocity slip parameter delta, viscosity ratio parameter beta*, non-dimensional thermal relaxation time delta(e), Brownian motion parameter Nb and thermophoresis parameter Nt. Moreover, higher values of thermal relaxation time delta(e) decrease the temperature profile.

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Record 4 of 163

Title: Strain induced large enhancement of thermoelectric figure-of-merit (ZT similar to 2) in transition metal dichalcogenide monolayers ZrX2 (X = S, Se, Te)

Author(s): D'Souza, R (D'Souza, Ransell); Mukherjee, S (Mukherjee, Sugata); Ahmad, S (Ahmad, Sohail)

Source: JOURNAL OF APPLIED PHYSICS **Volume:** 126 **Issue:** 21 **Article Number:** 214302 **DOI:** 10.1063/1.5125191 **Published:** DEC 7 2019

Abstract: Two-dimensional group IV transition-metal dichalcogenides have encouraging thermoelectric applications since their electronic and lattice properties can be manipulated with strain. In this paper, we report the thermoelectric parameters such as electrical conductivities, Seebeck coefficients, electrical relaxation times, and the mode dependent contributions to the lattice thermal conductivity of ZrX2 (X = S, Se, Te) from first-principles methods. Our calculations indicate that due to tensile strain, the power factor increases while simultaneously decreasing the lattice thermal conductivity, thus enhancing the thermoelectric figure of merit. Tensile strain widens the bandgap, which corresponds to a higher power factor. The lattice thermal conductivity decreases due to the stiffening of the out-of-plane phonon modes, thus reducing the anharmonic scattering lifetimes and increasing the thermoelectric figure-of-merit. Published under license by AIP Publishing.

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ISSN: 0021-8979

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Record 5 of 163

Title: An Optimal Analysis for 3D Flow of Prandtl Nanofluid with Convectively Heated Surface

Author(s): Ullah, MZ (Ullah, Malik Zaka); Alghamdi, M (Alghamdi, Metib)

Source: COMMUNICATIONS IN THEORETICAL PHYSICS **Volume:** 71 **Issue:** 12 **Pages:** 1485-1492 **DOI:** 10.1088/0253-6102/71/12/1485 **Published:** DEC 2019

Abstract: In this paper, the magnetohydrodynamic 3D flow of Prandtl nanoliquid subject to convectively heated extendable surface has been discussed. A linear stretching surface makes the flow. Thermophoretic and Brownian motion impacts are explored. Heat transfer for convective procedure is considered. Prandtl liquid is taken electrically conducted through applied magnetic field. Suitable non-dimensional variables lead to strong nonlinear ordinary differential system. The obtained nonlinear differential systems are solved through optimal homotopic technique. Physical quantities like skin friction coefficients and Nusselt number are explored via plots. It is observed that effects of Hartman parameter and Biot number on temperature and concentration are quite similar. Both temperature and concentration are enhanced for larger values of Hartman parameter and Biot number.

Accession Number: WOS:000518889900014

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Record 6 of 163

Title: Magnetohydrodynamic Stagnation Point Flow of a Maxwell Nanofluid with Variable Conductivity

Author(s): Irfan, M (Irfan, M.); Khan, M (Khan, M.); Khan, WA (Khan, W. A.); Alghamdi, M (Alghamdi, M.)

Source: COMMUNICATIONS IN THEORETICAL PHYSICS **Volume:** 71 **Issue:** 12 **Pages:** 1493-1500 **DOI:** 10.1088/0253-6102/71/12/1493 **Published:** DEC 2019

Abstract: This article reports the simultaneous properties of variable conductivity and chemical reaction in stagnation point flow of magneto Maxwell nanofluid. The Buongiorno's theory has been established to picture the inducement of Brownian and thermophrotic diffusions effects. Additionally, the aspect of heat sink/source is reported. The homotopic analysis method (HAM) has been worked out for the solution of nonlinear ODEs. The behavior of inferential variables on the velocity, temperature, concentration and local Nusselt number for Maxwell nanofluid are sketched and discussed. The attained outcomes specify that both the temperature and concentration of Maxwell fluid display analogous behavior, while the depiction of Brownian motion is quite conflicting on both temperature and concentration fields. It is further noted that the influence of variable thermal conductivity on temperature field is similar to that of Brownian motion parameter. Moreover, for the confirmation of our study comparison tables are reported.

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ISSN: 0253-6102

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Record 7 of 163

Title: The effective role of La2O3 contribution on zinc borate glasses: radiation shielding and mechanical properties

Author(s): Issa, SAM (Issa, Shams A. M.); Susoy, G (Susoy, G.); Ali, AM (Ali, Atif Mossad); Tekin, HO (Tekin, H. O.); Saddeek, YB (Saddeek, Y. B.); Al-Hajry, A (Al-Hajry, Ali); Algarni, H (Algarni, Hamed); Anjana, PS (Anjana, P. S.); Agar, O (Agar, O.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 12 **Article Number:** 867 **DOI:** 10.1007/s00339-019-3169-5 **Published:** DEC 2019

Abstract: In this theoretical study, the zinc borate glasses have been modified with lanthanum oxide (La2O3) in a different amount (0, 1, 2, 3 and 4%). The mechanical and shielding properties change after adding of lanthanum oxide in zinc borate glasses depending on the bond compression and Makishima-Mackenzie models. The mass attenuation coefficients have been calculated using the XCOM program and MCNPX simulation code. The results present that La2O3 increment in the glass density modifies the glass mechanical properties and improves the radiation attenuation performances. The variations in the mechanical properties are resulting from the formation of bridging oxygen. The density of the ZnO-B2O3-La2O3 glass system is proportional to La2O3 concentration, which is attributable to the highest molecular weight of La2O3 than those of ZnO and B2O3. Furthermore, the mass attenuation coefficients, effective atomic numbers and effective removal cross-section of the glasses increases as La2O3 contains increase. The half-value layer, tenth value layer, mean free path, buildup factors and mass stopping power of the glasses decrease as La2O3 contain increases. Present results explained the characteristic of ZnO-B2O3-La2O3 glass as a novel nominee for radiation attenuation barrier in the chosen energy zone.

Accession Number: WOS:000509105300005

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Record 8 of 163

Title: Effect of ZnO Nanoparticles Coating Layers on Top of ZnO Nanowires for Morphological, Optical, and Photovoltaic Properties of Dye-Sensitized Solar Cells

Author(s): Saleem, M (Saleem, Muhammad); Farooq, WA (Farooq, W. A.); Khan, MI (Khan, M. I.); Akhtar, MN (Akhtar, Majid. Niaz.); Rehman, SU (Rehman, Saif Ur); Ahmad, N (Ahmad, Naseeb); Khalid, M (Khalid, Muhammad); Atif, M (Atif, M.); AlMutairi, MA (AlMutairi, Mona A.); Irfan, M (Irfan, Muhammad)

Source: MICROMACHINES **Volume:** 10 **Issue:** 12 **Article Number:** 819 **DOI:** 10.3390/mi10120819 **Published:** DEC 2019

Abstract: This paper reports on the synthesis of ZnO nanowires (NWs), as well as the compound nanostructures of nanoparticles (NPs) and nanowires (NWs+NPs) with different coating layers of NPs on the top of NWs and their integration in dye-sensitized solar cells (DSSCs). In compound nanostructures, NWs offer direct electrical pathways for fast electron transfer, and the NPs of ZnOdispread and fill the interstices between the NWs of ZnO, offering a huge surface area for enough dye anchoring and promoting light harvesting. A significant photocurrent density of 2.64 mA/cm(2) and energy conversion efficiency of 1.43% was obtained with NWs-based DSSCs. The total solar-to-electric energy conversion efficiency of the NWs+a single layer of NPs was found to be 2.28%, with a short-circuit photocurrent density (J(SC)) of 3.02 mA/cm(2), open-circuit voltage (V-OC) of 0.74 V, and a fill factor (FF) of 0.76, which is 60% higher than that of NWs cells and over 165% higher than NWs+a triple layer of NPs-based DSSCs. The improved performance was obtained due to the increased specific surface area for higher dye anchoring and light harvesting of compound nanostructures with NWs+a single layer of NPs.

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PubMed ID: 31779196

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Record 9 of 163

Title: Argon Annealing and Oxygen Purity Affect Structural and Critical Parameters of YBCO Copper Oxide System

Author(s): Ali, AM (Ali, Atif Mossad); Sedky, A (Sedky, A.); Algarni, H (Algarni, H.); Sayed, MA (Sayed, M. A.)

Source: JOURNAL OF LOW TEMPERATURE PHYSICS **Volume:** 197 **Issue:** 5-6 **Pages:** 445-457 **DOI:** 10.1007/s10909-019-02234-2 **Published:** DEC 2019

Abstract: We report here the effects of argon annealing on the structural and critical parameters of oxygenated copper oxide system with different oxygen purities (Hp 99.99% and Lp 93%). It is found that the structure of the samples maintains orthorhombic single phase independent of both oxygen purity and annealing. The mean field temperature T-c(mf) is increased by annealing from 92 to 94 K for Lp sample, but it is decreased from 93 to 90 K for Hp sample. Similar behavior is obtained for crossover temperatures T-o. Further, the coherence length and interlayer coupling are decreased by annealing for both samples, and their values are higher for Lp samples than those for Hp samples. The excess conductivity analysis reveals two different exponents corresponding to crossover temperature for each plot: The first exponent is obtained in the normal field region at a temperature range of ln epsilon (0 >= ln epsilon >= - 2), and their values are 1.50, 1.53, 1.62 and 1.47 for both samples, in which the order parameter dimensionality (OPD) is one dimension, while the second exponent is obtained in the mean field region at a temperature range of ln epsilon (- 2 >= ln epsilon >= - 4), and their values are 0.39, 0.59, 0.56 and 0.41 for both samples, in which the OPD is 3D. Although the critical temperatures are decreased by annealing for both samples, the critical fields and critical currents are increased by annealing for both samples and their values are higher for Hp sample than those for Lp sample. Our results are discussed in terms of oxygen vacancies and concentration of carriers which are produced by annealing and oxygen purity for the considered samples.

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Record 10 of 163

Title: Near-threshold incoherent pion photoproduction on the deuteron with final-state interaction effects

Author(s): Darwish, EM (Darwish, E. M.); Almarashi, MM (Almarashi, M. M.); Mahrous, EM (Mahrous, E. M.); Hassanain, MA (Hassanain, M. A.); Yousef, MS (Yousef, M. Saleh)

Source: ANNALS OF PHYSICS **Volume:** 411 **Article Number:** 167990 **DOI:** 10.1016/j.aop.2019.167990 **Published:** DEC 2019

Abstract: Incoherent pion photoproduction on the deuteron gamma d -> pi NN is investigated in the energy region E-gamma(thr) <= E-gamma <= 160 MeV. The model applied contains the amplitudes of the impulse approximation as well as the NN and pi N rescattering in the final state. For the elementary gamma N -> pi N amplitude, the unitary isobar MAID-2007 model is used. This model is parameterized in terms of invariant amplitudes and allows one to give a more reliable description of the threshold region. The half-off-shell NN and pi N scattering amplitudes are obtained from separable representations of realistic NN and pi N interactions, respectively. For the first time, numerical results for the linear photon asymmetry Sigma, vector T-11 and tensor T-2M (M = 0, 1, 2) deuteron spin asymmetries for the reactions gamma d -> pi(-) pp, gamma d -> pi(+)nn, and gamma d -> pi(0) np are presented. In addition, results for the unpolarized differential and total cross sections are given. We found that the influence of NN rescattering is moderate in both charged-and neutral-pion production channels, whereas pi N rescattering is almost negligible in the charged-pion production channels which is not the case in neutral-pion production since a noticeable contribution is obtained. The calculated results for unpolarized differential and total cross sections are compared with the available experimental data and other theoretical models, and a satisfactory agreement is obtained. (C) 2019 Elsevier Inc. All rights reserved.

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ISSN: 0003-4916

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Record 11 of 163

Title: Crystal structure and electronic properties of wurtzite MgxZn1-xO: Ab initio study

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

Source: RESULTS IN PHYSICS **Volume:** 15 **Article Number:** 102694 **DOI:** 10.1016/j.rinp.2019.102694 **Published:** DEC 2019

Abstract: The current paper reports on the alloying effect on the structural and electronic properties of the hexagonal wurtzite MgxZn1-xO. The calculations are carried out using full-potential linearized augmented plane wave method. The Wu-Cohen and Tran-Blaha modified Becke-Johnson generalized gradient approximations are used to describe the exchange-correlation potential. Our results show generally reasonable accord with experiment. By alloying ZnO with different concentrations of Mg, the variation of the lattice parameters versus Mg content violates slightly the Vegard's law. The analyses of the band structure and density of states show that MgxZn1-xO (0 <= x <= 1) exhibits a semiconducting character with a direct band-gap (Gamma-Gamma). The variation of the latter versus alloy composition x is found to be non-linear showing a band-gap bowing parameter of -1.33 eV.

Accession Number: WOS:000502391000169

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Record 12 of 163

Title: Radiation shielding and physical properties of lead borate glass-doped ZrO2 nanoparticles

Author(s): Abdel Wahab, EA (Abdel Wahab, E. A.); Shaaban, KS (Shaaban, Kh. S.); Elsaman, R (Elsaman, Reda); Yousef, ES (Yousef, El Sayed)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 12 **Article Number:** 869 **DOI:** 10.1007/s00339-019-3166-8 **Published:** DEC 2019

Abstract: Zirconium oxide (ZrO2) nanoparticles have been prepared and examined by XRD. The transparent lead alkali borate glass systems of formula xZrO(2)-20PbO(2)-(80 - x)center dot Na2B4O7 (0 <= x <= 24 mol%) are prepared by melting quench method and doped by zirconia nanoparticles. Deconvolution of its FTIR reveals to increase the N-4 fraction boron atoms. This result reveals the Zr4+ which forms BO4 network units. The density and refractive index of chosen glass are increased due to add of ZrO2 nanoparticles. Both ultrasonic velocities (longitudinal v(L) and shear v(T)) increase with the ZrO2 content increase. The packing density, bulk modulus and Young's modulus increase with increasing of ZrO2 nanoparticle content. The attenuation coefficients of the studied glasses have been measured at different energies (356, 662, 1173 and 1332 keV) using narrow beam transmission geometry. The obtained results indicated that, the values of the mass attenuation coefficient (mu(m)), the effective atomic number (Z(eff)) and effective electron density (N-el) of the glass samples decreased with the increase in the ZrO2 concentration at the energies (662,1173and 1332 keV), while these parameters (mu(m), Z(eff) and N-el) increased with the increase in the ZrO2 concentration at 356 keV. The samples are irradiated 30 min by argon glow discharge plasma (GDP). The values of optical band gap decreased slowly with ZrO2 nanoparticles increased and after plasma irradiation.

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Record 13 of 163

Title: A Systematic First-Principles Investigation of Structural, Electronic, Magnetic, and Thermoelectric Properties of Thorium Monopnictides ThPn (Pn = N, P, As): A Comparative Analysis of Theoretical Predictions of LDA, PBEsol, PBE-GGA, WC-GGA, and LDA plus U Methods

Author(s): Siddique, M (Siddique, Muhammad); Rahman, AU (Rahman, Amin Ur); Iqbal, A (Iqbal, Azmat); Haq, BU (Haq, Bakhtiar Ul); Azam, S (Azam, Sikander); Nadeem, A (Nadeem, Asif); Qayyum, A (Qayyum, Abdul)

Source: INTERNATIONAL JOURNAL OF THERMOPHYSICS **Volume:** 40 **Issue:** 12 **Article Number:** 104 **DOI:** 10.1007/s10765-019-2572-7 **Published:** DEC 2019

Abstract: Thorium pnictides, besides their simple electronic structure, have been in the spotlight because of unique mechanical, electronic, and thermal properties. In this paper, we report on the first-principles calculations of structural, electronic, magnetic, and thermoelectric properties of thorium monopnictides ThPn (Pn =N, P, As) within density-functional-theory (DFT) formalism under ambient conditions. The equilibrium lattice parameters and bulk moduli are computed by fitting the total energy of the unit cell at various volumes into the Murnaghan's equation of state. To compute the structural properties, we have employed all-electron full-potential linearized augmented plane wave plus local orbits (FP-LAPW + lo) method by treating exchange-correlation energy terms within local density approximation (LDA) and spin-polarized density approximation (LSDA). Moreover, a comparative analysis of DFT predictions on electronic structure is made with Wu-Cohen (WC) and Perdew-Burke-Ernzerhof (PBE) corrections to GGA as well as newly introduced PBEsol energy exchange-correlation functionals. For the electronic band structures, total and partial density of states, and magnetic moments of the compounds, however, we have implemented first time the LDA + U method to account for the possible strong correlation effects arising from the 5f electrons of Th atoms. On the other hand, Boltzmann transport theory is executed within relaxation time approximation, for the first-time reported thermoelectric properties of the compounds. Although the monopnictides have shown large values of thermoelectric power factor of the order of 10(12) Wm(-1)center dot K-2 center dot s(-1), however, simultaneous higher values of thermal conductivity of the order of 10(16) Wm(-1)center dot K-1 center dot s(-1) render them with lower values of thermoelectric efficiency. The small spin magnetic moments confirm the non-magnetic character of the monopnictides. The obtained results have been compared with the earlier theoretical and experimental studies.

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Record 14 of 163

Title: Analysis on flow features of unsteady Williamson fluid inaugurated by melted wedge in the presence of heat generation-absorption: an extensive computational study

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:** 97 **Issue:** 12 **Pages:** 1277-1287 **DOI:** 10.1139/cjp-2018-0531 **Published:** DEC 2019

Abstract: After various thought-provoking experimental and theoretical investigations on heat transfer characteristics of usual liquids, researchers recommended the idea of inclusion of nano-sized structures into host liquid. This idea yielded a tremendous revolution in the world of fluid mechanics and brought researchers' and scientists' attention in this direction. The present paper is addresses enhancing the unique flow features of Williamson fluid by the inclusion of nano-sized particles. The Williamson fluid model along with prominent factors like magnetic field, heat generation-absorption, stagnation point, and active heat-mass flux are considered over a wedge. The mathematical formulation for the concerned problem is addressed in the form of a system of ordinary differential equations under acceptable governing laws. The attained system of coupled equations is hard to solve analytically. Therefore, a self-coded algorithm known as the shooting method is executed to report a numerical solution. A graphical representation of pertinent profiles and the parameters that affect them are included. Tabular and graphical trends present the influence of involved variables on Williamson momentum conservation and thermal and mass fields. In addition, the physical quantities at the surface of the wedge are also examined. In addition, reliability of the current work is established by constructing a comparison for skin friction values with the published literature. Our result indicates that increment in unsteadiness parameter causes temperature and concentration drop of flowing fluid over the wedge, whereas a positive effect on momentum profile is manifested. Furthermore, viscosity ratio parameter tends to follow the temperature and increase the velocity field. Magnetic field controls the turbulence by decreasing the velocity and increases the temperature. Accelerating behavior in velocity field and diminishing pattern in velocity is portrayed.

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ISSN: 0008-4204

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Record 15 of 163

Title: DFT simulations of optoelectronic and elastic features of cubic samarium zirconate (Sm2Zr2O7)

Author(s): Irfan, M (Irfan, Muhammad); Azam, S (Azam, Sikander); Hussain, S (Hussain, Safdar); Khan, SA (Khan, Saleem Ayaz); Makhdoom, M (Makhdoom, Madiha); Gul, B (Gul, Banat); Khan, S (Khan, Shoaib); Kityk, IV (Kityk, I., V); Muhammad, S (Muhammad, Shabbir); Siddeeg, SM (Siddeeg, Saifeldin M.)

Source: COMPUTATIONAL CONDENSED MATTER **Volume:** 21 **Article Number:** e00414 **DOI:** 10.1016/j.cocom.2019.e00414 **Published:** DEC 2019

Abstract: It is shown that Sm2Zr2O7 possessing significant coexistence of covalent and ionic features demonstrates very promising stiffness features. The corresponding analysis has been performed using density functional theory (DFT). From the chemical bonding nature, it is observed that the crystal shows significant coexistence of covalent, ionic and semiconducting features in UV-VIS spectral range. This crystal is brittle, exhibits higher stiffness. The elastic anisotropy of the crystal is discussed and visualized. It is shown a possibility to use them as highly optical anisotropic materials which are promising for different optoelectronic and photoelastic devices. The origin of the anisotropy and possible changes of the content to improve the optoelectronics and mechanical features are discussed. The performed studies have been based on the full potential linearized augmented plane wave (FP-LAPW) method with generalized gradient plus Hubbard parameter (GGA + U) method. It was discovered a direct type of band energy gap situated at F point of Brillouin zone of Sm2Zr2O7 for spin up and down polarizations. The detailed analysis of the origin of optical functions like absorption coefficient, dielectric constant, energy loss function; refractive index, reflectivity, extinction coefficient and optical conductivity are explored. The possible ways of change of optical functions are in desirable directions. (C) 2019 Elsevier B.V. All rights reserved.

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Muhammad, Shabbir	C-2443-2013	0000-0003-4908-3313

ISSN: 2352-2143

Record 16 of 163

Title: Structural and physical properties of intermetallic compounds Re3Pd2Sn2, (Re= Yb, Eu)

Author(s): Mounis, N (Mounis, Noureddine); Maachou, M (Maachou, Mohamed); Khachai, H (Khachai, Houari); Reggad, A (Reggad, Abderrahmane); ul Haq, B (ul Haq, Bakhtiar)

Source: COMPUTATIONAL CONDENSED MATTER **Volume:** 21 **Article Number:** e00422 **DOI:** 10.1016/j.cocom.2019.e00422 **Published:** DEC 2019

Abstract: Using the full Potential linearized augmented plane wave (FP-LAPW) method based on functional density theory (DFT) implemented in Wien2k code, structural, electronic and magnetic properties of intermetallic compounds Re3Pd2Sn2 (Re=Yb, Eu) are calculated. The local (spin) density approximation L(S)DA and L(S)DA + U are used in the exchange-correlation term to compute lattice parameters, bulk modulus and its first derivative. The Coulomb interaction constant U is obtained using constrained DFT method for both Yb and Eu ions. The hybrid functionals (HF) as a useful method for strongly correlated systems was used to calculate density of states (DOS) and magnetic properties. We find good agreement between calculated structural properties and experimental ones. The density of states DOS shows metallic behavior for both compounds. We find that the Eu3Pd2Sn2 compound is magnetically ordered, whereas the Yb3Pd2Sn2 compound is not. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000490421300034

ISSN: 2352-2143

Record 17 of 163

Title: Green synthesis of gold nanoparticles: Preparation, characterization, cytotoxicity, and anti-bacterial activities

Author(s): Awad, MA (Awad, Manal A.); Eisa, NE (Eisa, Nada E.); Virk, P (Virk, Promy); Hendi, AA (Hendi, Awatif A.); Ortashi, KMOO (Ortashi, Khalid M. O. O.); Mahgoub, ASA (Mahgoub, AbdAlla S. A.); Elobeid, MA (Elobeid, Mai A.); Eissa, FZ (Eissa, Fand Z.)

Source: MATERIALS LETTERS **Volume:** 256 **Article Number:** 126608 **DOI:** 10.1016/j.matlet.2019.126608 **Published:** DEC 1 2019

Abstract: Synthesis of nanostructures using green chemistry has been popular owing to the exciting properties and innovative applications of these nanostructures. Novel, cost-effective, and eco-friendly gold nanoparticles (Au NPs) were synthesized using a mix of Olea europaea (OE) fruit extract and Acacia nilotica (AN) husk extract. The synthesized Au NPs were characterized by UV-visible spectroscopy, and the average NP size (44.96 nm) was measured by a Zetasizer. A more detailed characterization was performed using Fourier transform infrared spectroscopy, scanning, and transmission electron microscopy and electron microscopy with energy dispersive spectroscopy. The cytotoxicity of the synthesized OEAN Au NPs was evaluated using an MTT assay on breast (MCF-7), colon (TCT-116), and hepatocellular (HCepG-2) carcinoma cells. The antibacterial activity of the synthesized OEAN Au NPs was investigated using a disc diffusion method. The synthesized Au NPs exhibited moderate antibacterial activity against the bacterial strains used and profound anticancer activity against different cell lines used. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000489719300017

ISSN: 0167-577X

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Record 18 of 163

Title: An effect of Gd3+ doping on core properties of ZnS thin films prepared by nebulizer spray pyrolysis (NSP) method

Author(s): Jebathew, AJ (Jebathew, A. Jesu); Karunakaran, M (Karunakaran, M.); Kumar, KDA (Kumar, K. Deva Arun); Valanarasu, S (Valanarasu, S.); Ganes, V (Ganes, V); Shkir, M (Shkir, Mohd); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Kathalingam, A (Kathalingam, A.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 574 **Article Number:** 411674 **DOI:** 10.1016/j.physb.2019.411674 **Published:** DEC 1 2019

Abstract: Herein, the study on structural, optical and electrical properties of various concentrations (0, 1, 3, 5 wt %) of Gadolinium doped zinc sulphide (Gd: ZnS) thin films by simple nebulizer spray pyrolysis (NSP) method has been presented. X-ray diffraction patterns displayed that the prepared films are of polycrystalline hexagonal structures with (102) a preferred orientation. SEM images showed a smooth surface with nano sized spherical grains. Enhancement of surface roughness viewed from AFM images. Presence of Zn, S, and Gd elements in prepared samples were confirmed through EDAX and Elemental mapping images. E-1 (LO), (LA + LO), 2TO, 2LO and 3LO mode of vibrations were explored in the Raman spectrum. Newly, the luminescent center raised at red region (725 nm) was seen in RT Photoluminescence studies. Optical spectra illustrated band gap enrichment and high transparent film (average of 86%) both in Vis-IR region. Activation energy measured from four-point probe method also discussed here.

Accession Number: WOS:000488767900017

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Yahia, Ibrahim Sayed	G-4458-2011	
Valanarasu, S	AAG-4607-2021	
Santiagu, Valanarasu		0000-0001-7315-2126

ISSN: 0921-4526

eISSN: 1873-2135

Record 19 of 163

Title: Synthesis and Characterization of LiCrO2 Thin Films As Potential Cathode Material for Lithium Ion Batteries

Author(s): Elsaeedy, HI (Elsaeedy, H. I.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 1 **Special Issue:** SI **Pages:** 282-289 **DOI:** 10.1007/s11664-019-07787-2 **Early Access Date:** NOV 2019 **Published:** JAN 2020

Abstract: Production of effective and inexpensive new material used as a cathode for lithium ion batteries is the main topic of this study. Thin films of lithium chromium oxide (LiCrO2) were grown onto a glass substrate by spray pyrolysis using a chemical solution containing lithium acetate Li (CH3COO)(2) and chromium trioxide (Cr2O3) as precursors. The depositions occurred in the substrate temperature range of 350 degrees C. The investigation of the x-ray diffraction of the LiCrO2 thin films was displayed to be polycrystalline with a rhombohedral structure. The linear optical parameters, represented in the refractive index, energy gap and absorption coefficient of the LiCrO2 thin films were estimated via the transmittance and reflectance measurements. In the linear optical studies, the evaluated direct energy gaps of the LiCrO2 thin films could be observed decreased by increasing the film thickness. The dispersion refractive index data of the LiCrO2 thin films were analyzed according to the single oscillator model to evaluate the dispersion parameters including the dispersion energy, the optical dielectric constant and the oscillator energy. The nonlinear optical constants of the LiCrO2 thin films were calculated.

Accession Number: WOS:000495945800004

Author Identifiers:

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ISSN: 0361-5235

eISSN: 1543-186X

Record 20 of 163

Title: Enhanced solar light-mediated photocatalytic degradation of brilliant green dye in aqueous phase using BiPO4 nanospindles and MoS2/BiPO4 nanorods

Author(s): Ritika (Ritika); Kaur, M (Kaur, Manjot); Umar, A (Umar, Ahmad); Mehta, SK (Mehta, Surinder Kumar); Kansal, SK (Kansal, Sushil Kumar); Khan, MA (Khan, M. Ajmal); Algarni, H (Algarni, H.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 23 **Pages:** 20741-20750 **DOI:** 10.1007/s10854-019-02441-3 **Early Access Date:** NOV 2019 **Published:** DEC 2019

Abstract: Herein, we report the enhanced solar light-mediated photocatalytic degradation of brilliant green dye using BiPO4 nanospindles and MoS2/BiPO4 nanorods synthesized by facile hydrothermal process. The synthesized nanomaterials were examined by various techniques such as X-ray diffraction, Fourier transform infrared spectroscopy, transmission electron microscopy (TEM) attached with energy dispersive X-ray spectroscopy, Brunauer-Emmett-Teller, and pore size distribution analysis. The detailed characterizations revealed that after the introduction of MoS2, the crystalline phase transformation from hexagonal to monoclinic was observed for BiPO4. The TEM images clearly confirmed that BiPO4 possessed nanospindles and MoS2/BiPO4 exhibited nanorod-shaped morphologies. The photocatalytic activity of synthesized MoS2/BiPO4 nanorod heterojunction was explored for the degradation of brilliant green (BG) dye under solar light irradiation. Interestingly, approximate 80% degradation of BG was observed under solar light in 70 min using MoS2/BiPO4 nanorods as photocatalyst. As an efficient photocatalyst, the synthesized MoS2/BiPO4 nanorod heterojunction exhibited enhanced photocatalytic efficiency as compared to pure BiPO4 nanospindles, commercially available TiO2PC-50 and TiO2 PC-500 under solar light. The high photocatalytic activity of MoS2/BiPO4 nanorod heterojunction could be related to the amended visible light-harvesting tendency, effective charge separation, and facile transportation of photogenerated e(-)/h(+) pairs at the heterojunction interface.

Accession Number: WOS:000494788400001

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ISSN: 0957-4522

eISSN: 1573-482X

Record 21 of 163

Title: First-Principles Calculations to Investigate the Refractive Index and Optical Dielectric Constant of Na3SbX4 (X = S, Se) Ternary Chalcogenides

Author(s): Al-Douri, Y (Al-Douri, Y.); Ameri, M (Ameri, M.); Bouhemadou, A (Bouhemadou, A.); Batoo, KM (Batoo, Khalid M.)

Source: PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS **Volume:** 256 **Issue:** 11 **Article Number:** 1900131 **DOI:** 10.1002/pssb.201900131 **Published:** NOV 2019

Abstract: Ternary chalcogenides are promising candidate for visible light absorber as they have excellent optoelectronic properties. The ternary chalcogenides Na3SbX4 (X = S, Se) are investigated by using first-principles calculations based on density functional theory (DFT). These chalcogenides have direct bandgap. The upper valence bands are predominantly composed of S or Se p-orbitals and lower conduction bands consist of hybridization between Sb and S or Se p-orbitals electrons. The optical absorption is investigated by calculating dielectric functions, refractive index, and optical dielectric constant. Our results of electronic and optical properties suggest potential of superionic conductors and energy storage applications.

Accession Number: WOS:000503261600012

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ISSN: 0370-1972

eISSN: 1521-3951

Record 22 of 163

Title: Optical constants of Ge-Sb-Se-I chalco-halide glasses using a single reflectance spectrum

Author(s): Dahshan, A (Dahshan, A.); Sharma, P (Sharma, Pankaj); Aly, KA (Aly, K. A.)

Source: INFRARED PHYSICS & TECHNOLOGY **Volume:** 102 **Article Number:** 102997 **DOI:** 10.1016/j.infrared.2019.102997 **Published:** NOV 2019

Abstract: Chalco-halide glasses possess a low weak absorption tail in the atmospheric IR windows. They have improved optical properties, particularly broadening the mid-infrared cutoff. In this work, we report the synthesis of iodine doped Ge25Sb10Se65.xIx (x = 0, 4, 8, 12, 16) system. The optical behaviour has been analysed using a single reflection spectrum. The reflection spectrum has been obtained using an ultraviolet-visible-near-infrared spectrophotometer for wavelength 400 nm-2500 nm. The static refractive index has shown an increase from 2.76 (x = 0) to 3.33 (x = 16). The dispersive behaviour is found to be normal for all samples. The values of the Urbach energy show an increase in structural disorder. A decrease in the optical band gap has been observed with the addition of iodine amount. The third-order non-linear optical susceptibility obtained from semi-empirical method increases with the iodine content.

Accession Number: WOS:000498748400021

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ISSN: 1350-4495

eISSN: 1879-0275

Record 23 of 163

Title: Photonic Band Gap Properties of One-dimensional Generalized Fibonacci Photonic Quasicrystal Containing Superconductor Material

Author(s): Trabelsi, Y (Trabelsi, Y.); Ben Ali, N (Ben Ali, N.); Belhadj, W (Belhadj, W.); Kanzari, M (Kanzari, M.)

Source: JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM **Volume:** 32 **Issue:** 11 **Pages:** 3541-3547 **DOI:** 10.1007/s10948-019-5099-z **Published:** NOV 2019

Abstract: In this work, we theoretically investigate the transmission properties of one-dimensional (1D) Fibonacci photonic quasicrystal (PQC) by using the transfer matrix modeling (TMM) method. The PQC structure is composed of alternated layers of isotropic dielectric (SiO2) and a high-T-c superconductor (YBCO). Frequency-dependent dispersion formula according to the two-fluid Gorter-Casimir theory has been adopted to describe the optical response of the superconducting material. Within the framework of the TMM method, we studied the effect of many parameters such as the thicknesses of the dielectric and superconductor layers, Fibonacci lattice parameters, and the operating temperature on the transmission behaviors of the PQC structure. Our numerical results reveal the transmission cutoff frequency can be tuned efficiently by the operating temperature as well as by the thicknesses of the constituent materials. We found that increasing the temperature and the angle of incidence, maintaining materials thicknesses constant, there is a shift of the cutoff frequency to lower frequency values. Nevertheless, this cutoff frequency is shifted to higher values with increasing the superconductor layer thickness. Moreover, we found that the width and the number of the photonic bandgaps can be controlled by order of Fibonacci sequence. Our results are promising for the design of tunable filtering devices.

Accession Number: WOS:000497271900022

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ISSN: 1557-1939

eISSN: 1557-1947

Record 24 of 163

Title: Study of Metal-Induced Effects of Cd, Sb and Zn on d.c./a.c. Conduction and Photoconduction in Binary Se70Te30 Glass

Author(s): Saraswat, S (Saraswat, Shobhit); Tomar, VK (Tomar, V. K.); Mehta, N (Mehta, N.); Dahshan, A (Dahshan, A.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 49 **Issue:** 1 **Special Issue:** SI **Pages:** 861-868 **DOI:** 10.1007/s11664-019-07739-w **Early Access Date:** NOV 2019 **Published:** JAN 2020

Abstract: This paper reports the temperature dependence of d.c. and a.c. conductivity in the glassy alloys of Se70Te30 and Se70Te28M2 (M = Cd, Sb, Zn). The role of the Cd, Sb, Zn elements as foreign atoms has been examined on the d.c./a.c. conduction and photoconduction in binary Se70Te30 glass. These multi-component chalcogenide glasses have been prepared by conventional, cost-effective and well-known melt-quench technique. Thermally activated a.c. conduction shows the presence of the compensation effect that is confirmed by the Meyer-Neldel relation between the associated activation energy and the pre-factor of a.c. conductivity. The metal-induced effects of Cd, Sb, Zn on the photosensitivity of parent glass are also discussed.

Accession Number: WOS:000493718000003

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ISSN: 0361-5235

eISSN: 1543-186X

Record 25 of 163

Title: Portable and Battery Operated Ammonia Gas Sensor Based on CNTs/rGO/ZnO Nanocomposite

Author(s): Morsy, M (Morsy, M.); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Meng, F (Meng, F.); Ibrahim, M (Ibrahim, M.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 48 **Issue:** 11 **Special Issue:** SI **DOI:** 10.1007/s11664-019-07550-7 **Published:** NOV 2019

Abstract: The effect of reduced graphene oxide (rGO) and carbon nanotubes (CNTs) on the gas-sensing performance of ZnO hexagonal nanoparticles, forming CNTs/rGO/ZnO composite has been studied. Samples were obtained by a precipitation route, then characterized by a high resolution transmission electron microscope (HRTEM), x-ray diffraction (XRD), differential thermal analysis (DTA), thermogravimetric analysis, Raman spectroscopy, Brunauer-Emmett-Teller surface area (BET), and Barrett-Joyner-Halenda (BJH) pore size measurements. The XRD measurements as well as HRTEM confirmed the formation of the hexagonal ZnO nanoparticles over rGO and CNTs. The gas-sensing performance of the synthesized composite are tested toward ammonia gas. Results revealed that, the prepared composite showed good response to ammonia vapor at room temperature with fast response and recovery time. The combined effect of rGO and CNTs played a vital role in enhancing the sensing behavior of an ammonia gas sensor. The obtained sensor was integrated in a simple comparator electronic circuit. The proposed CNTs/rGO/ZnO sensor might give promise for a portable and room temperature ammonia gas sensor.

Accession Number: WOS:000488962300053

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Yahia, Ibrahim Sayed	G-4458-2011	
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ISSN: 0361-5235

eISSN: 1543-186X

Record 26 of 163

Title: 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); Valanarasuk, S (Valanarasuk, S.); Ganesh, V (Ganesh, V); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.); Kathalingam, A (Kathalingam, A.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 572 **Pages:** 109-116 **DOI:** 10.1016/j.physb.2019.07.042 **Published:** NOV 1 2019

Abstract: Neodymium doped zinc sulphide (Nd: ZnS) thin films were coated on glass substrates at 450 degrees C through low cost nebulizer spray pyrolysis (NSP) method. Structure, morphology, opto-electrical characteristics of Nd doped ZnS films with various Nd doping concentrations (0%, 1, %, 3% and 5%) were studied. X-ray diffraction patterns revealed that all coated films were polycrystalline hexagonal structure with (102) as a preferential direction. SEM images showed smooth and uniform spherical grains without any cracks and pinholes. Topological view by AFM described the increasing of roughness of the film through doping concentration. EDAX and Elemental mapping images confirmed the presence of Zn, S and Nd without any other impurities. Raman spectra reveals that E-1(LO), 2TO, 2LO and 3LO emission modes with corresponding to the wave number. PL spectra showed high intense visible and broad UV emission band at 463 nm and 397 nm, respectively. Thickness of the films increased with Nd doping concentration reflecting the reduction of transparency of the films from 86% to 78% for 0% and 5% of Nd. UV-Vis Spectrum was used to study the energy gap (Eg), dielectric constant(epsilon), refractive index(n), and extinction coefficient (k) of the prepared films. Four-point probe method was used to calculate the activation energy of Nd: ZnS thin films from the graph drawn between ln (rho) and (1/T).

Accession Number: WOS:000485002600017

Author Identifiers:

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eISSN: 1873-2135

Record 27 of 163

Title: Optical and electrical performance of copper chloride doped polyvinyl alcohol for optical limiter and polymeric varistor devices

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

Source: PHYSICA B-CONDENSED MATTER **Volume:** 572 **Pages:** 256-265 **DOI:** 10.1016/j.physb.2019.08.014 **Published:** NOV 1 2019

Abstract: PVA composite films with different wt.% of CuCl2, by the cast method, were prepared. The semi-crystalline phases of PVA have been reduced by more addition of CuCl2 as confirmed with the help of X-ray diffraction, and Fourier transforms infrared spectroscopy. The thermal stability is surveyed by differential thermal analysis. The morphology of CuCl2 particles is studied by scanning electron microscopy, which shows the semi-spherical particles of size varied from (0.31-1.19) mu m to (3.1-5) mu m for 0.037 wt% CuCl2/PVA and 3.700 wt% CuCl2/PVA (CPVA5) films, respectively. With the increment of the additive, the absorptive property of the films is increased. The indirect and direct energy gap were estimated. The power with 632.8 nm and 533 nm of the laser sources has been reduced to 40% and 47% via CPVA5 films. The AC electrical conductivity follows the Jonscher's power law. The forward lnI (A) - lnV (V) behaviors show that the doped films have high voltage breakdown.

Accession Number: WOS:000485002600040

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eISSN: 1873-2135

Record 28 of 163

Title: The effect of substrate temperatures on the structural and conversion of thin films of reduced graphene oxide

Author(s): AlShammari, A (AlShammari, Anoud); Halim, MM (Halim, Mohd Mahadi); Yam, FK (Yam, Fong Kwong); Al-Hardan, NHM (Al-Hardan, Naif H. M.);

Kaus, NHM (Kaus, Noor Haida Mohd); Umar, K (Umar, Khalid); Qahtan, TF (Qahtan, Talal F.); Ibrahim, MNM (Ibrahim, Mohamad Nasir Mohamad)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 572 **Pages:** 296-301 **DOI:** 10.1016/j.physb.2019.07.018 **Published:** NOV 1 2019

Abstract: Thin films of reduced graphene oxide were deposited by spray pyrolysis technique at different substrate temperatures (Ts=50, 100, 150, 200, 250 and 300 degrees C). All samples synthesised by this method were characterised by different techniques, such as FTIR, Raman spectroscopy, field emission scanning electron microscope, X-ray diffraction analysis, energy-dispersive X-ray spectroscopy and UV-Vis spectroscopy. The results showed that the conversion starts from 150 degrees C and appears to a great extent at 300 degrees C. The electron micrograph image shows low roughness and homogeneity at 300 degrees C. The EDX results showed a decreased percentage in oxygen content and an increase in carbon content, which reflects the reduction of graphene oxide. The Fourier-transform infrared spectroscopy, Raman and UV-Vis analysis also revealed the formation of reduced graphene oxide. The conductance or resistance study shows that as the temperature increases the resistance if the thin films decreases i.e. conductivity increases.

Accession Number: WOS:000485002600045

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eISSN: 1873-2135

Record 29 of 163

Title: Heat transfer enhancement and migration of ferrofluid due to electric force inside a porous medium with complex geometry

Author(s): Vo, DD (Dat D Vo); Saleem, S (Saleem, S.); Alderremy, AA (Alderremy, A. A.); Nguyen, TK (Truong Khang Nguyen); Nadeem, S (Nadeem, S.); Li, ZX (Li, Zhixiong)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 11 **Article Number:** 115218 **DOI:** 10.1088/1402-4896/ab24ff **Published:** NOV 2019

Abstract: The migration of ferrofluid particles due to an electric field within a porous space is examined. An algorithm was developed for CVFEM to solve the coupled equations. The properties of Fe3O4-ethylene glycol nanofluid are dependent on the electric field and on the shape of the nanoparticles. The energy equation seems more interesting in the presence of a radiative term. The influence of nanoparticles' shape, voltage, radiation parameter and Darcy number on nanofluid thermal behavior has been described. Average Nusselt number increases with expansion of the thermal radiation in the system. Enhancing the shape factor causes the Nusselt number to increase. The Darcy number yields more random patterns of isotherms.

Accession Number: WOS:000482547400003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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ISSN: 0031-8949

eISSN: 1402-4896

Record 30 of 163

Title: A Privacy Scheme for Digital Images Based on Quantum Particles

Author(s): Khan, M (Khan, Majid); Hussain, I (Hussain, Iqtadar); Jamal, SS (Jamal, Sajjad Shaukat); Amin, M (Amin, Muhammad)

Source: INTERNATIONAL JOURNAL OF THEORETICAL PHYSICS **Volume:** 58 **Issue:** 12 **Pages:** 4293-4310 **DOI:** 10.1007/s10773-019-04301-6 **Early Access Date:** OCT 2019 **Published:** DEC 2019

Abstract: Quantum processing inspired every field of science and technology. Quantum digital content privacy schemes usually employs photons to communicate a key. In this article, we are utilizing different states which correspond to diverse spinning. There are two fundamental particles namely fermions and bosons which are related to half spinning and full spinning. We have utilized the notions of quantum spinning, Hadamard and Redheffer matrices along with Brownian random motion to design robust encryption mechanism. The present scheme is further tested against numerous standards of information security. The simulation outcomes of our presented image encryption scheme attains high level of security, and declines the encryption and the decryption time of image data.

Accession Number: WOS:000493484400001

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ISSN: 0020-7748

eISSN: 1572-9575

Record 31 of 163

Title: The role of Mn doping on the electrical and mechanical properties of Ge-Se-Mn glasses

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

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 11 **Article Number:** 766 **DOI:** 10.1007/s00339-019-3064-0 **Published:** OCT 16 2019

Abstract: The present study concerns the impact of adding Mn content on the electrical, thermoelectrical, and mechanical properties of ternary Ge-Se-Mn glassy materials. The activation energies for the electric (Delta E-dc) and thermoelectric (Delta E-th) conduction of different compositions of (Ge1Se2)(100-x) Mn-x(0.0 <= x <= 12.0 at.%.) thin films were estimated. The elastic moduli such as longitudinal (L-), shearing (S-), young (Y-), and bulk (K-) modulus as well as microhardness (H), Poisson's ratio (sigma), and Debye temperature -(T-D) for the studied glasses were investigated. The obtained values of Delta E-dc, Delta E-th, and the molar volume were decreasing, whereas the glass density, L, S, Y, K, H, sigma, and TD, were increasing with increasing Mn content. The values of K were correlated with the electronegativity (Delta chi) and the bandgap (E-g = 2 (Delta E-dc)). E-g decreased from 1.737 to 1.421 eV with increasing the Mn content from 0 to 12 at. %. The estimated values of K based on Delta chi and/or Eg are found in excellent agreement with that experimentally determined. The obtained results were discussed in terms of the electronic polarizability.

Accession Number: WOS:000501574300001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 32 of 163

Title: Facile fabrication and characterization of modified spray deposited cadmium sulphide thin films

Author(s): Shaikh, SS (Shaikh, S. S.); Shkir, M (Shkir, Mohd); Masumdar, EU (Masumdar, E. U.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 571 **Pages:** 64-70 **DOI:** 10.1016/j.physb.2019.06.051 **Published:** OCT 15 2019

Abstract: Herein we have deposited the Cadmium sulphide thin films chemically on glass substrates using modified spray pyrolysis technique, at 300 degrees C. The thickness of the deposited film was found to be 301 nm and the film was yellow in colour. Deposited CdS films were subjected to elemental, morphological, optical, structural and electrical studies. XRD analysis revealed that film was polycrystalline in nature and grain size was found to be 15 nm with the hexagonal crystal structure. The EDX analysis confirms the presence of S & Cd elements in film in the ratio 0.77. The morphological analysis showed the needle-shaped grains with an average grain size 43 nm. Raman spectra showed that all observed peaks correspond to the longitudinal optical phonon mode. The optical direct band gap value was found to be 2.43 eV. The room temperature electrical resistivity obtained was 2.2 x 10(6) Omega-cm. TEP studies revealed that film exhibits n-type conductivity.

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eISSN: 1873-2135

Record 33 of 163

Title: Physico-chemical properties of acid fuchsin as novel organic semiconductors: Structure, optical and electrical properties

Author(s): El-Zaidia, EFM (El-Zaidia, E. F. M.); Al-Kotb, MS (Al-Kotb, M. S.); Yahia, IS (Yahia, I. S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 571 **Pages:** 71-75 **DOI:** 10.1016/j.physb.2019.06.060 **Published:** OCT 15 2019

Abstract: Acid fuchsin is a new organic semiconductor. The results of XRD measurements confirmed that acid fuchsin is polycrystalline in nature with a triclinic crystal structure with the P1 space group. The absorption index and the optical band gap transition of AF powder were calculated from the optical diffused reflectance (ODR). The direct, as well as the indirect band gaps, were calculated. These values of the energy band gaps for acid fuchsin enhance the light absorption and make it a suitable material to be applied in photovoltaic devices. The DC electrical conductivity of acid fuchsin was investigated in the temperature range 289-373 K. The AC electrical conductivity was discussed in terms of charge carrier hopping motions mechanism. Both the epsilon(1) and epsilon(2) which represent dielectric constant and dielectric loss, respectively, have been studied. Acid fuchsin can be used in organic devices as a new organic semiconductor.

Accession Number: WOS:000483690600013

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ISSN: 0921-4526

eISSN: 1873-2135

Record 34 of 163

Title: The systematic study of mechanical, thermoelectric and optical properties of lead based halides by first principle approach

Author(s): Mahmood, Q (Mahmood, Q.); Hassan, M (Hassan, M.); Rashid, M (Rashid, Muhammad); Ul Haq, B (Ul Haq, Bakhtiar); Laref, A (Laref, A.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 571 **Pages:** 87-92 **DOI:** 10.1016/j.physb.2019.06.061 **Published:** OCT 15 2019

Abstract: The DFT based calculations have been used to investigate the mechanical, thermoelectric and optical characteristics of Cesium based halides CsPbX3 (X = F, Cl, Br) to elucidate the applications in renewable energy devices. The stability has been confirmed using the computed enthalpy formation, tolerance factor and mechanical stability criteria. The Poisson's and Pugh's ratios are employed to ensure the ductile nature. The kienman parameter and Debye temperature are applied to observe the bonding nature and thermodynamic behavior. The capability for withstanding the heat absorption and carrier mobility has been revealed using the computed specific heat capacity, Hall coefficient and electron density. The increasing specific heat capacity shows that thermodynamic stability improves with temperature. The lower thermal to electrical conductivity ratio (order of 10(-6)) increases the thermal efficiency from

F to Br. Finally, the band gap tuning form ultraviolet to visible region appears by the change of ions from F to Br. The maximum absorption and minimum reflection in the visible to UV region reveals high potential for solar cell and optoelectronic applications.

Accession Number: WOS:000483690600015

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Mahmood, Qasim	AAG-9840-2019	0000-0001-7449-5876

ISSN: 0921-4526

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Record 35 of 163

Title: Improving carrier transport in strontium-doped cuprous oxide thin films prepared by Nebulizer spray pyrolysis for solar cell applications

Author(s): Jacob, SSK (Jacob, S. Santhosh Kumar); Kulandaisamy, I (Kulandaisamy, I.); Valanarasu, S (Valanarasu, S.); Arulanantham, AMS (Arulanantham, A. M. S.); Ganesh, V (Ganesh, V.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: INDIAN JOURNAL OF PHYSICS **Volume:** 94 **Issue:** 10 **Pages:** 1527-1535 **DOI:** 10.1007/s12648-019-01603-7 **Early Access Date:** OCT 2019 **Published:** OCT 2020

Abstract: Strontium-doped Cu2O thin films of different doping concentrations (0, 3, 5 and 7%) are deposited successfully with the help of Nebulizer spray technique. All the samples were characterized by XRD, AFM, Raman, UV-Vis, photoluminescence and Hall effect, and solar cell efficiency is calculated. From the XRD studies, the cubic structural phase of Cu2O is confirmed. The micrographs of AFM explain that the particles were uniformly distributed on the surface with homogeneous grains. The band gap value ranges from 2.17 to 1.95 eV as the doping concentration increases from 0 to 7%. The PL emission at similar to 630 nm also confirms the cuprous oxide phase. The deposited film exhibits p-type conductivity with low resistivity of 0.90 x 10(2) omega cm and high carrier concentration of 22.7 x 10(15) cm(-3). A heterojunction solar cell of FTO/n-ZnO/p-Sr-doped Cu2O is fabricated, and the power conversion efficiency (eta) is 0.75% for 7% Sr-doped film.

Accession Number: WOS:000541915300003

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ISSN: 0973-1458

eISSN: 0974-9845

Record 36 of 163

Title: Dispersion and Attenuation Characteristics of Love-Type Waves in a Fiber-Reinforced Composite over a Viscoelastic Substrate

Author(s): Alam, P (Alam, P.); Kundu, S (Kundu, S.); Badruddin, IA (Badruddin, I. A.); Khan, TMY (Khan, T. M. Y.)

Source: PHYSICS OF WAVE PHENOMENA **Volume:** 27 **Issue:** 4 **Pages:** 281-289 **DOI:** 10.3103/S1541308X19040083 **Published:** OCT 2019

Abstract: The problems concerned with the dispersion and attenuation of surface wave propagations due to imperfect elasticity are of great interest to seismologists. The present work reports the dispersion and attenuation characteristics of Love-type wave propagation in a fiber-reinforced layer laid on an inhomogeneous viscoelastic half-space. The inhomogeneity in the viscoelastic medium arises due to the hyperbolic trigonometric variation in depth. A complex frequency equation for the Love-type wave has been procured using the suitable boundary conditions. Thus, the dispersion and damping equations have been calculated to analyze the dispersion and attenuation peculiarities of the wave. Results for the uniform homogeneous isotropic media have been compared with existing solutions. Numerical computation and graphical sketches have been set forth for the relevant parametric variations.

Accession Number: WOS:000502734700008

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ISSN: 1541-308X

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Record 37 of 163

Title: STUDY THE EFFECTS OF Te ADDITION ON PHYSICAL AND OPTICAL ENERGY GAP OF Ge-Se-Te THIN FILMS

Author(s): Dahshan, A (Dahshan, A.); Hegazy, HH (Hegazy, H. H.); Aly, KA (Aly, K. A.)

Source: CHALCOGENIDE LETTERS **Volume:** 16 **Issue:** 10 **Pages:** 499-505 **Published:** OCT 2019

Abstract: The study aims to present the physical characteristics and optical energy gap of the Ge10Se90-xTex thin films (where 0 <= x <= 70 at. %). Thermal evaporation technique is utilized for the preparation of amorphous thin films from the bulk of glasses. In the paper, the researchers have examined the density, molar volume, compactness, cohesive energy and distribution of the chemical bonds of the amorphous thin films theoretically. Within the spectral range from 400 to 1000 nm, the optical absorption spectra of as-prepared films have been evaluated. Furthermore, the study calculated absorption coefficient of thin films by using the absorption spectra to get the values of the optical energy gap and Urbach energy. It has been observed that the energy gap decreases from 1.88 to 1.17 eV due to the increase in Te content from 0 to 70 at. %. The outcomes of the study were found to be consistent with each

other and are discussed thoroughly by using the chemical bond approach It has been noticed that the terms due to GeSe2 and SeTe are present in stoichiometric composition (Ge10Se55Te35), whereas in the case of non-stoichiometric compositions, excess Se or Te causes additional term that comes into effect.

Accession Number: WOS:000496943600003

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ISSN: 1584-8663

Record 38 of 163

Title: A robust steganographic technique based on improved chaoticrange systems

Author(s): Jamal, SS (Jamal, Sajjad Shaukat); Farwa, S (Farwa, Shabieh); Alkhaldi, AH (Alkhaldi, Ali H.); Aslam, M (Aslam, Muhammad); Gondal, MA (Gondal, Mohammad Asif)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 61 **Pages:** 301-309 **DOI:** 10.1016/j.cjph.2019.09.006 **Published:** OCT 2019

Abstract: This paper presents a novel chaos-based technique of steganography in spatial domain. In the last decade, chaos theory has gained utmost importance in multimedia security applications. Generally, 1-D chaotic maps are employed because of computational ease and structural simplicity but their limited chaotic range is an obstacle. In the proposed work, we model the nonlinear combinations of 1-D chaotic maps. These chaotic systems possess chaotic behavior throughout the domain. We, for the first time, propose an effective application of these improved chaotic systems in steganography. These newly synthesized systems are used to embed secret information in the least significant bits (LSBs) of the host image. By comparing with some recent models, we prove that involving improved chaotic systems in steganographic approach really produces extraordinary outcomes. We determine the strength of our steganographic algorithm through the most significant statistical analyses such as information entropy, correlation, contrast, energy, homogeneity, peak signal to noise ratio (PSNR) and mean square error (MSE). We further prove the robustness of the anticipated technique against several image processing attacks. The upshot of these analysis techniques shows that our algorithm is highly reliable and produces coherent results.

Accession Number: WOS:000492297200031

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Author	Web of Science ResearcherID	ORCID Number
Aslam, Muhammad	ABI-8003-2020	

ISSN: 0577-9073

Record 39 of 163

Title: Investigation on nebulizer spray deposited Gd-doped PbS thin films for photo sensing applications

Author(s): Paulraj, K (Paulraj, K.); Ramaswamy, S (Ramaswamy, S.); Arulanantham, AMS (Arulanantham, A. M. S.); Valanarasu, S (Valanarasu, S.); Shkir, M (Shkir, Mohd); Ganesh, V (Ganesh, V.); AlFaify, S (AlFaify, S.); Kim, HS (Kim, Hyun-Seok); Kathalingam, A (Kathalingam, A.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 20 **Pages:** 18858-18865 **DOI:** 10.1007/s10854-019-02242-8 **Published:** OCT 2019

Abstract: Nebulizer assisted spray technique has been implemented for the deposition of pure and gadolinium (Gd) doped PbS thin films at a substrate temperature of 210 degrees C onto glass substrate using lead nitrate and gadolinium (III) acetate as precursors. Doping percentage of Gd was varied from 0 to 5 wt% for the preparation of Gd doped films and to analyze the film property. A variety of techniques like X-ray diffraction, Raman spectrum, scanning electron microscopy, atomic force microscopy, energy dispersive X- ray, UV-Visible spectrometer, and keithley source meter were used to study the influence of Gd doping in PbS thin films X-ray diffraction revealed no change in preferential orientation of the crystal planes without any secondary phases formed for all the Gd-doped films. And also it confirmed that the nature of the films were polycrystalline with simple cubic structure. It also further confirmed polycrystalline simple cubic structure with decrease of crystallite size from 21 nm to 16 nm for the increase of gadolinium doping concentration from 0 to 5 wt%. Noticeable change in the grain size was observed for the 5 wt% of gadolinium doping with uniformly distributed spherical shaped nanosize grains fully covering the entire surface. The compositional analysis confirmed the presence of Pb, S and Gd in the films. The optical parameters of Gd doped PbS thin films such as band gap energy, refractive index; extinction co-efficient, and real and imaginary parts of dielectric constant were determined using transmission, absorption and reflectance spectra in the range of 300-2400 nm. A maximum value of photo current was observed for 5 wt% gadolinium doped film.

Accession Number: WOS:000490627900054

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ISSN: 0957-4522

eISSN: 1573-482X

Record 40 of 163

Title: Deposition of SnS thin films by chemical bath deposition method: Effect of surfactants

Author(s): Ammar, I (Ammar, Imen); Gassoumi, A (Gassoumi, Abdelaziz); Akkari, A (Akkari, Anis); Delpech, F (Delpech, Fabien); Ammar, S (Ammar, Souad); Turki-Kamoun, N (Turki-Kamoun, Najoua)

Source: EUROPEAN PHYSICAL JOURNAL PLUS **Volume:** 134 **Issue:** 10 **Article Number:** 505 **DOI:** 10.1140/epjp/i2019-12976-3 **Published:** OCT 2019

Abstract: Tin sulfide (SnS) thin films were obtained by chemical bath deposition (CBD) using two surfactants: anionic sodium dodecylsulfate (SDS) and cationic benzethonium chloride (BZC). The structural, morphological, chemical composition and optical properties of thin films were analyzed by using XRD,

MEB, EDX, and spectrophotometer. The degradation efficiency of SnS films CBD grown without surfactant after 4h was found to be 65%, while it was for SnS grown with surfactant 83% for SnS(BZC) and 88% for SnS(SDS). The energy band gap values are found to be enhanced from 1.48eV for as deposited SnS thin film 1.44eV for SnS(BZC) and 1.41eV for SnS(SDS). The results demonstrated that tin sulfide (SnS) thin films have the potential to be used for optoelectronic applications.

Accession Number: WOS:000489747500004

Author Identifiers:

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ISSN: 2190-5444

Record 41 of 163

Title: Analysis of Pr co-doped Al:ZnO thin films using feasible nebulizer spray technique for optoelectronic technology

Author(s): Kumar, KDA (Kumar, K. Deva Arun); Thomas, R (Thomas, R.); Valanarasu, S (Valanarasu, S.); Ganesh, V (Ganesh, V.); Shkir, M (Shkir, Mohd.); AlFaify, S (AlFaify, S.); Thirumalai, J (Thirumalai, J.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 10 **Article Number:** 712 **DOI:** 10.1007/s00339-019-2998-6 **Published:** OCT 2019

Abstract: The rare earth element, i.e., praseodymium (Pr) co-doped aluminium zinc oxide (AZO) thin films is coated on a well-cleaned glass substrate by facile and cost-effective nebulizer spray technique. The Pr co-doping concentrations varied from 0 to 1.5% with the AZO structure in the steps of 0.5%. The structural analysis was characterized by X-ray diffraction (XRD), showing that all the diffracted peaks exhibit polycrystalline hexagonal wurtzite structure and the size of the crystallites is abridged with increasing Pr doping level due to lattice defects. In Raman analysis, the existence of high mode peak E-2 at 437 cm(-1); confirmed ZnO wurtzite structure. From the morphological study, it is clearly visualized that the film possesses spherical shaped grains which were uniformly distributed without any pinholes and voids. The surface roughness of the films was increased considerably from 22 to 39 nm on growing Pr doping from 0 to 1.5% as seen using atomic force microscope. Energy dispersive X-ray analysis and elemental mapping images clearly showed the subsistence of Al, Zn, O and Pr elements in Pr:AZO film. The prepared films exposed good transmittance range between 84 and 90% and the optical band gap was found to be 3.28 eV for initial Pr (0.5%) doping concentration. The PL spectra clearly showed that a high intense emission peak observed at 390 nm are associated with NBE which indicates that the film has good optical quality. Hall measurement revealed that the prepared film, i.e., 1.5% Pr-doped AZO film has low resistivity and high carrier concentration which is perfectly suit for optoelectronic device applications.

Accession Number: WOS:000487124700001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 42 of 163

Title: Junction Parameters and Electrical Characterization of the Al/n-Si/Cu2CoSnS4/Au Heterojunction

Author(s): El Radaf, IM (El Radaf, I. M.); Elsaeedy, HI (Elsaeedy, H., I); Yakout, HA (Yakout, H. A.); El Sayed, MT (El Sayed, Mardia T.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 48 **Issue:** 10 **Special Issue:** SI **Pages:** 6480-6486 **DOI:** 10.1007/s11664-019-07445-7 **Published:** OCT 2019

Abstract: Quaternary kesterite thin films of Cu2CoSnS4 were deposited on the n-Si substrate to fabricate Cu2CoSnS4/n-Si heterojunctions. The x-ray diffraction and field emission scanning electron microscopy were employed to study the structural properties of the Cu2CoSnS4 deposited on to n-Si single crystal substrate. The capacitance-voltage measurements of the Cu2CoSnS4/n-Si heterojunction were investigated to study the junction nature which displays an abrupt junction. The dark I-V characteristics of the Cu2CoSnS4/n-Si heterojunction displays a rectification behavior. We characterized the influence of the annealing temperature on the magnitudes of the diode parameters of the Cu2CoSnS4/n-Si heterojunction. The barrier height of the Cu2CoSnS4/n-Si heterojunction was increased with raising the annealing temperature while the ideality factor n has a reverse performance. The illuminated J-V plot of the Cu2CoSnS4/n-Si heterojunction displays an efficiency of 6.17% for the prepared junction.

Accession Number: WOS:000485885200056

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ISSN: 0361-5235

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Record 43 of 163

Title: Effect of ITO Nanoparticles on Dielectric Relaxation Processes and an Analysis of The Electric Impedance Characteristics of ITO/Epoxy Nanocomposites for Embedded Capacitor Devices

Author(s): Jilani, W (Jilani, W.); Bouzidi, A (Bouzidi, A.); Mzabi, N (Mzabi, N.); Gallot-Lavallee, O (Gallot-Lavallee, O.); Guermazi, H (Guermazi, H.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 48 **Issue:** 10 **Special Issue:** SI **Pages:** 6529-6539 **DOI:** 10.1007/s11664-019-07439-5 **Published:** OCT 2019

Abstract: Epoxy/ITO nanocomposites containing various filler ITO concentrations by weight were successfully fabricated. Using Differential Scanning Calorimetry (DSC), a thermo-analytical technique used to study the glass transition temperatures, we expected to find a restriction in the molecular mobility

of the polymer chains that might confirm the influence of incorporating ITO contents into the epoxy material. Several complementary techniques were investigated, such as dielectric relaxation spectroscopy (DRS) at the range of frequency (10(-1)-10(6)) Hz and over the temperature range from - 80 degrees C to 240 degrees C, and time-domain spectroscopy (TDS) with frequency domain (10(-5)-10(-1)) Hz. The experimental data were investigated and interpreted in terms of various dielectric formalisms. For TDS results, the neat epoxy is affected by the added ITO nanoparticles. In the low-frequency domain of TDS measurements, the depolarization current curves of the nanocomposites are precisely fitted in a parallel circuit (RiCi) association model. The obtained dielectric data of TDS analysis shows two interfacial relaxation processes. The first wide peak was mainly ascribed to the charge accumulations ITO-polymer interfaces and the additional peak can be related to the charge accumulated at the interface material-electrodes. Impedance evaluated data were analyzed using a consistent electrical circuit formalism. From - 80 degrees C to 60 degrees C, the nanocomposites exhibited an ohmic behaviour within the added ITO nanofiller. Between 60 degrees C and 120 degrees C, the nanocomposites exhibit a capacitive contribution behavior which makes the material suitable for capacitors devices. Above 120 degrees C, the Nyquist design illustrations [(- Z '') versus (Z ')] are well theoretical fitted to an equivalent circuit model achieved by impedance with designed parameters: resistance (R-b) and constant phase element (CPE) combinations.

Accession Number: WOS:000485885200061

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eISSN: 1543-186X

Record 44 of 163

Title: Silver Modified Tricalcium Phosphate for Biomedical Application: Structural Investigation and Study of Antimicrobial with Histopathological Activity

Author(s): Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Ibrahim, EH (Ibrahim, Essam H.); Eid, RA (Eid, Refaat A.); Kilany, M (Kilany, Mona); Ghramh, HA (Ghramh, Hamed A.); Ali, AM (Ali, Atif Mossad); Yousef, E (Yousef, El Sayed)

Source: SCIENCE OF ADVANCED MATERIALS **Volume:** 11 **Issue:** 10 **Pages:** 1383-1391 **DOI:** 10.1166/sam.2019.3552 **Published:** OCT 2019

Abstract: Addition of silver oxide (Ag2O = 1.0 mol%) to 40P(2)O(5)-20Na(2)O-10Ca(OH)(2)-20CaCl(2)-9.0ZnO in mol% bioglasses (BGAg) have been prepared by melt-quench technique. The structural of present glasses investigated by using Raman spectra, scanning electron microscope (SEM), transmission electron microscope (TEM) and X-ray diffraction XRD. In the present paper, we tested antimicrobial activity, anti-proliferative/cytotoxicity against normal and activated splenic cells in vitro, in vivo immunologic and hypersensitivity responses on the present glasses. Here the results showed that BGAg had antimicrobial activities against Gram negative and positive bacteria as well as fungi. Also, the bioglasses (BGAg) has no cytotoxic or proliferative effects on activated splenic cells while showed proliferation stimulation potential on normal splenic cells. The nanoparticle of bioglasses (BGAg) showed growth inhibition/cytotoxic effects on normal splenic cells. In vivo test demonstrated that BGAg is an inert material which did not stimulate the immune system or caused local reactions which did not cause any acute cytotoxicity or lysis to RBCs. From the histopathological study we can consider that bioglasses (BGAg) as a safe and ideal material for implantation inside the body of living organisms.

Accession Number: WOS:000486577400006

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ISSN: 1947-2935

eISSN: 1947-2943

Record 45 of 163

Title: Synthesis, Mechanical, In Vitro and In Vivo Bioactivity and Preliminary Biocompatibility Studies of Bioglasses

Author(s): Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Ibrahim, EH (Ibrahim, Essam H.); Eid, RA (Eid, Refaat A.); Kilany, M (Kilany, Mona); Ghramh, HA (Ghramh, Hamed A.); Abdellahi, MO (Abdellahi, M. Ould); Shaaban, ER (Shaaban, Essam R.); Reben, M (Reben, M.); Yousef, E (Yousef, El Sayed)

Source: SCIENCE OF ADVANCED MATERIALS **Volume:** 11 **Issue:** 10 **Pages:** 1458-1466 **DOI:** 10.1166/sam.2019.3553 **Published:** OCT 2019

Abstract: Nano beta-tricalcium phosphate scaffolds (beta-TCP) with MgO oxide were estimated in the bioglasses 40P(2)O(5)20Na(2)O- 10Ca(OH)(2)-20CaCl(2)-8.0ZnO-2.0MgO (BGMg) to improve that the mechanical, structural and biological properties. X-ray diffraction analysis (XRD) indicated that the major phase of beta-TCP and few phases of beta-TCP were investigated. The Vicker's microhardness, H-v, of prepared bioglasses was evaluated. Herein the antimicrobial activity, anti-proliferative/cytotoxicity against normal and activated splenic cells in vitro, and in vitro cytotoxicity effects and in vitro effects of activated splenic cells on BGMg. The results demonstrated that both nano (beta-TCP) with MgO particle attributed to antimicrobial activities against Gram negative and positive bacteria as well as fungi. It was obtained that the nanoparticles of (beta-TCP) were the stronger effect on the antimicrobial activity than the powder (beta-TCP). In addition (beta-TCP nanoparticles) demonstrated the cytotoxic effect on normal splenic cells and the prepared bioglasses BGMg did not cause any acute cytotoxicity or lysis to RBCs. Hence, addition MgO to the present glasses matrix P2O5-Na2O-Ca(OH)(2)-CaCl2-ZnO leads to optimize and enhancing biological and mechanical properties.

Accession Number: WOS:000486577400015

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Shaaban, Essam	AAX-1596-2020	
Ibrahim, Essam H.	G-1960-2018	0000-0003-0130-2257

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Record 46 of 163

Title: Gamma ray shielding behavior of Li2O-doped PbO-MoO3-B2O3 glass system

Author(s): Ali, AM (Ali, Atif Mossad); Sayyed, MI (Sayyed, M. I.); Rashad, M (Rashad, M.); Kumar, A (Kumar, Ashok); Kaur, R (Kaur, Ramandeep); Askin, A (Askin, A.); Algarni, H (Algarni, H.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 10 **Article Number:** 671 **DOI:** 10.1007/s00339-019-2964-3 **Published:** OCT 2019

Abstract: In this work, five glasses for radiation shielding applications in the composition of (30 + x) PbO-5 MoO3-(25 - x) Li2O-40 B2O3 (where x = 0, 5, 10, 15 and 20 mol%) have been prepared. The density increases from 4.354 to 6.578 g cm(-3) and the molar volume decreases from 25.144 to 22.520 cm(3) with the replacement of Li2O by PbO. The indirect and direct band gap energies decrease from (2.2870-2.2297) eV and (2.9619-2.8660) eV, respectively, as lead content increases from 30 to 50 mol%. In addition, the refractive index of the samples lies between 2.6214 and 2.6429. Geant4 simulation code has been used to evaluate the gamma photon transmission through the prepared samples. Pb50Li5 sample has lower transmission fraction among the studied glasses. For the 2-cm glass thickness, the transmission fraction of Pb30Li25 sample was found to be 0.433 while at the same thickness the transmission fraction of Pb50Li5 sample is 0.265. At 1173 keV, the HVL values were found to be 1.752 cm for Pb50Li5 and 2.693 cm for Pb30Li25 glasses. At the same photon energy, the MFP values were calculated to be 2.529 cm and 3.886 cm for the Pb50Li5 and Pb30Li25 samples, respectively. Due to the higher Pb content existing in the Pb50Li5 glass, this glass effectively blocks the gamma rays compared to the other samples.

Accession Number: WOS:000485036400001

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ISSN: 0947-8396

eISSN: 1432-0630

Record 47 of 163

Title: Chitosan/sulfonated graphene oxide/silica nanocomposite membranes for direct methanol fuel cells

Author(s): Ranjani, M (Ranjani, M.); Pannipara, M (Pannipara, Mehboobali); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Vignesh, A (Vignesh, A.); Kumar, GG (Kumar, G. Gnana)

Source: SOLID STATE IONICS **Volume:** 338 **Pages:** 153-160 **DOI:** 10.1016/j.ssi.2019.05.010 **Published:** OCT 1 2019

Abstract: Silica nanoparticles on sulfonated graphene oxide (sGO/SiO2) are incorporated with chitosan (CS) in tunable compositions and their performances as ion conductors in direct methanol fuel cells (DMFC) are evaluated. The morphological observations reveal that sGO/SiO2 nanocomposite is homogeneously distributed throughout the CS matrix. The anisotropic and strong bonds created among the carbon atoms of functionalized GO nanosheets and the ceramic characteristic of SiO2 nanofillers promote the thermal stability of CS/sGO/SiO2 composite membrane than that of bare CS membrane. The hydrophilic sites provided via the sulfonated moieties of GO and hygroscopic characteristics of SiO2 nanoparticles improve the water adsorption channels. The hydrogen bonding and acid-base pair interaction exerted between the CS and sGO/SiO2 facilitate the continuous and rapid ion conduction via grotthuss mechanism. The high aspect ratio of sGO and the effectively piled SiO2 nanoparticles generate tortuous channels for methanol diffusion. Thus the selective passage of ions and fuel in CS/sGO/SiO2 composite membrane provides the maximum DMFC power density of 87.18 mW cm(-2) with considerable duration, which confers the prosperous light on the utility of environmentally benign and biodegradable CS membrane in DMFCs.

Accession Number: WOS:000482515900022

Author Identifiers:

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al-sehemi, Abdullah	AAM-4039-2020	
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ISSN: 0167-2738

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Record 48 of 163

Title: Microstructure and optical properties of Ni2+ doped PVA for optoelectronic devices

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

Source: PHYSICA B-CONDENSED MATTER **Volume:** 570 **Pages:** 41-47 **DOI:** 10.1016/j.physb.2019.05.050 **Published:** OCT 1 2019

Abstract: Different wt.% of Ni2+-doped Poly (vinyl alcohol), PVA, films are synthesized by a low-cost casting method. XRD, SEM and FTIR spectroscopy are used to study the microstructure of the composite samples. The degree of semi-crystallinity for all Ni2+-doped PVA (NPVA) and pure PVA films decreases and the amorphous order dominated in 3.7 wt% Ni2+-doped PVA (NPVA5) film as established by studying the spectroscopy of XRD and FT-IR. The increment of the Ni2+-doping level in PVA led to a formation of non-homogeneous particle size with an average value range from 1.03 mu m to 4.47 mu m for 0.027 wt% Ni2+-doped PVA (NPVA1), and NPVA5 films, respectively. UV-Vis-IR transmittance and absorption spectroscopies are specified for measuring the optical parameters. The indirect energy gap (E-ig) decreases to 4.85 eV for NPVA5 film, and the direct energy gap, Eg, to 1.36 eV for the same sample. However, owing to the complex construction between Ni2+-ions and the matrix of PVA, the transition strength (E-d), the indices of refraction (n, n(infinity)), and oscillator wavelength (lambda(0)) increase, while the excitation energy (E-s) decreases with further wt.% of Ni2+-ions. Due to the optical properties of the films, they are suitable to be inserted in different optoelectronic applications.

Accession Number: WOS:000481733800008

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Khairy, Yasmin	AAG-4248-2021	0000-0002-7293-2806

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Record 49 of 163

Title: Linear and nonlinear optical properties of sol-gel spin coated erbium-doped CdO thin films

Author(s): Ganesh, V (Ganesh, V); AlFaify, S (AlFaify, S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 570 **Pages:** 58-65 **DOI:** 10.1016/j.physb.2019.05.045 **Published:** OCT 1 2019

Abstract: Er-doped CdO thin films are coated on FTO substrates using so-gel-spin coater technique. XRD studies confirm the polycrystalline nature of (111) orientation of the films. Crystallite size, dislocation density, and Lattice strain is calculated from XRD data and found that they are varying with doping percentage. AFM studies revealed homogeneous distributions of the nano-grains of 13-19 nm size. Energy dispersive spectroscopy and mapping analyses confirm the elemental composition. All the films are showing high transmission of nearly 80% in the visible spectrum. The calculated direct, indirect band gap values are changing with a variation of doping from 2.85 to 2.97 eV. At higher wavelength, the dielectric constant values are in the range of 20-80. The linear, third-order susceptibilities and nonlinear refractive index values are varying from 2 to 7, 1.6x10(-13) to 5.41x10(-13) esu and 1.39x10(-12) to 8.1x10(-11) esu respectively.

Accession Number: WOS:000481733800011

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ISSN: 0921-4526
eISSN: 1873-2135

Record 50 of 163

Title: High performance visible light photodetector based on TlInSSe single crystal for optoelectronic devices

Author(s): Khan, MT (Khan, Mohd Taukeer); Ashraf, IM (Ashraf, I. M.); Abdel-Wahab, F (Abdel-Wahab, F.); Sanaa, MF (Sanaa, M. F.); Al-Juman, MSA (Al-Juman, M. S. Awad); Almohammedi, A (Almohammedi, Abdullah); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 10 **Article Number:** 105816 **DOI:** 10.1088/1402-4896/ab1c23 **Published:** OCT 2019

Abstract: Owing to its high photosensitivity and excellent optoelectrical properties in the visible range, the TlInSSe single crystal is considered for use in high performance visible photodetectors. Herein, we report a detailed optoelectrical investigation of TlInSSe single crystal grown via the Bridgman technique. The photocurrent was observed to increase with an increase in the illumination intensity. The temperature-dependent photoconductivity under different illumination intensities was studied to understand the photogenerated charge transport mechanism in the TlInSSe crystal. A drop in activation energy was noticed from 0.278 eV (under dark conditions) to 0.114 eV (under illumination), attributed to the filling of trap states by photogenerated carriers. The photo-switching behavior was studied and the growth and decay times were found to be similar to 310 and 300 ms, respectively. The photodetector device of the grown crystal was fabricated and the important figure of merit was determined for 532 nm laser light. The photodetector exhibits a responsitivity up to 0.61 A W-1, a detectivity up to 6.24 x 10(11) Jones, and an external quantum efficiency up to 120%. These parameters decrease with an increase in the illumination intensity, but increase with applied voltage. These excellent optoelectrical properties make TlInSSe single crystal a highly competitive candidate for visible photodetector devices.

Accession Number: WOS:000480330500004

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Record 51 of 163

Title: Engineering of the band gap and optical properties of InxGa1-x(As/Sb) via across composition alloying for solar cell applications using density functional theory-based approaches

Author(s): Mahmood, Q (Mahmood, Q.); Rashid, M (Rashid, M.); Hassan, M (Hassan, M.); Yaseen, M (Yaseen, M.); Laref, A (Laref, A.); Haq, BU (Haq, Bakhtiar Ui)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 10 **Article Number:** 105812 **DOI:** 10.1088/1402-4896/ab2548 **Published:** OCT 2019

Abstract: The optoelectronic properties of InxGa1-x(As/Sb) are analyzed using density functional theory by employing a modified potential scheme of Trans and Blaha as developed in WIEN2k code. The indium doping in GaAs and GaSb tune the band gap from 1.56 to 0.43 eV and 0.82 to 0.30 eV, respectively, which highlights their significance for solar cell related applications. The optical characteristics are assessed by studying the dielectric constant, refraction, absorption, optical conductivity and optical loss of light energy. The static dielectric constant related to the optical band gap through Penn's model and with static refractive index epsilon(1)(0) = n(2)(0) increase consistently between the calculated results. The maximum absorption and small optical loss factor for visible to near UV regions can enhance the optical efficiency for solar cell and optoelectronic applications. Moreover, higher optical conductivity within 3.5-4.5 eV allows forward current, which is attractive for practical applications.

Accession Number: WOS:000480297200002

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Record 52 of 163

Title: Synthesis and characterization of Mg-Ag-Mn nano-ferrites for electromagnet applications

Author(s): Jasrotia, R (Jasrotia, Rohit); Kumar, G (Kumar, Gagan); Batoo, KM (Batoo, Khalid Mujasam); Adil, SF (Adil, Syed Farooq); Khan, M (Khan, Mujeeb); Sharma, R (Sharma, Rajesh); Kumar, A (Kumar, Arun); Singh, VP (Singh, Virender Pratap)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 569 **Pages:** 1-7 **DOI:** 10.1016/j.physb.2019.05.033 **Published:** SEP 15 2019

Abstract: In the present work, silver doped Mg-Mn ferrite nanoparticles (Mg1-yMnyAgxFe2-xO4; y = 0.1, 0.2, 0.3, 0.4, 0.5 and x = 0.0, 0.1, 0.2, 0.3, 0.4) are synthesized by using sol-gel technique and are characterized by x-ray diffraction (XRD), energy dispersive x-ray (EDX) analysis, field emission scanning electron microscopy (FESEM), Fourier transform infrared spectroscopy (FTIR), vibrating sample magnetometer (VSM) and Mossbauer spectroscopy. The single phase formation of the prepared ferrite nanoparticles is depicted by XRD study and the crystallite size as well as lattice parameter are found to increase (51-65 nm) and (8.367-8.384 angstrom) with the addition of silver ions. EDX study confirmed the compositional formation of the prepared ferrite nanoparticles. FESEM study depicted the clear crystalline nature of the nanoferrites with cubic structure. FTIR study revealed a decrease in bond length of M-O at tetrahedral (A) site and an increase in bond length between M-O at octahedral (B) site. The value of saturation magnetization is found to be 25.31 emu/gm for y = 0.1, x = 0 with highest value 30.26 emu/gm for ferrite with composition y = 0.4, x = 0.3. The cations distribution has been estimated using the XRD and magnetization techniques.

Accession Number: WOS:000470108900001

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ISSN: 0921-4526

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Record 53 of 163

Title: MHD Blasius flow of radiative Williamson nanofluid over a vertical plate

Author(s): Hamid, A (Hamid, Aamir); Hashim (Hashim); Khan, M (Khan, Masood); Alghamdi, M (Alghamdi, Metib)

Source: INTERNATIONAL JOURNAL OF MODERN PHYSICS B **Volume:** 33 **Issue:** 22 **Article Number:** 1950245 **DOI:** 10.1142/S021797921950245X **Published:** SEP 10 2019

Abstract: The flow characteristics of Williamson nanofluids flow caused by a permeable vertical plate are investigated in this research. Influence of magnetic field on mixed convection flow in the presence of thermal radiation and heat source/sink is further studied. To develop the mathematical model of Williamson nanofluids, we employ the Brownian motion and thermophoresis impacts. By using Sparrow-Quack-Boerner local non-similarity method, the governing equations are transformed into a set of ordinary differential equations. Additionally, the obtained equations are numerically tackled by employing an efficient Runge-Kutta-Fehlberg method with MATLAB. The effect of emerging parameters on dimensionless velocity, temperature and concentration as well as the skin friction coefficient, the local Nusselt number and a local Sherwood number are explored with the help of graphs. The results indicate that as the value of buoyancy parameter increases, the nanofluid temperature and concentration decrease, whereas the velocity distribution increases. Further, the

skin friction coefficient is increased with the higher buoyancy parameter. On the other hand, the rate of heat transfer is decreased by Brownian motion parameter. A comparison with the previous data in the literature shows good agreement with the obtained results.

Accession Number: WOS:000488808400003

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ISSN: 0217-9792

eISSN: 1793-6578

Record 54 of 163

Title: Investigation of Structural and Optical Properties of Amorphous-Crystalline Phase Transition of As40S45Se15 Thin Films

Author(s): Shaaban, ER (Shaaban, E. R.); Hassaan, MY (Hassaan, M. Y.); Moustafa, MG (Moustafa, M. G.); Qasem, A (Qasem, Ammar); Ali, GAM (Ali, G. A. M.); Yousef, ES (Yousef, E. S.)

Source: ACTA PHYSICA POLONICA A **Volume:** 136 **Issue:** 3 **Pages:** 498-512 **DOI:** 10.12693/APhysPolA.136.498 **Published:** SEP 2019

Abstract: In the present work, the influence of heat treatment on the structural and optical properties of amorphous As40S45Se15 chalcogenide thin films is investigated. The structural analyses of the thin films have been studied via X-ray diffraction technique. The X-ray diffraction studies exhibit that the crystallinity improves with increase of the thermal annealing temperature from inset temperature to maximum crystallization temperature. On the other hand, the optical constants of the as-prepared and annealed As40S45Se15 samples were computed via envelope method. Then, the optical band gap of as-prepared and annealed samples as a function of photon energy in the wavelength range 400-2500 nm were investigated. The optical band gap was successfully calculated by Tauc's relation which exhibits the indirect transitions for the as-prepared and annealed samples under onset temperature and allowed direct transition for annealed samples at and above inset temperature. The dispersion parameters of the films were computed via the single oscillator model proposed by the Wemple-DiDomenico relation. The static refractive indices (both linear and non-linear) optical susceptibility chi((1)) , chi((3)), and then non-linear refractive indices were also computed. Starting with dielectric constants (epsilon(r) and epsilon(i)) the loss tangent and volume/surface energy loss functions were computed. Also the inter-band transition strength J(cv) (E) for the dipole selection rules for the transitions was discussed.

Accession Number: WOS:000495445400019

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ISSN: 0587-4246

eISSN: 1898-794X

Record 55 of 163

Title: Output multichannel optical filter based on hybrid photonic quasicrystals containing a high-Tc superconductor

Author(s): Trabelsi, Y (Trabelsi, Youssef)

Source: PHOTONICS AND NANOSTRUCTURES-FUNDAMENTALS AND APPLICATIONS **Volume:** 36 **Article Number:** 100724 **DOI:** 10.1016/j.photonics.2019.100724 **Published:** SEP 2019

Abstract: In this study, we determined the properties of one-dimensional photonic quasicrystals (PQC), including superconductors and dielectric materials, based on two representative quasiperiodic sequences comprising the generalized Thue-Morse (GTM) and generalized Fibonacci sequences in order to design a multichannel optical filter. By using the transfer matrix method and two-fluid model, we determined that the transmittance spectra exhibited a series of photonic band gaps (PBGs). In order to improve the characteristics of the PBGs, we considered the GTM configuration and applied a deformation comprising y = x(h+1)along the PQC device, where h represents the deformation degree, and x and y are the thicknesses of the layers before and after deformation, respectively.

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Record 56 of 163

Title: An investigation on optical-nonlinear and optical limiting properties of CdS: an effect of Te doping concentrations for optoelectronic applications

Author(s): Shkir, M (Shkir, Mohd.); Shaikh, SS (Shaikh, S. S.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 18 **Special Issue:** SI **Pages:** 17469-17480 **DOI:** 10.1007/s10854-019-02097-z **Published:** SEP 2019

Abstract: In current article authors aim is to present an insight on structural, opto-nonlinear-limiting properties of Cadmium sulfide (CdS) thin films affected by various concentrations of tellurium (Te) doping. Hence, the thin films of pure and Te:CdS were fabricated by spray pyrolysis technique by keeping the substrate at 300 degrees C. X-ray diffraction and FT-Raman spectroscopy analyses confirmed the hexagonal phase of CdS. The values of L-ave, rho(ave) and epsilon(ave) are found in range of 18-20 nm, 2.6-3 nm(-2) and 1.7-1.9, respectively. Furthermore, the energy dispersive X-ray spectroscopy/scanning electron microscopy mapping (SEM) confirmed the presence and homogeneous doping of Te in CdS. SEM study shows that the fabricated films are free from any pin holes and possess very fine nanostructures. The optical transparency of grown films was noticed similar to 70%, which is quite impressive for colored materials. The absorption index, refractive index values are found in range of 0.04 to 0.25, 1.25 to 3.2 in 200 to 2500 nm wavelength region. The direct energy gap of CdS was noticed to be reduced from 2.44 to 2.35 eV (Delta E-g = 0.09) with Te doping content. Photoluminescence emission spectra contains an intense

green emission band at similar to 528 +/- 4 nm. The dielectric constant and optical conductivity were noticed in range of 1.5 to 10 and 0.02 to 0.6 (x 10(5)), respectively. The values of third order susceptibility and nonlinear refractive index was found of the order of 10(-10) esu. The output power of the 532 nm laser passed from films is found to be reducing with increasing the Te content in CdS films. Hence, the deposited films of Te:CdS will be more applicable as optical limiter in sensor device protection from intense lights.

Accession Number: WOS:000487923600086

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Record 57 of 163

Title: Numerical Analysis of Magnetohydrodynamic Navier's Slip Visco Nanofluid Flow Induced by Rotating Disk with Heat Source/Sink

Author(s): Awais, M (Awais, M.); Bilal, S (Bilal, S.); Malik, MY (Malik, M. Y.); Khalil-ur-Rehman (Khalil-ur-Rehman)

Source: COMMUNICATIONS IN THEORETICAL PHYSICS **Volume:** 71 **Issue:** 9 **Pages:** 1075-1083 **DOI:** 10.1088/0253-6102/71/9/1075 **Published:** SEP 2019

Abstract: Current exertion is made to depict and search out the flow features imparted to viscid fluid flow over a rotational disk. Impression of magnetic field with rotating fluid is generated by interacting it in radial direction. Nano structured particles with magnetized fluid are also incorporated in the upshot of chemical reaction and absorptive/generative heat induction. Von Kumaran procedure is executed to obtain flow narrating differential expressions. Flow pattern regarding thermal, momentum profiles are comprehended with the support of shooting method and Runge-Kutta methods. Furthermore, to get more realistic view of result description computational algorithm is modified by improving Runge-Kutta coefficients with Cash and Carp method. The aspects of flow controlling parameters like momentum slip parameter, magnetic strength parameter, Brownian motion parameter, thermophoresis parameter are adorned in sketches. Findings of these architects are accumulated in conclusion section.

Accession Number: WOS:000486367800005

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Rehman, Khalil Ur	AAA-3417-2021	

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Record 58 of 163

Title: An investigation on structural, morphological, optical and third order nonlinear properties of facilely spray pyrolysis fabricated In: CdS thin films

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

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 133 **Article Number:** 106202 **DOI:** 10.1016/j.spmi.2019.106202 **Published:** SEP 2019

Abstract: Owing to the tremendous applications of cadmium sulphide (CdS), the fabrication of different content of In doped (0.0, 0.5,1.0, 2.5 and 5.0 wt%) CdS thin films has been carried out facilely by spray pyrolysis technique. X-ray diffraction and FT-Raman studies confirm the single phase of CdS with hexagonal crystal system. The Scherrer rule was employed to determine the crystallite size and found to be reduced from 20 to 18 nm. The elemental composition and mapping studies shows that the prepared films contain In in CdS which is homogeneously distributed all over the film. The surface morphology was studied and noticed to be modified with increasing the content of In doping. The emission spectra were recorded at lambda(exc) = 450 nm and an intense green emission was observed at 529 +/- 16 nm for pure and In:CdS films. The optical study reveal that the optical transparency is enhanced from 65% to 75% with In doping. The refractive index was noticed in range from 1 to 2.8. The direct optical energy gap was estimated in the range from 2.31 to 2.46 eV and shows reduction with In content. The open and closed aperture Z-scan measurement was carried out and nonlinear absorption, third order nonlinear susceptibility and refractive index values were determined and found in range from 3.12 x 10 (3) to 5.37 x 10(-3) cm/W, 4.67 x 10(-1) to 7.01 x 10(-1) esu and 2.14 x 10(-7) to 5.99 x 10(-7) cm(2)/W, correspondingly.

Accession Number: WOS:000487171300018

Author Identifiers:

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ISSN: 0749-6036

Record 59 of 163

Title: Kinetics characterization and visible photoluminescence spectroscopy of an erbium-doped tellurite glass

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

Source: RESULTS IN PHYSICS **Volume:** 14 **Article Number:** 102370 **DOI:** 10.1016/j.rinp.2019.102370 **Published:** SEP 2019

Abstract: This article aims to study the detailed thermal behavior, characterization of kinetics and the luminescence properties of TeO2-Li2O-ZnO-Nb2O5-Er2O3 glass system as a function of increasing Er2O3 (mol%). Kinetic parameters of the glass series have been studied by the data obtained from the differential scanning calorimetry (DSC) under non-isochronal circumstances at heating rates (beta) 10, 15, 20 and 25 K min(-1) using the continuousheating technique. The glass thermal stability (Delta T), the thermal relaxation resistance (Delta S) and the glass stability parameter (K-SP) have been calculated to state the applicability of using the glass in specific fields and applications. Activation energies of both the glass transition (E-g) and crystallization (E-c) processes were determined from the shift of the transition (Tg) and crystallization (Tc) temperatures with the different heating rates using Kissinger's and Ozawa's techniques. The kinetic Avrami number (order of the crystallization reaction) (n) was also calculated to define the mechanism of the crystallization process. Quantitative interpretation of the kinetic parameters (the relation between thermal and structural properties with changing the chemical

composition) also has been provided. The luminescence properties showed that the glass with the least concentration of Er2O3 (0.5 mol %) exhibited the higher emission intensity which might be a suitable candidate for the green laser applications.

Accession Number: WOS:000485104100160

Author Identifiers:

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Said Yousef, El Sayed		0000-0002-5462-317X

ISSN: 2211-3797

Record 60 of 163

Title: Semiconducting chalcogenide Ge-Se-Sb-Cu as new prospective thermoelectric materials

Author(s): Hegazy, HH (Hegazy, H. H.)

Source: RESULTS IN PHYSICS **Volume:** 14 **Article Number:** 102492 **DOI:** 10.1016/j.rinp.2019.102492 **Published:** SEP 2019

Abstract: This work examines the electrical and thermoelectric characteristics of Ge25Se65Sb10-xCux (0 <= x <= 10 at.%) thin films within the temperature range of 300-450 K. In order to get thin films from the bulk specimens, thermal evaporation technique was employed. The electrical conductivity increases from 2.89x10(-9) Omega(-1) m(-1) to 6.39x10(-7) Omega(-1)m(-1) as the Cu content increases from 0 to 10 at.%. During this investigation, A p-type Ge25Se65Sb10-xCux\ films were considered, to keep the thermoelectric power positive throughout the temperature range. In addition to that, the dc electrical conductivity and thermoelectric power readings were taken into account to ascertain the level of free carriers presence. As the Cu content increases, the activation energy falls even though power factor; an important thermoelectric parameter, rises. The outcome of the chalcogenide glassy composition investigation revealed that it is a likely source for acquiring high action thermoelectric materials.

Accession Number: WOS:000485104100006

ISSN: 2211-3797

Record 61 of 163

Title: Formulating the behavior of thermal radiation and magnetic dipole effects on Darcy-Forchheimer grasped ferrofluid flow

Author(s): Hussain, A (Hussain, Azad); Muneer, Z (Muneer, Zainia); Malik, MY (Malik, M. Y.); Ali, S (Ali, Shoaib)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 97 **Issue:** 9 **Pages:** 938-949 **DOI:** 10.1139/cjp-2018-0465 **Published:** SEP 2019

Abstract: In this article a boundary layer analysis has been carried out to examine the Darcy-Forchheimer flow of Carreau ferrofluid through a sensor duct between two parallel plates. The top plate is assumed to be squeezed whereas the lower plate is at rest. Inspection has been accomplished in the occupancy of thermal radiation and magnetic dipole. Thermal conductivity is also considered, which is determined by temperature. After incorporating these speculations, dimensional equations supervising the flow and heat transfer distinctions are transfigured into a dimensionless system of differential equations by implementing similarity transformations. The result of squeezed flow index b, ferrohydrodynamic interaction beta*, porous medium permeability parameter S-1, local inertia coefficient S-2, Eckert number lambda, Prandtl number Pr, Curie temperature g, and Weissenberg number W-e on velocity and temperature curves are observed. The numerical solution for boundary layer momentum and energy equations is obtained. The present analysis demonstrates that velocity profile significantly drops owing to a rise in Weissenberg number.

Accession Number: WOS:000484159200003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Malik, Muhammad Yousaf	X-5316-2018	0000-0002-5301-4145

ISSN: 0008-4204

eISSN: 1208-6045

Record 62 of 163

Title: Determination of physical properties of irradiated PTFE fibers using digital holographic microscopy

Author(s): Yassien, KM (Yassien, Khaled M.); Agour, M (Agour, Mostafa); El-Bakary, MA (El-Bakary, Mohammed A.)

Source: APPLIED PHYSICS B-LASERS AND OPTICS **Volume:** 125 **Issue:** 9 **Article Number:** 180 **DOI:** 10.1007/s00340-019-7291-z **Published:** SEP 2019

Abstract: A method that depends on digital holographic microscopy (DHM) was suggested for studying the effect of gamma irradiation doses on the physical properties of polytetrafluoroethylene (PTFE) fibres. The PTFE samples were exposed to different doses of gamma irradiation ranging from 3 to 40 kGy. These samples were fast monitored using a DHM based on a Michelson interferometer. The holographic pattern generated across the recording domain of the DHM was used for extracting the optical path differences (OPD) within the samples under test. From the OPD, the optical and the physical variations of irradiated fibers were characterized by determining their refractive indices, birefringence, orientation function, 3D refractive index profile, and crystallinity. It was found that optical parameters were increased by increasing the doses of gamma irradiation until 10 kGy, while these values decrease at doses 25 kGy and 40 kGy. Also, the crystallinity results showed the improvement of its values by gamma irradiation results in the crosslinking of PTFE fibres by irradiation.

Accession Number: WOS:000483497200001

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Agour, Mostafa	G-4865-2019	0000-0003-1618-824X

ISSN: 0946-2171

eISSN: 1432-0649

Record 63 of 163

Title: Exploring the origin of p-type half-metallic ferromagnetism in beryllium doped alkali based perovskites

Author(s): Mahmood, Q (Mahmood, Q.); Ul Haq, B (Ul Haq, Bakhtiar); Yaseen, M (Yaseen, M.); Shahid, A (Shahid, Atiba); Laref, A (Laref, A.)

Source: SOLID STATE COMMUNICATIONS **Volume:** 299 **Article Number:** 113654 **DOI:** 10.1016/j.ssc.2019.113654 **Published:** SEP 2019

Abstract: The thermodynamic stability and half-metallic ferromagnetism of alkali-based beryllium perovskites XBeO3 (X = Li, Na, K, Rb, and Cs) in cubic phase have been analyzed by the first-principles approach. Our results show that more energy is released in the ferromagnetic (FM) phase than the antiferromagnetic (AFM) phase during optimization, revealing the FM phase more stable than the AFM state. Moreover, the thermodynamic, structural and mechanical stabilities in FM state has been confirmed by the enthalpy of formation, tolerance factor, and Born stability criteria for cubic structured perovskites. The Heisenberg classical model has been used to predict the Curie temperature and spin polarization. The hole mediated double-exchange mechanism illustrates spin-coupling based half-metallic ferromagnetism that leads to XBeO3 as potential materials for spintronic device fabrication. The strong hybridization between the atomic states of 16-atom supercell, especially, the p-p coupling of p-X and p-O yields the total magnetic moment 3 mu(B)/unit cell.

Accession Number: WOS:000477797400006

Author Identifiers:

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laref, amel	F-7712-2018	0000-0002-8334-5180
Yaseen, Muhammad	O-5718-2016	0000-0002-2128-6680
Ul Haq, Bakhtiar		0000-0001-9058-2080

ISSN: 0038-1098

eISSN: 1879-2766

Record 64 of 163

Title: Solidification entropy generation via FEM through a porous storage unit with applying a magnetic field

Author(s): Nguyen, TK (Truong Khang Nguyen); Sheikholeslami, M (Sheikholeslami, M.); Shehzad, SA (Shehzad, Sabir A.); Shafee, A (Shafee, Ahmad); Alghamdi, M (Alghamdi, Metib)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 9 **Article Number:** 095207 **DOI:** 10.1088/1402-4896/ab19ea **Published:** SEP 2019

Abstract: In the current attempt, we applied a magnetic field to expedite solidification and we also tried to report entropy generation of nanoparticle-enhanced phase change material (NEPCM). Second law analysis should be involved for designing efficient heat storage units. Nanoparticles can be dispersed in pure PCM (water) to enhance conductive heat transfer. Governing equations formulated considering Darcy law for porous terms and single phase model for nanofluid properties are solved by means of the finite element method. Results are depicted as entropy generation components and solid fraction contours. Results reveal that applying a magnetic field has a favorable effect on the discharging rate of solid fraction. The augmentation in Hartmann number corresponds to a lower time for the process of solidification.

Accession Number: WOS:000475383100003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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Shafee, A.	ABF-2812-2020	
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Khan, Ilyas	C-8770-2019	0000-0002-2056-9371
Shehzad, Sabir Ali	J-3885-2014	

ISSN: 0031-8949

eISSN: 1402-4896

Record 65 of 163

Title: Physical properties of alkali metals-based iodides via Ab-initio calculations

Author(s): Mahmood, Q (Mahmood, Q.); Noor, NA (Noor, N. A.); Rashid, M (Rashid, Muhammad); Ul Haq, B (Ul Haq, Bakhtiar); Laref, A (Laref, A.); Qasim, I (Qasim, Irfan)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 132 **Pages:** 68-75 **DOI:** 10.1016/j.jpcs.2019.04.005 **Published:** SEP 2019

Abstract: Methods based on density functional theory are used to evaluate the thermodynamic, mechanical, optoelectronic and thermoelectric properties of the alkali metal-based iodides: XGeI3 (X = K, Rb and Cs). The thermodynamic stability of these compounds is checked by negative formation energy, and mechanical stability tested through tensor analysis of Chapin's method. For optoelectronic and thermoelectric properties, the recently developed modified Becke-Johnson potential is applied for accurate analysis of bandgap values. The optical properties are explored in terms of dielectric constants and refraction, while thermoelectric properties are explained by electrical and thermal conductivities, Seebeck coefficient, power factor and figure of merit scale. The narrow bandgap, high value of light absorption in the visible region and thermoelectric efficiency make XGeI3 prospective materials for renewable energy applications.

Accession Number: WOS:000472124700009

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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laref, amel	F-7712-2018	0000-0002-8334-5180
Rashid, Muhammad		0000-0001-5998-7872

ISSN: 0022-3697

eISSN: 1879-2553

Record 66 of 163

Title: Hole trap, leakage current and barrier inhomogeneity in (Pt/Au)-Al0.2Ga0.8N/GaN heterostructures

Author(s): Saadaoui, S (Saadaoui, Salah); Fathallah, O (Fathallah, Olfa); Albouchi, F (Albouchi, Fethi); Ben Salem, MM (Ben Salem, Mohamed Mongi); Gaquiere, C (Gaquiere, Christophe); Maaref, H (Maaref, Hassen)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 132 **Pages:** 157-161 **DOI:** 10.1016/j.jpcs.2019.02.027 **Published:** SEP 2019

Abstract: In this work, we report on the electrical characteristics of Pt/Au Schottky contacts to Al0.2Ga0.8N/GaN heterostructures. Indeed, we have realized gate current-voltage I(V) and deep level transient spectroscopy (DLTS) measurements. The behavior study of series resistance R-s, ideality factor n, the effective barrier height Phi(b) and leakage current with the temperature have emphasize barrier height inhomogeneity and extended defect in the (Pt/Au)-Al0.2Ga0.8N/GaN system. The abnormal behavior of all these parameters can be attributed to the presence of traps thermally activated. Using the DLTS technique, we have detected one hole trap having an activation energy of 0.28eV and a capture cross-section of 1.9 x 10(-19)cm(2). This trap should be a threading dislocation extending from the GaN layer to the surface.

Accession Number: WOS:000472124700021

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Salah, SAADAOUI		0000-0002-1718-5940

ISSN: 0022-3697

eISSN: 1879-2553

Record 67 of 163

Title: A facile one-step flash combustion synthesis and characterization on C doped NiO nanostructures

Author(s): Shkir, M (Shkir, Mohd); Arif, M (Arif, Mohd); Singh, A (Singh, Arun); Yahia, IS (Yahia, I. S.); Algarni, H (Algarni, H.); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 100 **Pages:** 106-112 **DOI:** 10.1016/j.mssp.2019.04.038 **Published:** SEP 2019

Abstract: Synthesis of NiO nanostructures in presence of different concentrations of citric acid (CA) was achieved through flash combustion technique. The NiO nanostructures formation was confirmed through X-ray diffraction analysis. At low concentrations of CA no extra peak was observed in XRD patterns, however when the CA concentration was raised to 5 and 10 g, two new extra peaks appeared at 44.6 degrees and 51.9 degrees which may be attributed to the presence of C. The crystallite size was noticed to reduce from 29 to 18 nm with increase in the CA concentration. All observed Raman bands were noticed to be shifted owing to the quantum size effect. EDX and SEM mapping confirm the existence of C. SEM images confirm the cubic nanocrystalline morphology for 0.5 g CA:NiO, however with increasing CA concentration a drastic change in morphology, i.e. from nanocrystals to extended nanosheets, was observed. The energy gap values were determined using Kubelka-Munk theory and found in range of 3.5-4.0 eV. An additional energy gap similar to 2 eV was also noticed at higher CA concentration. The values of relative permittivity, epsilon(r)', were found in the range of 18-110 for CA concentration upto 5g, however, at 10.0 g CA its value was found to be order of 10(4) at 2 x 10(5) Hz.

Accession Number: WOS:000470108600015

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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Yahia, Ibrahim Sayed	G-4458-2011	

ISSN: 1369-8001

eISSN: 1873-4081

Record 68 of 163

Title: Crystal structure, spectroscopic analyses, linear and third-order nonlinear optical properties of anthracene-based chalcone derivative for visible laser protection

Author(s): Patil, PS (Patil, Parutagouda Shankaragouda); Maidur, SR (Maidur, Shivaraj R.); Jahagirdar, JR (Jahagirdar, Jitendra R.); Chia, TS (Chia, Tze Shyang); Quah, CK (Quah, Ching Kheng); Shkir, M (Shkir, Mohd)

Source: APPLIED PHYSICS B-LASERS AND OPTICS **Volume:** 125 **Issue:** 9 **Article Number:** 163 **DOI:** 10.1007/s00340-019-7275-z **Published:** AUG 9 2019

Abstract: Chalcone derivatives have fascinated the growing attention due to their nonlinear optical (NLO) and optical limiting (OL) properties. In the present study, a simple anthracene-based chalcone, (E)-1-(9-anthryl)-3-(4-nitrophenyl)prop-2-en-1-one (abbreviated as N-ANC), was synthesized as a new NLO material. Single-crystal X-ray diffraction, TGA/DTA, NMR (H-1 & C-13), FT-IR and UV-Vis-NIR spectroscopies, and DFT studies were performed. The intermolecular interactions were described by Hirshfeld surface analysis (HSA). In addition, static dipole moment (mu), and polarizability (alpha) were also computed by DFT calculations. Experimentally, the third-order NLO properties of N-ANC were investigated in solutions for two concentrations (1 and 5 mM) by Z-scan technique. Closed aperture Z-scan reveals that N-ANC possesses negative type of nonlinearity (self defocusing) with nonlinear refractive index n(2) similar to 10(-8) cm(2)W(-1). In open aperture Z-scan, N-ANC exhibits strong two-photon absorption (TPA) with TPA coefficient beta similar to 10(-5) cmW(-1). The evaluated one-photon and two-photon figures of merit of N-ANC satisfy the conditions for all-optical switching applications. Moreover, optical limiting nature based on TPA was performed and limiting threshold was evaluated. The results show that N-ANC exhibits good limiting characteristics because of its strong reverse saturable absorption (RSA) response, and thus, it is a promising material for NLO devices.

Accession Number: WOS:000480546500002

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
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PATIL, P S	S-4778-2016	0000-0001-8233-6656

ISSN: 0946-2171

eISSN: 1432-0649

Record 69 of 163

Title: Investigations of energy and an exchange of energies between electrostatic solitons: higher-order corrections and efficiency improvement of semiconductor plasmas

Author(s): EL-Shamy, EF (EL-Shamy, Emad Fathy); Mahmoud, M (Mahmoud, Mona); El-Shewy, EK (El-Shewy, Emad Khader)

Source: WAVES IN RANDOM AND COMPLEX MEDIA **DOI:** 10.1080/17455030.2019.1650987 **Early Access Date:** AUG 2019

Abstract: Investigations of the nonlinear excitation and collisions of electrostatic solitons in a dense semiconductor plasma composed of electrons and holes are improved by using the higher-order corrections. Applying the extended Poincare-Lighthill-Kuo (EPLK) method to obtain the Korteweg-de Vries (KdV) equations, which govern the nonlinear excitation of electrostatic solitons. Furthermore, the phase shift equations due to the collisions between electrostatic solitons are obtained. A theoretical analysis is improved by employing the KdV equations with the effects of the fifth - order dispersion terms. The numerical illustrations demonstrate that the higher-order soliton energy depends significantly on the quantum semiconductor plasma number density. On the other hand, the density of the semiconductor plasma has a weak effect on the lowest-order soliton energy. Therefore, one has to be careful about the choosing semiconductor plasma parameters to avoid any deficiency of the modern semiconductor devices.

Accession Number: WOS:000481190100001

ISSN: 1745-5030

eISSN: 1745-5049

Record 70 of 163

Title: EFFECT OF THE TRANSFER REACTIONS FOR O-16+B-10 ELASTIC SCATTERING

Author(s): Burtebayev, N (Burtebayev, N.); Hamada, S (Hamada, Sh.); Ibraheem, AA (Ibraheem, Awad A.); Rusek, K (Rusek, K.); Wolinska-Cichocka, M (Wolinska-Cichocka, M.); Burtebayeva, J (Burtebayeva, J.); Amangeldi, N (Amangeldi, N.); Nassurlla, M (Nassurlla, Maulen); Nassurlla, M (Nassurlla, Marzhan); Sabidolda, A (Sabidolda, A.)

Source: ACTA PHYSICA POLONICA B **Volume:** 50 **Issue:** 8 **Pages:** 1423-1436 **DOI:** 10.5506/APhysPolB.50.1423 **Published:** AUG 2019

Abstract: In this study, the angular distribution of the O-16+B-10 elastic scattering was measured at E-lab (O-16) = 24 MeV. In addition to our experimental data, this nuclear system was theoretically analyzed at different energies to study the dynamics of scattering for this system. The data were analyzed within the framework of the double-folding optical potential model. The values of the spectroscopic amplitudes (SA) for the configuration O-16 -> B-10+Li-6 were extracted at the energies at which the effect of the Li-6 cluster transfer on the cross sections at backward angles is observed. The energy dependence of the reaction cross section for this system was also investigated.

Accession Number: WOS:000486396800003

ISSN: 0587-4254

eISSN: 1509-5770

Record 71 of 163

Title: Construction of new substitution boxes using linear fractional transformation and enhanced chaos

Author(s): Jamal, SS (Jamal, Sajjad Shaukat); Attaullah (Attaullah); Shah, T (Shah, Tariq); AlKhaldi, AH (AlKhaldi, Ali H.); Tufail, MN (Tufail, Mohammad Nazim)

Source: CHINESE JOURNAL OF PHYSICS **Volume:** 60 **Pages:** 564-572 **DOI:** 10.1016/j.cjph.2019.05.038 **Published:** AUG 2019

Abstract: Substitution boxes are used in different security techniques and cryptosystems to ensure the secure communication of data. To enhance the randomness and perplexity of data, chaos theory has utmost importance in encryption schemes and multimedia security. In this paper, Substitution boxes are developed by using linear fractional transformation and combination of chaotic systems with the increased chaotic range as compared to their seed maps. The Substitution boxes are assessed by using various analyses which include nonlinearity, strict Avalanche criterion, bit independence criterion, linear and differential approximation probabilities. Majority logic criterion is also performed to evaluate its application in various encryption systems.

Accession Number: WOS:000481616100049

ISSN: 0577-9073

Record 72 of 163

Title: In-Vitro Bioactivity of Optical Glasses Containing Strontium Oxide (SrO)

Author(s): Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Ibrahim, EH (Ibrahim, Essam H.); Eid, RA (Eid, Refaat A.); Kilany, M (Kilany, Mona); Ghramh, FA (Ghramh, Flamed A.); Abdellahi, MO (Abdellahi, M. Ould); Sayed, MA (Sayed, M. A.); Yousef, E (Yousef, El Sayed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 8 **Pages:** 1105-1112 **DOI:** 10.1166/jno.2019.2542 **Published:** AUG 2019

Abstract: In this paper, we investigate the effect of addition SrO for phosphate bioactive optical glasses (40P(2)O(5)-20Na(2)O-10Ca(OH)(2)-20CaCl(2)-8.0ZnO-2.0SrO, in mol%, labelled as BGSr) on antimicrobial activity, antiproliferative/cytotoxicity against normal and activated splenic cells in vitro. Moreover, the effect of BGSr on in vivo and in vitro cytotoxicity and in vitro effects of activated splenic cells were studied. It was observed that the optical BGSr glasses possess high antimicrobial and antifungal properties. A cytotoxic effect on normal splenic based on BGSr (powder and nanoparticles) were also studied and it was observed that the BGSr powder showed no effects on activated splenic cells which did not cause any acute cytotoxicity or lysis to RBCs which conclude that BGSr is an inert material which did not cause any hepatic cytotoxicity.

Accession Number: WOS:000480420100010

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AlShahrani, Ibrahim	AAX-2504-2020	0000-0001-8108-1866

ISSN: 1555-130X

eISSN: 1555-1318

Record 73 of 163

Title: Investigation on nebulizer spray coated Nd-doped SnS2 thin films for solar cell window layer application

Author(s): Arulanantham, AMS (Arulanantham, A. M. S.); Valanarasu, S (Valanarasu, S.); Rosario, SR (Rosario, S. Rex); Kathalingam, A (Kathalingam, A.); Shkir, M (Shkir, Mohd); Ganesh, V (Ganesh, V); Yahia, IS (Yahia, I. S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 15 **Pages:** 13964-13973 **DOI:** 10.1007/s10854-019-01743-w **Published:** AUG 2019

Abstract: Economic nebulizer spray pyrolysis (NSP) technique has been employed to deposit Neodymium (Nd) doped Tin disulfide (SnS2) thin films at 325 degrees C by varying the doping concentration of Nd (0%, 2%, 4% and 6%). The impact of Nd concentration on crystalline structure, morphology and opto-electronic properties of films were studied using X-ray diffraction (XRD), FT-Raman spectrophotometer, atomic force microscope (AFM), energy-dispersive X-ray spectroscope, scanning electron microscope (SEM), UV-Visible spectrometer and Hall Effect measurements. Structural parameters such as lattice constants, texture orientation factor, micro strain, dislocation density and crystallite size were estimated using XRD data. The SEM and AFM images of films displayed an exceptional morphology. The surface roughness of the films was found to increase with the increase of dopant concentration. Optical analysis done on the films revealed variation in band gap from 2.75 to 2.92 eV as the Nd doping concentration is increased from 2 to 6%. SnS2 thin film exhibited n-type conductivity as, confirmed from Hall Effect studies. The resistivity and concentration of the carrier in the film were found to be 4.17 x 10(-2) omega cm and 4.06 x 10(17) cm(-3) respectively which were then correlated to the deposition parameters. Furthermore, FTO/n-Nd-SnS2/p-SnS hetero-junction based solar cells were prepared and their current voltage curve in dark condition was obtained.

Accession Number: WOS:000478863500012

Author Identifiers:

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ISSN: 0957-4522

eISSN: 1573-482X

Record 74 of 163

Title: Structural, optical, and gamma-ray-sensing characterization of (35-x) PbO-10 MgO-10Na(2)O-5 Fe2O3-10 BaO-(30-x) B2O3 glasses

Author(s): Kumar, A (Kumar, Ashok); Ali, AM (Ali, Atif Mossad); Sayyed, MI (Sayyed, M. I.); Askin, A (Askin, A.); Rashad, M (Rashad, M.); Algarni, H (Algarni, H.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 8 **Article Number:** 512 **DOI:** 10.1007/s00339-019-2810-7 **Published:** AUG 2019

Abstract: Amorphous PbO-MgO-Na2O-Fe2O3-BaO-B2O3 glass system has been prepared. FTIR spectra studied in the range of 400-1600cm(-1) which gives information regarding the different structural, vibration bonds. To study the various optical parameters, the UV absorption spectra are studied in the range 190-1100nm. The photon attenuation characteristics for the current samples were studied using Geant4 simulation code. The transmission fraction (T) was calculated and the results showed that the addition of PbO decreases the values of T. For the samples which contain 55mol% and 35mol% of PbO, the T values are, respectively, 0.065 and 0.161 at 356keV. High atomic number and high of lead result in lower half-value layer values for Pb55B10 glass compared to the Pb35B30 sample which has the lowest amount of Pb in its structure. At 356keV, the tenth value layer values are 2.521 and 1.685cm for the samples coded as Pb35B30 and Pb55B10, respectively. From the radiation-shielding parameter results, the use of high-density glasses against the penetrating gamma rays provides a better shielding performance using thinner glass layer.

Accession Number: WOS:000475757900004

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Askin, A.	AAD-6579-2019	
Kumar, Ashok		0000-0001-8905-5304

ISSN: 0947-8396

eISSN: 1432-0630

Record 75 of 163

Title: An investigation on photoconductivity of non-stoichiometric CuZnSn(S, Se)(4) thin films for photovoltaic applications

Author(s): Hegazy, HH (Hegazy, H. H.); Ashraf, IM (Ashraf, I. M.); Algarni, H (Algarni, H.); Umar, A (Umar, Ahmad)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 8 **Article Number:** 085807 **DOI:** 10.1088/1402-4896/ab1373 **Published:** AUG 2019

Abstract: In this work, polycrystalline CuZnSn(S, Se)(4) thin films were deposited on soda lime glass by a facile thermal evaporation method using a single source. The temperature dependence of electrical conductivity in the dark sigma(D) and under illumination sigma(ph) has been evaluated over 290 K-425 K. The synthesized thin films exhibit a p-type semiconductor, regardless of the zinc ratio. The electrical conductivities for all compositions increase with increasing temperature indicating semiconducting behaviour of the material, and were explained by the thermionic emission model over grain boundary barriers. The grain boundary barrier energy decreases on exposure to light and was found to vary with Zn concentration. The photoconductivity increases with light intensity and the calculations reveal that the recombination process is bimolecular in nature. The persistent photoconductivity was measured and the decay process exhibited non-exponential behaviour, and then the concept of a differential lifetime was used. The temperature dependence of the differential lifetime was studied for all films. Understanding of the current results is quite important for polycrystalline solar cell thin films.

Accession Number: WOS:000470220000001

Author Identifiers:

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Ebrahem, Ashraf Mahmoud	AAT-6263-2020	
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ISSN: 0031-8949

eISSN: 1402-4896

Record 76 of 163

Title: The effect of rare earth Nd3+ doping on physical characteristics of Cu2O thin films derived by electrodeposition technique

Author(s): Ravichandiran, C (Ravichandiran, C.); Sakthivelu, A (Sakthivelu, A.); Davidprabu, R (Davidprabu, R.); Kumar, KDA (Kumar, K. Deva Arun); Valanarasu, S (Valanarasu, S.); Kathalingam, A (Kathalingam, A.); Ganesh, V (Ganesh, V); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.)

Source: THIN SOLID FILMS **Volume:** 683 **Pages:** 82-89 **DOI:** 10.1016/j.tsf.2019.05.008 **Published:** AUG 1 2019

Abstract: Undoped and rare earth Neodymium (Nd) doped cuprous oxide (Cu2O) thin films were prepared by electro-deposition method. The prepared film's structural, morphological, optical and photosensitive properties were analyzed by X-ray diffraction, scanning electron microscopy, energy dispersive X-ray spectroscopy, ultra violet-visible and I-V measurements. The fabricated Cu2O:Nd films exhibited polycrystalline nature with cubic crystal system, and favorably grown along (111) orientation. Crystallite size was decreased from 56 nm to 30 nm with Nd concentrations. Raman spectrum confirmed the Cu2O phase of the prepared films. The morphological analysis showed pyramidal shaped particles for the undoped Cu2O thin film. The energy gap was reduced from 2.04 eV to 1.89 eV as Nd doping level was increased. From photoluminescence spectrum a high intense peak was observed at 619 nm which confirms the optical quality of Cu2O phase. The dielectric constant was increased by increasing the Nd doping concentration from 0 to 5%. In photosensitivity analysis an increase of photo response with respect to illuminated current was observed.

Accession Number: WOS:000469854700011

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Kumar, Karuppiah Deva Arun	V-1050-2019	
Valanarasu, S	AAG-4607-2021	
Santiagu, Valanarasu		0000-0001-7315-2126

ISSN: 0040-6090

Record 77 of 163

Title: Sensitivity of Beam-Target Polarized Response Functions in Elastic Electron-Deuteron Scattering to Nucleon Structure and Modern N N Potentials

Author(s): Darwish, EM (Darwish, E. M.); Hemmdan, A (Hemmdan, A.); Behairy, KO (Behairy, K. O.); Mahrous, EM (Mahrous, E. M.); Alsadi, KS (Alsadi, Kh. S.); Hassanain, MA (Hassanain, M. A.)

Source: MOSCOW UNIVERSITY PHYSICS BULLETIN **Volume:** 74 **Issue:** 4 **Pages:** 353-363 **DOI:** 10.3103/S0027134919040052 **Published:** JUL 2019

Abstract: Polarized response functions for beam and target polarization in the elastic electron-deuteron scattering process are investigated. We report numerical results for all the non-vanishing polarized response functions as functions of the four-momentum transfer square Q(2). The sensitivity of the predicted results to the nucleon form factors is investigated. For the neutron and proton form factors, the standard dipole fit, the modified dipole fit 1, the modified dipole fit 2, and the relativistic harmonic oscillator model are used. In addition, the dependence of the results on the deuteron wave functions obtained from different modern N N potentials is studied. For this purpose, the realistic and high-precision Argonne upsilon 18, chiral (NLO)-L-3, Nijmegen-I, and CD-Bonn N N potentials are used. We found that all the non-vanishing polarized response functions are sensitive to the choices of nucleon form factors, whereas they are slightly dependent on the N N potential model adopted for the deuteron wave function. The results for all polarized response functions using the relativistic harmonic oscillator model for the nucleon form factors are found to be very small in comparison to the results of other models.

Accession Number: WOS:000488668100006

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hemmdan, Amal	AAA-1903-2020	0000-0002-7176-2374

ISSN: 0027-1349

eISSN: 1934-8460

Record 78 of 163

Title: STRUCTURAL, THERMAL AND OPTICAL ANALYSES OF COBALT-DOPED CdO THIN FILMS

Author(s): Mahasen, MM (Mahasen, M. M.); Soraya, MM (Soraya, M. M.); Yousef, E (Yousef, El S.); Ali, GAM (Ali, Gomaa A. M.); Shaaban, ER (Shaaban, E. R.)

Source: JOURNAL OF OVONIC RESEARCH **Volume:** 15 **Issue:** 4 **Pages:** 247-260 **Published:** JUL-AUG 2019

Abstract: Cadmium oxide (CdO) nanoparticles and cobalt (0.025, 0.050, 0.075, and 0.100) doped CdO were synthesized by co-precipitation method. The thermal properties were investigated by thermogravimetric analysis and differential thermogravimetric for identifying the calcination temperature of the obtained nanoparticles of pure and Co-doped CdO. The microstructure parameters were deduced by the assistant of X-ray diffraction technique, in which the particle size and the microstrain decrease with increasing Co concentration. The findings, derived from Scherrer method, Williamson-Hall models and size-strain plot analyses, confirmed Co doping into the CdO host lattice. Examination of optical absorption viewed that as Co concentration increase, the energy gap increases, attributed to the merging of Fermi level into the conduction band with the addition of carrier concentration (Moss-Burstein shift effect) and hence blocked the low energy transitions. The increase in band gap may also be assigned to the decrease in grain size.

Accession Number: WOS:000482759100006

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Mahmoud, Mahasen	AAG-7556-2020	
Mahmoud, Soraya M M	G-2038-2019	0000-0003-1549-523X
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ISSN: 1842-2403

eISSN: 1584-9953

Record 79 of 163

Title: Structural, Thermal Stability and In Vivo Bioactivity Properties of Nanobioglasses Containing ZnO

Author(s): Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Ibrahim, EH (Ibrahim, Essam H.); Eid, RA (Eid, Refaat A.); Kilany, M (Kilany, Mona); Ghramh, HA (Ghramh, Hamed A.); Sayed, MA (Sayed, M. A.); Reben, M (Reben, M.); Yousef, E (Yousef, El Sayed)

Source: SCIENCE OF ADVANCED MATERIALS **Volume:** 11 **Issue:** 7 **Pages:** 925-935 **DOI:** 10.1166/sam.2019.3554 **Published:** JUL 2019

Abstract: In the present paper we prepared novel nanobioglasses with composition 40P(2)O(5)-20Na(2)O-10Ca(OH)(2)-20CaCl(2)-10ZnO in mol% (labeled BGZn) by using quenching melt fabrication. We investigate the thermal and microstructural of prepared glasses by using differential thermal analysis (DTA), X-ray diffraction (XRD), scanning electron microscope (SEM), transmission electron microscope (TEM) and Raman spectra. We were tested for its antimicrobial activity, anti-proliferative/cytotoxicity against normal and activated splenic cells in vitro, in vivo immunologic and hypersensitivity responses, in vivo and in vitro cytotoxicity effects and in vitro effects of activated splenic cells on BGZn Results showed that BGZn (powder with nanoparticles) had antimicrobial activities against Gramnegative and positive bacteria as well as fungi. The antimicrobial activity of nanoparticles was stronger than the powder. BGZn powder demonstrated the cytotoxic effect on normal splenic cells at high concentrations and stimulatory effect at low dilution, while nanoparticles showed inhibitory/cytotoxic effects. BGZn powder showed no effects on activated splenic cells. In vivo test demonstrated that BGZn is an inert material which did not stimulate the immune system or caused local reactions. The products of activated splenic cells did not cause any changes in the structure of BGZn. BGZn did not cause any acute cytotoxicity or lysis to RBCs. Finally BGZn is an inert material which did not cause immune stimulation or hepatic cytotoxicity. BGZn was not affected by lytic products of immune cells. BGZn can be considered as a safe and ideal material for implantation inside the body of living organisms.

Accession Number: WOS:000482783500002

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ISSN: 1947-2935

eISSN: 1947-2943

Record 80 of 163

Title: STRUCTURAL AND CHARACTERIZATION OF PHOTOCONDUCTIVE TELLUROVANADATE GLASSES WITH LITHIUM OXIDE FOR OPTOELECTRONIC DEVICES

Author(s): Ashraf, IM (Ashraf, I. M.); Farouk, M (Farouk, M.); Ahmad, F (Ahmad, F.); El Okr, MM (El Okr, M. M.); Abdel-Aziz, MM (Abdel-Aziz, M. M.); Yousef, ES (Yousef, E. S.)

Source: CHALCOGENIDE LETTERS **Volume:** 16 **Issue:** 7 **Pages:** 327-342 **Published:** JUL 2019

Abstract: In this work, (90 - x) TeO2 - (x)V2O5 - 10Li(2)O glass for (x = 20, 30, 40, 50, 60 and 70 in mol %) were prepared by rapid quenching technique. The properties of semiconducting glasses and information about the behavior of the photo excitation were tested by measuring the steady-state and transient photoconductivity. Also, the mechanisms of a conductivity type, electronic, ionic, or mixed electronic-ionic conduction were discussed. The photoconductivity measurements show that the photocurrent not only increased with rising light intensity but also by increasing vanadium pentoxide and a decrease of tellurium dioxide. The transient photoconductivity behavior in glass materials was performed via three sets of measurements for the rise and decay of photocurrent at different intensities, temperatures and applied voltages. The exponent parameter y that determines the recombination mechanism in the semiconductor materials lies between 0.47 and 0.59 which can be considered a continuous distribution of traps exists in the band gap region with predominant bimolecular carrier recombination in the glass samples. The activation energy values of the present samples were lying between 0.314 and 0.249 eV in dark, while in the photo, they changed to 0.275 and 0.213 eV.

Accession Number: WOS:000477721800003

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ebrahem, Ashraf Mahmoud	AAT-6263-2020	
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ISSN: 1584-8663

Record 81 of 163

Title: Non-interacting Symmetric Single-Impurity Anderson Model on a Lattice at Finite Temperatures

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

Source: PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS **Volume:** 256 **Issue:** 7 **Article Number:** 1800670 **DOI:** 10.1002/pssb.201800670 **Published:** JUL 2019

Abstract: We study the non-interacting single-impurity Anderson model (resonant level model) on a lattice at finite temperature as an illustrative example for an exactly solvable quantum-mechanical problem, and derive the free energy, various thermodynamic potentials (internal energy, entropy, magnetization), and response functions (specific heat, zero-field magnetic susceptibility). We calculate the magnetic screening cloud, and derive the corresponding correlation length in one dimension beyond which the correlations decay exponentially. The present results remain qualitatively applicable for the interacting single-impurity Anderson model when the energy scale < SIC > CYRILLIC CAPITAL LETTER GHE of the resonant-level model is replaced by the Kondo scale T-K.

Accession Number: WOS:000477754800014

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ISSN: 0370-1972
eISSN: 1521-3951

Record 82 of 163

Title: Growth, structure, optical and optoelectrical characterizations ofthe Cu2NiSnS4 thin films synthesized by spray pyrolysis technique

Author(s): Elsaeedy, HI (Elsaeedy, H. I.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 13 **Pages:** 12545-12554 **DOI:** 10.1007/s10854-019-01615-3 **Published:** JUL 2019

Abstract: Earth-abundant Kesterite materials are very important to fabricate low-cost solar cells. Here, good quality Cu2NiSnS4 (CNSS) thin films were successively manufactured on a glass substrate at 350 degrees C using a simple spray pyrolysis system. The structural characterization of the sprayed Cu2NiSnS4 thin films was examined by the FE-SEM and XRD techniques. X-ray diffraction patterns indicate that the sprayed Cu2NiSnS4 films are single phase and having polycrystalline structure. The elemental composition analysis of the sprayed Cu2NiSnS4 thin films confirmed that the Cu2NiSnS4 film is near stoichiometric in compound. Our optical observations indicate that the refractive index (n) of the sprayed Cu2NiSnS4 films was increased by increasing the film thickness. Moreover, the sprayed Cu2NiSnS4 films exhibit a direct optical transition and the magnitudes of the energy gap have been decreased from 1.28 to 1.14eV with the increase of thickness. The optoelectrical parameters of the Cu2NiSnS4 films, like optical conductivity, optical mobility, optical resistivity, optical carrier concentration and relaxation time were estimated with different thickness. Additionally, the nonlinear optical parameters of the Cu2NiSnS4 films were estimated. The fabricated CNSS/n-Si heterojunction achieved a conversion efficiency of 11.34%.

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ISSN: 0957-4522
eISSN: 1573-482X

Record 83 of 163

Title: Excitation and Formation Conditions of Monotonic Shock Waves in Magnetized Plasmas with Superthermality Distributed Electrons

Author(s): El-Shamy, EF (El-Shamy, E. F.); Mahmoud, M (Mahmoud, M.); Al-Wadie, ES (Al-Wadie, E. S.); Al-Mogeeth, A (Al-Mogeeth, A.); El-Shewy, EK (El-Shewy, E. K.)

Source: JOURNAL OF THE KOREAN PHYSICAL SOCIETY **Volume:** 75 **Issue:** 1 **Pages:** 54-62 **DOI:** 10.3938/jkps.75.54 **Published:** JUL 2019

Abstract: Nonlinear excitation and the properties of ion-acoustic shock waves (IASWs) in a magnetoplasma model composed of viscous ions with two-temperature superthermality distributed electrons are studied by employing the well-known reductive perturbation analysis to obtain a nonlinear Zakharov-Kuznetsov-Burgers equation (ZKBE), which admits the excitation of nonlinear IASWs in superthermal plasmas. Applying the tanh method, we discuss the solutions of the ZKBE. The asymptotic behavior and the stability of the analytical shock wave solution are studied. In general, nonlinear ion-acoustic disturbances are found analytically to exhibit only monotonic shock structures in the proposed model. For different situations, the effects of the dispersion and the dissipation coefficients on the profiles of the shock structures are discussed. The findings here demonstrate that the effective features of nonlinear IASWs depend strongly on the dispersion and the dissipation coefficients, which include physical parameters such as the superthermality of cold electrons, the cold superthermal electron-to-ion number density ratio, the ion kinematic viscosity and the ion cyclotron frequency. The current work may be helpful for an advanced comprehension of the physical nature of shock waves in astrophysical plasma situations.

Accession Number: WOS:000475631400009
ISSN: 0374-4884
eISSN: 1976-8524

Record 84 of 163

Title: Physical aspects of the Jeffery fluid inducing homogeneous-heterogeneous reactions in MHD flow: a Cattaneo-Christov approach

Author(s): Rehman, KU (Rehman, Khalil Ur); Ali, U (Ali, Usman); Zehra, I (Zehra, Iffat); Malik, MY (Malik, M. Y.); Ullah, S (Ullah, Saleem)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 97 **Issue:** 7 **Pages:** 735-741 **DOI:** 10.1139/cjp-2018-0491 **Published:** JUL 2019

Abstract: This work is to elaborate the Jeffery stagnation point flow towards a cylindrical surface with the homogenous-heterogeneous reactions, magnetic field, and heat generation effects. The heat transport process is delineated by the Cattaneo-Christov heat flux model in concert with the thermal stratification. The consequential PDEs are reduced to ODEs by carrying out a set of similarity transformations. These equations are solved numerically using the Runge-Kutta-Fehlberg technique along with the shooting proficiency. The involved parameters are analysed and provided by means of graphs. It is concluded that the Jeffery fluid velocity reflects inciting values for curvature parameter but the opposite aspects are recorded for the magnetic field parameter. Further, the Jeffery fluid concentration shows higher values via both the homogenous and heterogeneous reaction parameters. The obtained outcomes are validated with an existing work.

Accession Number: WOS:000473803900005

Author Identifiers:

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Rehman, Khalil Ur	AAA-3417-2021	

ISSN: 0008-4204
eISSN: 1208-6045

Record 85 of 163

Title: Novel design and microelectronic analysis of highly stable Au/Indigo/n-Si photodiode for optoelectronic applications

Author(s): Manthrammel, MA (Manthrammel, M. Aslam); Yahia, IS (Yahia, I. S.); Shkir, M (Shkir, Mohd); AlFaify, S (AlFaify, S.); Zahran, HY (Zahran, H. Y.); Ganesh, V (Ganesh, V); Yakuphanoglu, F (Yakuphanoglu, F.)

Source: SOLID STATE SCIENCES **Volume:** 93 **Pages:** 7-12 **DOI:** 10.1016/j.solidstatesciences.2019.04.007 **Published:** JUL 2019

Abstract: In the current work, the authors studied a hybrid organic-inorganic photodiode combining n-type mono-crystalline silicon (n-Si) and indigo dye where the natural dye indigo has been applied as an interfacial layer between Gold (Au) and n-Si. The electrical and photo-response characteristics of photodiode based on indigo dye were investigated through current, conductance and capacitance studies measured under the wide illumination intensity and frequency ranges. The frequency dependency of capacitance-voltage (C-V) and conductance-voltage (G-V) characteristic properties of the Au/Indigo/n-Si

photodiode was examined in the frequencies varying from 100 kHz to 1 MHz in view of the effects of series resistance (R-s), the concentration of donor atoms (N-d) and density of interface states (Nss). The C-V and G -V studies indicate that the N-ss and R-s are key factors which are strongly influencing the electrical properties of the fabricated Photodiode. From the obtained results, the fabricated Au/Indigo/n-Si photodiode can be a promising contender for electro-optic device engineering.

Accession Number: WOS:000471692000002

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Zahran, Heba	AAR-9136-2020	
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ISSN: 1293-2558

eISSN: 1873-3085

Record 86 of 163

Title: Characterization of Absorption, Emission Cross Section and Gain Coefficient of Tellurite Glasses Doped with Er3+ Ions for Fiber Amplifier

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

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 7 **Pages:** 932-938 **DOI:** 10.1166/jno.2019.2595 **Published:** JUL 2019

Abstract: In this paper, a novel glass within system 65TeO(2)-9Nb(2)O(5)-5Li(2)O-15LiCl-5PbO-1.0La(2)O(3) in mol% doped with different x(Er2O3), where x = 0, 20000, 25000 and 30000 ppm were prepared by traditional meltquenching technique. The full width at half maximum (FWHM) of NIR emission, and life time, tau, of I-13/2 level of prepared glasses were evaluated. The glasses are characterized by a high value of FWHM of NIR emission at 1.53 mu m under excitation by wavelength 980 nm with respect to other glasses system doped by single Er3+ ions reported earlier. It is expected that the present studies will provide a roadmap to improve the performance of the WDM network emission band which is required for the EDFA. Thus, these fabricated glasses can be used as broadband fiber amplifier for the optical communication devices.

Accession Number: WOS:000471199300006

Author Identifiers:

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

ISSN: 1555-130X

eISSN: 1555-1318

Record 87 of 163

Title: Preparation of Eu-Doped Cu2O Thin Films Using Different Concentrations by SILAR and Their Heterojunction Property with ZnO

Author(s): Soundaram, N (Soundaram, N.); Chandramohan, R (Chandramohan, R.); Prabu, RD (Prabu, R. David); Valanarasu, S (Valanarasu, S.); Jeyadheepan, K (Jeyadheepan, K.); Kathalingam, A (Kathalingam, A.); Hamdy, MS (Hamdy, Mohamed S.); Alhanash, AM (Alhanash, Abdullah M.); Al-Namshah, KS (Al-Namshah, K. S.)

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 48 **Issue:** 7 **Pages:** 4138-4147 **DOI:** 10.1007/s11664-019-07174-x **Published:** JUL 2019

Abstract: Europium-doped Cu2O thin films were prepared by simple successive ionic layer adsorption and reaction (SILAR) with different Eu doping concentrations: 1%, 3% and 5%. The effect of doping level on structural, optical, surface morphological and electrical properties of the films were studied by x-ray diffraction analysis, UV-Vis spectroscopy, scanning electron microscopy and Hall effect measurements, respectively. Crystallite size, dislocation density, microstrain and texture coefficient of the films were estimated using x-ray diffraction data. The crystallite size was found to vary between 27nm and 21nm for the change of doping percentage 1-5%. Morphology of Eu:Cu2O and ZnO films had cauliflower and hexagonal shapes, respectively, without any cracks. Optical studies done on the films revealed an increase of band gap as 2.08eV, 2.26eV and 2.41eV for Eu doping concentrations of 1%, 3% and 5%, respectively. The ZnO film showed a maximum of 80% transmittance and band gap of 3.20eV. Photoluminescence (PL) studies revealed two emission peaks centered at 394nm and 377nm for the Eu:Cu2O and ZnO films, respectively. Eu:Cu2O/ZnO heterojunction solar cells were also prepared and their properties studied; they were found to show increased open circuit voltage and short circuit current for 5% Eu doping concentration.

Accession Number: WOS:000469889000002

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Hamdy, Mohamed S.	B-5901-2014	
Santiagu, Valanarasu		0000-0001-7315-2126

ISSN: 0361-5235

eISSN: 1543-186X

Record 88 of 163

Title: First principles study of the adsorption of hydrated heavy metals on graphene quantum dots

Author(s): Abdelsalam, H (Abdelsalam, H.); Teleb, NH (Teleb, N. H.); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Elhaes, H (Elhaes, H.); Ibrahim, MA (Ibrahim, M. A.)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 130 **Pages:** 32-40 **DOI:** 10.1016/j.jpcs.2019.02.014 **Published:** JUL 2019

Abstract: The adsorption of hydrated heavy metals on graphene quantum dots is investigated using the density functional theory. The considered heavy metals are Cd and Pb that are hexa-, penta-, and tetrahydrated with water molecules. Various adsorption schemes are considered such as surface and edge adsorption, and the interaction with functional groups attached to the flake's edges. The calculated positive adsorption energy implies that the considered graphene flakes are able to adsorb the hydrated heavy metals through all the proposed positions and interactions. Both physical and chemical adsorption have been observed, the physical adsorption is characterized by longer adsorption distance and lower adsorption energy with respect to the chemical adsorption. The adsorbed heavy metals have a significant effect on the electronic properties of the graphene flakes. The wide energy gap (similar to 3.7 eV) of the hexagonal flake decreases to 0.6 eV by surface-adsorption of hexahydrated Cd. This decrease occurs due to the inclusion of new energy states to the band structure which in turn leads to shifting of the highest occupied molecular orbital toward the Fermi level. The effect on the tiny band gap of the triangular flake is very small, the highest occupied and lowest unoccupied molecular orbitals are unaffected by the adsorption process. The calculated total charge on the hydrated metals implies that the charge transfer strongly depends on the interaction scheme. The lowest charge transfer from tetrahydrated Pb to the triangular flakes is observed in case of surface adsorption, Q = -0.05 (e), and the largest charge transfer, Q = 1.1 (e), is observed in the adsorption of tetrahydrated Cd on 2NH-functionalized triangular flake.

Accession Number: WOS:000467669100005

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Yahia, Ibrahim Sayed	G-4458-2011	
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Record 89 of 163

Title: Structural, morphological, opto-nonlinear-limiting studies on Dy:PbI2/FTO thin films derived facilely by spin coating technique for optoelectronic technology

Author(s): Shkir, M (Shkir, Mohd.); Khan, A (Khan, Aslam); El-Toni, AM (El-Toni, Ahmed Mohamed); Aldalbahi, A (Aldalbahi, Ali); Yahia, IS (Yahia, I. S.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 130 **Pages:** 189-196 **DOI:** 10.1016/j.jpcs.2019.02.030 **Published:** JUL 2019

Abstract: For cost-effective fabrication of pure and 0.2, 0.4, 0.6 and 0.8 wt% Dy doped PbI2 thin films on FTO substrate using spin coating process was developed. First, we synthesized the pure and different concentrations of Dy doped PbI2 by a facile microwave route (within 15 min) at 700W power. Single phase and highly oriented films were fabricated on FTO substrate was confirmed by X-ray diffraction analysis. Further, lattice constant, crystallite size, dislocation density, lattice strain, number of unit cells, texture coefficients etc. were evaluated. Lattice constants were observed in good agreement with JCPDS#7-0235. The values of crystallite size were found in the range of 14 nm-28 nm. Moreover, FT-Raman study also confirms the single phase and high crystallinity of the fabricated films. Surface morphology was analyzed by SEM, as nanorods shape and nanoparticles; and grains size was in the range of 25-40 nm. Robust optical, nonlinear and optical limiting studies were carried out to have deep insight on key properties of films for future device applications. The optical energy gap was found in the range of 2.35-2.65 eV. The values of chi((1)), chi((3)) and n((2)) were found in the range of 0.35-1.4, 0.023 to 8.15 (x 10(-10)) esu and 0.0052 to 6.94 (x 10(-9)), respectively. The optical limiting values were found in the range of 10.5-7.7 mW (532 nm CW laser) and 208.2-134.5 mu W (632.8 nm CW laser) for all deposited films.

Accession Number: WOS:000467669100023

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AlFaify, S	ABF-3895-2020	0000-0002-8920-5891

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Record 90 of 163

Title: Terahertz eigenmodes of a magnetized semiconductor slab and their excitation by beating of laser beams

Author(s): Ahmad, N (Ahmad, Nafis); Alshehri, AM (Alshehri, A. M.)

Source: JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS **Volume:** 130 **Pages:** 270-275 **DOI:** 10.1016/j.jpcs.2019.02.010 **Published:** JUL 2019

Abstract: Terahertz electromagnetic eigenmodes of a semiconductor slab in the presence of a transverse magnetic field are analyzed and their excitation by beating of lasers is investigated. The modes are mixed transverse electric and transverse magnetic modes with finite axial components of both the electric field and the magnetic field, and phase velocities are significantly influenced by the magnetic field. Two high-intensity lasers propagating through the slab exert a beat frequency ponderomotive force on electrons that produces a nonlinear current and drives a terahertz eigenmode. The magnetic field acts as a suitable tuning parameter and enhances the terahertz power. In n-type germanium with electron density of approximately 10(16) cm(-3), laser intensity 10(13) W/cm(2) at 10-mu m wavelength, and B-s approximate to 6 T, terahertz radiation of 10(8) W/cm(2) can be produced.

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ISSN: 0022-3697

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Record 91 of 163

Title: Stratification phenomenon in an inclined rheology of UCM nanomaterial

Author(s): Ali, A (Ali, Aamir); Nazir, M (Nazir, Mehvish); Awais, M (Awais, Muhammad); Aqsa (Aqsa); Malik, MY (Malik, M. Y.)

Source: PHYSICS LETTERS A **Volume:** 383 **Issue:** 18 **Pages:** 2201-2206 **DOI:** 10.1016/j.physleta.2019.04.021 **Published:** JUN 26 2019

Abstract: This investigation presents the unsteady rheology of Maxwell nanomaterial induced to flow over an inclined surface. Simultaneous effects of stratification, thermal radiation, heat source/sink and magnetic field are taken into account. Viscous dissipation and mixed convection due to concentration and temperature differences are also analyzed. The governing partial differential equations for the Maxwell nanofluid which incorporate the effects of Brownian and thermophoresis effects are simplified by using appropriate similarity transformations, and solved analytically by using homotopy analysis method (HAM). The effects of involved physical parameters on the flow field are analyzed graphically and numerically. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000470939800010

Author Identifiers:

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Record 92 of 163

Title: Half-metallicity and onsite Hubbard interaction on d-electronic states: a case study of Fe(2)NiZ (Z = Al, Ga, Si, Ge) Heusler systems

Author(s): Ganai, ZS (Ganai, Zahid Saleem); Yousuf, S (Yousuf, Saleem); Batoo, KM (Batoo, Khalid Mujasam); Khan, M (Khan, Mujeeb); Gupta, DC (Gupta, Dinesh C.)

Source: PHILOSOPHICAL MAGAZINE **Volume:** 99 **Issue:** 12 **Pages:** 1551-1562 **DOI:** 10.1080/14786435.2019.1587184 **Published:** JUN 18 2019

Abstract: DFT-based structural optimisations of Fe(2)NiZ (Z = Al, Ga, Si, Ge) Heusler compounds confirm the stability of these alloys in F-43m phase. While defining the electronic structure, onsite Hubbard approximation scheme for exchange correlations predicted better results than the generalised gradient approximation. Calculated band structure and densities of states together with spin magnetic moments designate the half-metallic character of these alloys. Indirect band gaps, 1.2 eV for Fe2NiAl, 0.98 eV for Fe2NiGa, 1.3 eV for Fe2NiSi and 1.1 eV for Fe2NiGe in spin-down states are observed. The ferromagnetic spin moments amount to an integral value of 5 mu B for (Al, Ga) and 6 mu B for (Si, Ge) systems with a maximum contribution from transition metal atom (Fe). To forecast the possible turnout of the thermopower, Seebeck coefficients, electrical and thermal conductivities are calculated, which directly hints the thermoelectric response of these materials. This study creates a possibility of these alloys in thermoelectrics and spintronics.

Accession Number: WOS:000467406500005

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ISSN: 1478-6435

eISSN: 1478-6443

Record 93 of 163

Title: Facilely synthesized Cu:PbS nanoparticles and their structural, morphological, optical, dielectric and electrical studies for optoelectronic applications

Author(s): Shkir, M (Shkir, Mohd); Khan, MT (Khan, Mohd Taukeer); Khan, A (Khan, Aslam); El-Toni, AM (El-Toni, Ahmed Mohamed); Aldalbahi, A (Aldalbahi, Ali); AlFaify, S (AlFaify, S.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 96 **Pages:** 16-23 **DOI:** 10.1016/j.mssp.2019.02.020 **Published:** JUN 15 2019

Abstract: In this study, synthesis of pure and Cu doped lead sulfide (PbS) nanoparticles was facilely achieved. The good crystalline nature of the nanoparticles was confirmed via X-ray diffraction (XRD) analysis. Specifically, XRD data was also used to estimate the diffraction planes, lattice constants, size of crystallites, density of dislocations, and strain produced in the lattice. The XRD pattern was indexed after identifying the diffraction planes. The crystallite size was estimated to be in the range of 18-23 nm. The absence of any additional vibrational mode in Raman spectra was observed, and this confirmed the purity of PbS even at a higher Cu doping level. However, the vibrational modes exhibited some shift towards lower wavenumbers. Low dimension nanoparticles morphology and presence of Cu were investigated via scanning electron microscope/Energy Dispersive X-Ray (SEM/EDX) analysis. Additionally, homogeneous Cu doping in final product was observed in an EDX elemental mapping image. Optical measurements were performed by recording diffused reflectance. Both direct energy gap values were estimated in the range of 1.15-1.50 eV, and this significantly exceeded that of the bulk (i.e., 0.41 eV). Dielectric and J-V electrical measurements were performed. The dc conductivity and mobility values were observed extremely high for 2.5% Cu doped PbS NPs [which correspond to 2.48 x 10(-5) S/cm and 1.3 x 10(4) cm(2)/(V s)] when compared to those of pure and other doped PbS NPs.

Accession Number: WOS:000460745900004

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Aldalbahi, Ali	E-3511-2015	0000-0003-1644-2367

ISSN: 1369-8001

eISSN: 1873-4081

Record 94 of 163

Title: UV-Vis-NIR spectroscopy, structural and thermal properties of novel oxyhalide tellurite glasses with composition TeO2-B2O3-SrCl2-LiF-Bi2O3 for optical application

Author(s): Elkhoshkhany, N (Elkhoshkhany, N.); Mohamed, HM (Mohamed, Hager M.); Yousef, E (Yousef, El Sayed)

Source: RESULTS IN PHYSICS **Volume:** 13 **Article Number:** 102222 **DOI:** 10.1016/j.rinp.2019.102222 **Published:** JUN 2019

Abstract: The prepared glass samples within the composition (85-x) TeO2-xB(2)O(3)-5Bi(2)O(3)-5SrCl(2)-5LiF (TBBSL) with x = 0, 10, 20, 30, 40, 50 and 60 mol% were synthesized. The X-ray diffraction patterns (XRD) showed the amorphous nature of the system. The density (rho), molar volume (v(m)) and oxygen packing density (OPD) have been measured and calculated. The Fourier Transform Infrared (FTIR) of TBBSL glasses showed the presence of TeO3, TeO4, BO3, BO4, LiF, SrO and BiO6. Also, FTIR spectra identified that the substitution of B2O3 with TeO2 in glass system led to convert the TeO4 to TeO3 and the formation of bridging structure Te-O-B with increasing the B2O3 mol%, consequently the BO4 units convert to BO3 and so the number of non-bridging oxygen (NBO) increases. The optical band gaps (E-opt), the Urbach energy (Delta E) and refractive index (n) have been calculated from optical absorption spectra. Thermal characterization was determined by using Differential Scanning Calorimetry (DSC) at different heating rates 10, 15, 20, 25 degrees C/min. The prepared glasses showed high thermal stability. High reflective index and higher thermal stability made the synthesized glass system is a suitable candidate for the large bulk glass and optical fiber production.

Accession Number: WOS:000476618700111

ISSN: 2211-3797

Record 95 of 163

Title: Exploring the effect of oligocene elongation on photovoltaic, optoelectronic and charge transfer properties in TPA dyes tethered to the semiconductor surface

Author(s): Irfan, A (Irfan, Ahmad)

Source: RESULTS IN PHYSICS **Volume:** 13 **Article Number:** 102304 **DOI:** 10.1016/j.rinp.2019.102304 **Published:** JUN 2019

Abstract: A series of metal-free organic dyes (TPA1-TPA5) comprising triphenylamine as electron donor, cyanoacrylic acid as anchoring group and oligocenothiophene-pyrimidine as pi-bridge linkers were molecularly engineered. By incorporation and elongation of oligocene spacer between donor and acceptor, electronic structures, photovoltaic and optoelectronic properties were tuned. Electronic and optical properties calculations of TPA dye upon adsorbing onto Ti3O6H and Ti6O12H were performed systematically. The charge transfer from occupied to unoccupied molecular orbitals in unaccompanied dyes and TPA@TiO2 clusters, broad and long range spectral peaks affirmed that linkers elongation enhance electron injection (Delta G(inject)) and electronic coupling constants (vertical bar V-RP vertical bar). Tailoring the energy gap by elevating HOMO and lowering LUMO energy levels as well as fostering Delta G(inject), oligocene elongation was commenced excellent linkers. The superior photovoltaic parameters than referenced compounds, frontier molecular orbitals analyses and charge transfer nature in TPA@TiO2 clusters are illuminating that these dyes would be efficient to be used in photovoltaic devices.

Accession Number: WOS:000476618700192

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ISSN: 2211-3797

Record 96 of 163

Title: Optoelectronic pressure dependent study of MgZrO3 oxide and ground state thermoelectric response using Ab-initio calculations

Author(s): Noor, NA (Noor, N. A.); Rashid, M (Rashid, M.); Mahmood, Q (Mahmood, Q.); Haq, BU (Haq, B. Ul); Naeem, MA (Naeem, M. A.); Laref, A (Laref, A.)

Source: OPTO-ELECTRONICS REVIEW **Volume:** 27 **Issue:** 2 **Pages:** 194-201 **DOI:** 10.1016/j.opelre.2018.10.002 **Published:** JUN 2019

Abstract: The electronic, optical and thermoelectric properties of zirconia-based MgZrO3 oxide have been studied theoretically at a variant pressure up to 25 GPa. Calculations for the formation energy and tolerance factor reveal the thermodynamic and structural stability of MgZrO3. To tune the indirect band gap from to a direct band gap, the optimized structure of MgZrO3 has been subjected to external pressure up to 25 GPa. The optical properties have been discussed in the form of dielectric constant and refraction that brief us about the dispersion, polarization, absorption, and transparency of the MgZrO3. In the end, the thermoelectric parameters have been analyzed at variant pressure against the chemical potential and temperature. The narrow band gap and high absorption in the ultraviolet region increase the demand of the studied oxide for energy harvesting device applications. (C) 2018 Opto-Electronics Review. Published by Elsevier B.V. All rights reserved.

Accession Number: WOS:000474358100011

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ISSN: 1230-3402

eISSN: 1896-3757

Record 97 of 163

Title: The effect of zinc iodide on the physicochemical properties of highly flexible transparent poly (vinyl alcohol) based polymeric composite films: opto-electrical performance

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

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 12 **Pages:** 11799-11806 **DOI:** 10.1007/s10854-019-01552-1 **Published:** JUN 2019

Abstract: Undoped PVA and Zinc iodide (ZnI2) inorganic salt doped PVA with different ZnI2 (1-37) wt% percentages are novel composite polymer dielectric

films have been successfully prepared by the solution cast method. The developed dielectric films were characterized by analyzing the physicochemical phenomenon to study the effect of ZnI2 inorganic salt concentrations. The XRD histogram explicated the being semi-crystalline nature of PVA polymeric matrix with ZnI2 inorganic salt doping. The optical UV-Vis-NIR characteristics of the composite dielectric films were measured. The effect of ZnI2 inorganic salt loading contents increasing on opto-electrical properties such as transmittance, Absorbance, optical band gap in addition to the AC impedance spectroscopy was studied in the polymer composite dielectric film. The modifications in the optical properties of PVA film are attributed to the interaction between the salt molecules and the PVA matrix. The frequency dependent AC\DC electric conductivity at different ZnI2 content follows and obeyed the Jonscher's universal power law. The data of AC impedance spectroscopy is to map ready the complex generalization of resistance that includes capacitive and inductive effects of the polymer composite dielectrics as a function of the angular frequency. These films with excellent optoelectronic phenomenon beside appreciable flexibilities aid their claims as multifunctional UV shielding devices with enhanced a character of semiconductors.

Accession Number: WOS:000472079200089

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Jilani, wissal said		0000-0001-6359-692X

ISSN: 0957-4522

eISSN: 1573-482X

Record 98 of 163

Title: On the Higher-Order Phase Shift Contributions in Opposite Polarities Dust Plasmas

Author(s): EL-Shamy, EF (EL-Shamy, E. F.); El-Shewy, EK (El-Shewy, Emad K.); Abdo, NF (Abdo, Noura F.)

Source: ZEITSCHRIFT FUR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES **Volume:** 74 **Issue:** 6 **Pages:** 489-497 **DOI:** 10.1515/zna-2018-0386 **Published:** JUN 2019

Abstract: The collision of dressed dust acoustic solitons (DDASs) and the analytical higher-order phase shift are studied in a dusty plasma system that contains cold negative and positive dusty fluids and Maxwellian distributed for ions as well as electrons. The extended Poincare-Lighthill-Kuo method is applied in order to obtain the nonlinear Korteweg-de Vries and phase shift equations, which admit the variation in soliton profiles and trajectories, respectively. Influences of the higher-order correction and the plasma fluid parameters such as charged dust grains concentration, negative-to-positive dust grain mass ratio, ion-to-negative dust grain number density ratio, and ion-to-electron temperature ratio on the characteristics of DDASs and their phase shifts are discussed. The comparisons between first- and higher-order contributions in rarefactive and compressive profiles are also taken into account. Furthermore, the present consideration may be utilised to mesosphere and magnetosphere.

Accession Number: WOS:000471601100003

ISSN: 0932-0784

eISSN: 1865-7109

Record 99 of 163

Title: MHD flow, under the kinetic postulate, of fluids that are initially liquid under thermal radiation effects

Author(s): Hussain, A (Hussain, Azad); Muneer, Z (Muneer, Zainia); Malik, MY (Malik, M. Y.); Ghafoor, S (Ghafoor, Saadia)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 97 **Issue:** 6 **Pages:** 579-587 **DOI:** 10.1139/cjp-2018-0102 **Published:** JUN 2019

Abstract: The present study focuses on the non-Newtonian magnetohydrodynamic flow, under the kinetic postulate, of fluids that are initially liquid past a porous plate in the appearance of thermal radiation effects. Resemblance transfigurations are used to metamorphose the governing equations for temperature and velocity into a system of ordinary differential equations. We then solved these differential equations subject to convenient boundary conditions by using the shooting method along with the Runge-Kutta method. Heat transfer and characteristic flow results are acquired for different compositions of physical parameters. These results are extended graphically to demonstrate interesting attributes of the physics of the problem. Nusselt number and skin friction coefficients are also discussed via graphs and tables for different values of dimensionless parameters. Decline occurs in velocity profile due to escalating values of M. Temperature profile depicts growing behavior due to acceleration in the values of lambda and M. Nusselt number and skin friction curves represent rising behavior according to their parameters.

Accession Number: WOS:000470710700001

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ISSN: 0008-4204

eISSN: 1208-6045

Record 100 of 163

Title: Implementation of Darcy-Forchheimer effect on magnetohydrodynamic Carreau-Yasuda nanofluid flow: Application of Von Karman

Author(s): Khan, M (Khan, Mair); Salahuddin, T (Salahuddin, T.); Malik, MY (Malik, M. Y.)

Source: CANADIAN JOURNAL OF PHYSICS **Volume:** 97 **Issue:** 6 **Pages:** 670-677 **DOI:** 10.1139/cjp-2018-0547 **Published:** JUN 2019

Abstract: Transient MHD flow in Carreau-Yasuda nanofluid produced by impulsively started rotating disk is examined in the occurrence of Darcy-Forchheimer and chemical reactive species considering conventional Fourier's and Fick's laws. Appropriate transformations are used to transform the constitutive equations into nonlinear ordinary differential equations and then solve by using improved form of RK-4 Fehlberg scheme (Cash and Karp). The deviation in flow field due to velocity, friction factor, temperature, heat diffusion rate, nanoparticle concentration, and mass transfer rate is analyzed subsequent to various ambient parameters appearing in the problem. The results of the study reveal that Weissenberg number appearing in the equations leads to deceleration of the radial and tangential velocities while the power law index tends to accelerate the radial and tangential velocities.

Accession Number: WOS:000470710700011

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Malik, Muhammad Yousaf	X-5316-2018	0000-0002-5301-4145

ISSN: 0008-4204
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Record 101 of 163

Title: STRUCTURAL, THERMAL AND OPTICAL PROPERTIES OF NOVEL OXYFLUOROTELLURIDE GLASSES

Author(s): Elkhoshkhany, N (Elkhoshkhany, N.); Mahmoud, M (Mahmoud, Mai); Yousef, E (Yousef, El Sayed)

Source: CHALCOGENIDE LETTERS **Volume:** 16 **Issue:** 6 **Pages:** 265-282 **Published:** JUN 2019

Abstract: Novel oxyfluorotellurite glasses within the composition (80-x) TeO2-10P(2)O(5)-10ZnO-xNaF in mol%, where x = 0, 5, 7.5, 10, 12.5, 15, 20 and 25 were prepared. The thermal kinetics and optical properties of these glasses were estimated by using differential scanning calorimetric (DSC), and UV-Vis-NIR spectroscopy respectively. The results of the thermal analysis were indicated that oxyfluorotellurite telluride glass has high thermal stability. The density, oxygen packing density, molar volumes, molar refraction, metallization criterion, molar polarizability, linear refractive index and optical basicity were calculated. It was found that with the increase NaF from TPZN0 0.0 to 15%, the linear refractive index (n) was increased otherwise the optical energy gap (E-opt) was decreased. The structure of the present glasses investigated by using infrared and Raman spectroscopy. Herein in this work, the results suggest that the present oxytellurirde glasses modified by NaF can be used as a promising material in optical applications.

Accession Number: WOS:000470705400002

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ISSN: 1584-8663

Record 102 of 163

Title: The effects of gamma irradiation on dielectric properties of Ag/Gd co-doped hydroxyapatites

Author(s): Kaygili, O (Kaygili, Omer); Keser, S (Keser, Serhat); Selcuk, AB (Selcuk, A. Birkan); Bulut, N (Bulut, Niyazi); Koytepe, S (Koytepe, Suleyman); Yahia, IS (Yahia, I. S.); Ates, T (Ates, Tankut)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 11 **Pages:** 10443-10453 **DOI:** 10.1007/s10854-019-01387-w **Published:** JUN 2019

Abstract: 1.0 at% Ag-containing hydroxyapatites (HAps) doped with the different amounts of Gd (e.g., 0, 0.8, 1.6 and 2.4 at%) were synthesized by a wet chemical method and their dielectric properties were investigated before and after gamma irradiation. The changes in the relative permittivity and alternating current (AC) conductivity values of the as-synthesized samples before and after irradiation were investigated using dielectric measurements. It was found that both Gd content and gamma irradiation dose significantly affect the dielectric properties and AC conductivity. It was concluded that especially due to the thermal stabilities and suitable dielectric properties, the as-synthesized Gd-doped Ag containing HAps could be used for bone healing applications.

Accession Number: WOS:000469399700041

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ISSN: 0957-4522

eISSN: 1573-482X

Record 103 of 163

Title: Enhanced optoelectronic properties of Mg doped Cu2O thin films prepared by nebulizer pyrolysis technique

Author(s): Jacob, SSK (Jacob, S. Santhosh Kumar); Kulandaisamy, I (Kulandaisamy, I.); Valanarasu, S (Valanarasu, S.); Arulanantham, AMS (Arulanantham, A. M. S.); Ganesh, V (Ganesh, V.); AlFaify, S (AlFaify, S.); Kathalingam, A (Kathalingam, A.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 11 **Pages:** 10532-10542 **DOI:** 10.1007/s10854-019-01397-8 **Published:** JUN 2019

Abstract: In the present work, pure and magnesium doped Cu2O films were deposited on glass substrates by nebulizer spray pyrolysis method with doping concentrations of 0, 3, 5 and 7% at 280 degrees C. The as-prepared films were analyzed by XRD, AFM, laser Raman, UV-Vis, photoluminescence, Hall Effect measurements. An X-ray diffraction study clearly depicts that films are possessing polycrystalline nature with a cubic structure. The surface topological properties have been characterized using atomic force microscopy (AFM) which reveals nano shaped hill rock grains covered the surface of the substrate. Laser Raman spectroscopy studies confirm the peaks observed at 109, 148, 217, 416 and 514cm(-1) belong to Cu2O phase. UV-Vis spectrophotometer measurements show that the band gap is decreased from 2.25 to 1.9eV for the increase of doping concentration Mg. Photoluminescence spectral analysis giving an emission peak at 630nm confirmed the formation of cuprous oxide. The electrical studies showed that the films are of p-type. For the doping of 7% Mg concentration the Cu2O showed a resistivity 1.53x10(2) andhigh carrier concentration of 21.67x10(16)cm(-3). FTO/ZnO/Cu2O/Ag heterojunction was fabricated using 7% Mg doped Cu2O thin film, and found the open circuit voltage (V-oc) as 0.25V, short circuit current (I-sc) as 0.225x10(-4)A and the efficiency as 0.65% for the 7% Mg doped Cu2O thin film.

Accession Number: WOS:000469399700051

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ISSN: 0957-4522

eISSN: 1573-482X

Record 104 of 163

Title: Surfactant and binder free hierarchical NCNPs@CuO nanostructures on ITO for the cost effective enzyme-free glucose sensor applications

Author(s): Vasuki, K (Vasuki, K.); Siva, G (Siva, G.); Balasubramani, A (Balasubramani, A.); Pannipara, M (Pannipara, Mehboobali); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Xia, Y (Xia, Yang); Fang, RY (Fang, Ruyi); Yoo, DJ (Yoo, Dong Jin); Kumar, TR (Kumar, T. R.); Ramachandran, R (Ramachandran, R.); Kumar, GG (kumar, G. Gnana)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 6 **Article Number:** 384 **DOI:** 10.1007/s00339-019-2652-3 **Published:** JUN 2019

Abstract: The rational design and development of surfactant- and binder-free catalytic nanostructures on cost-efficient electrode could establish influential pathways in generating the effectual enzyme-free electrochemical sensing platforms. Accordingly, the cost-efficient flame synthesis strategy is realized for synthesizing nitrogen-doped carbon nanoparticles (NCNPs) on Indium tin oxide (ITO) via the burning of pyrrole under air atmosphere and the growth process is lasted for 3min. Envisioned with the significant objectives of rapid electron transfer from the core to shell, prevention of the agglomeration of nanoshell architectures, and influential contact of analyte with the core, the development of CuO nanorods on NCNPs in the form of core-shell architecture is accomplished via the hydrothermal technique. The synergistic properties of core and shell architectures and uniform dispersion of electrochemically active and stable sites of NCNPs@CuO catalytically favor the glucose oxidation. Being a glucose sensor, NCNPs@CuO/ITO demonstrates the considerable electro-oxidation performances along with the other constructive features including high selectivity, reproducibility, reusability, and durability, which favor the realization of the practical applicability of fabricated sensor in human serum samples. Thus, the established research effort not only demonstrates a scalable methodology for the synthesis of core-shell architectures but also advances the scopes of cost-efficient glucose detection.

Accession Number: WOS:000467210100005

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ISSN: 0947-8396

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Record 105 of 163

Title: First-principles study of structural, electronic, magnetic and thermoelectric properties of the cubic mono-pnictides of thorium ThPn (Pn = Sb and Bi) (vol 13, pg 111, 2017)

Author(s): Siddique, M (Siddique, Muhammad); Rahman, AU (Rahman, Amin Ur); Haq, BU (Haq, Bakhtiar Ul); Iqbal, A (Iqbal, Azmat); Ahmad, A (Ahmad, Afaq); Ahmad, I (Ahmad, Iftikhar)

Source: COMPUTATIONAL CONDENSED MATTER **Volume:** 19 **Article Number:** e00367 **DOI:** 10.1016/j.cocom.2019.e00367 **Published:** JUN 2019

Accession Number: WOS:000467088500008

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Ahmad, Iftikhar		0000-0002-4376-1374

ISSN: 2352-2143

Record 106 of 163

Title: Topological behavior and glassy framework of GeTeSeGa chalcogenide glasses

Author(s): Sharma, E (Sharma, Ekta); Hegazy, HH (Hegazy, H. H.); Sharma, V (Sharma, Vineet); Sharma, P (Sharma, Pankaj)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 562 **Pages:** 100-106 **DOI:** 10.1016/j.physb.2019.03.019 **Published:** JUN 1 2019

Abstract: Te-based chalcogenide glasses own the most comprehensive infrared window among amorphous materials and have far-infrared applications such as CO2 detection. Nevertheless, the glass forming ability and thermal stability decrease for higher Te content chalcogenide glasses. Here, we report the effect of Ga addition on Te-based chalcogenide glasses by presuming that the addition of Ga may develop the configurational disorder and hence may improve the glass forming ability and thermal stability. Ge10Te80Se10-xGax (x = 0, 2, 4, 6, 8, 10 at %) bulk chalcogenide glassy alloys have been synthesized via melt quench technique. The role of Ga is studied through a semi-empirical approach. The result shows that the system is in rigid mode (total number of mechanical constraints > 3). The density of the system shows an increase which is further supported by a decrease in free volume percentage. Mean bond energy and glass transition temperature have also been investigated. The energy gap shows a decrease with increase in Ga at. % and the behavior are correlated with the decrease in average single bond energy (72.7 kJ/mol to 69.7 kJ/mol) and electronegativity (2.14-2.06) of the system. From the results of covalent character (> 90%), it is estimated that the compositions may be used to form stable glasses, which may be helpful in the development of an infrared system.

Accession Number: WOS:000464556200018

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Sharma, Pankaj	B-3105-2012	0000-0001-8681-1282

ISSN: 0921-4526
eISSN: 1873-2135

Record 107 of 163

Title: An effect of La doping on physical properties of CdO films facilely tasted by spin coater for optoelectronic applications

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

Source: PHYSICA B-CONDENSED MATTER **Volume:** 562 **Pages:** 135-140 **DOI:** 10.1016/j.physb.2019.03.013 **Published:** JUN 1 2019

Abstract: Transparent conducive oxides (TCOs) are having emerging applications in optoelectronic technology. Hence, herein, we have designed and fabricated the cadmium oxide (CdO/FTO) TCO films with different concentrations of Lanthanum (La) through a facile spin coating technique. The crystal system and phase confirmation of fabricated films was analyzed by X-ray diffraction analysis. The values of D-200 are found in the range of 25-31 nm indicates nanostructured thin films fabrication. EDX/SEM mapping revealed the presence of La and its homogeneity in CdO film. Atomic force microscopy was carried out to investigate the effect of La doping on surface topography of CdO films. The average values of grain size were estimated in the range of 7.56-10.95 nm along with surface roughness in range of 15.25-17.56 for pure and La-doped CdO films. The optical transparency of films was noticed in range of 75-85% in the NIR region. Direct and indirect band gap values are found in the range of 2.55-2.8 eV and 2.0-2.4 eV, respectively. The dielectric constant, loss, refractive and absorption indices were also calculated. Moreover, the linear, nonlinear susceptibilities and refractive index values were estimated and found in the range of 0.1-3, 1 x 10(-12) to 1.6 x 10(-7)esu and 2 x 10(-12) to 1.28 x 10(-8)esu, correspondingly.

Accession Number: WOS:000464556200024

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Record 108 of 163

Title: Orange/Red Photoluminescence Enhancement Upon SF6 Plasma Treatment of Vertically Aligned ZnO Nanorods

Author(s): Achour, A (Achour, Amine); Islam, M (Islam, Mohammad); Vizireanu, S (Vizireanu, Sorin); Ahmad, I (Ahmad, Iftikhar); Akram, MA (Akram, Muhammad Aftab); Saeed, K (Saeed, Khalid); Dinescu, G (Dinescu, Gheorghe); Pireaux, JJ (Pireaux, Jean-Jacques)

Source: NANOMATERIALS **Volume:** 9 **Issue:** 5 **Article Number:** 794 **DOI:** 10.3390/nano9050794 **Published:** MAY 2019

Abstract: Although the origin and possible mechanisms for green and yellow emission from different zinc oxide (ZnO) forms have been extensively investigated, the same for red/orange PL emission from ZnO nanorods (nR) remains largely unaddressed. In this work, vertically aligned zinc oxide nanorods arrays (ZnO nR) were produced using hydrothermal process followed by plasma treatment in argon/sulfur hexafluoride (Ar/SF6) gas mixture for different time. The annealed samples were highly crystalline with similar to 45 nm crystallite size, (002) preferred orientation, and a relatively low strain value of 1.45 x 10(-3), as determined from X-ray diffraction pattern. As compared to as-deposited ZnO nR, the plasma treatment under certain conditions demonstrated enhancement in the room temperature photoluminescence (PL) emission intensity, in the visible orange/red spectral regime, by a factor of 2. The PL intensity enhancement induced by SF6 plasma treatment may be attributed to surface chemistry modification as confirmed by X-ray photoelectron spectroscopy (XPS) studies. Several factors including presence of hydroxyl group on the ZnO surface, increased oxygen level in the ZnO lattice (O-L), generation of F-OH and F-Zn bonds and passivation of surface states and bulk defects are considered to be active towards red/orange emission in the PL spectrum. The PL spectra were deconvoluted into component Gaussian sub-peaks representing transitions from conduction-band minimum (CBM) to oxygen interstitials (O-i) and CBM to oxygen vacancies (V-O) with corresponding photon energies of 2.21 and 1.90 eV, respectively. The optimum plasma treatment route for ZnO nanostructures with resulting enhancement in the PL emission offers strong potential for photonic applications such as visible wavelength phosphors.

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Record 109 of 163

Title: Structural, dielectric and low temperature magnetic response of Zn doped cobalt ferrite nanoparticles

Author(s): Batoo, KM (Batoo, Khalid Mujasam); Raslan, EH (Raslan, Emad H.); Yang, YJ (Yang, Yujie); Adil, SF (Adil, Syed Farooq); Khan, M (Khan, Mujeeb); Imran, A (Imran, Ahamad); Al-Douri, Y (Al-Douri, Yarub)

Source: AIP ADVANCES **Volume:** 9 **Issue:** 5 **Article Number:** 055202 **DOI:** 10.1063/1.5078411 **Published:** MAY 2019

Abstract: The finely controlled nanostructured cubic spinel ferrites pave the way to synthesize nanomaterials with specific properties for particular applications. In this paper, we report sol-gel synthesis of Zn doped spinel Co1-xZnxFe2O4 (where x= 0.0, 0.1, 0.2, and 0.3) ferrite nanoparticles. X-ray diffraction confirms the single phase cubic structure of nano ferrites with average particle size estimated between 55.38 to 32.87 nm and validated by Transmission electron microscopy (TEM) results (+/- 1). The lattice parameter was found to increase with increasing Zn doping concentration. The samples

exhibit normal dielectric behaviour of Maxwell-Wagner type of interfacial polarization that decreases with increasing frequency of the applied field. Temperature-dependent magnetic properties were investigated with the aid of physical property system. The hysteresis measurements of the samples show clearly enhancement in magnetic parameters as the temperature goes down to 20 K. Tuning of magnetic properties has been witnessed as a function of doping and temperature under the influence of externally applied magnetic field, has been discussed in this paper. (C) 2019 Author(s). All article content, except where otherwise noted, is licensed under a Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).

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Record 110 of 163

Title: The Theoretical Investigation of Electronic, Magnetic, and Thermoelectric Behavior of LiZ(2)O(4) (Z = Mn, Fe, Co, and Ni) by Modified Becke and Johnson Approach

Author(s): Mahmood, Q (Mahmood, Q.); Hassan, M (Hassan, M.); Murtaza, G (Murtaza, G.); Sajjad, M (Sajjad, M.); Laref, A (Laref, A.); Ul Haq, B (Ul Haq, Bakhtiar)

Source: JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM **Volume:** 32 **Issue:** 5 **Pages:** 1231-1239 **DOI:** 10.1007/s10948-018-4808-3 **Published:** MAY 2019

Abstract: Magnetic spinel oxides LiZ(2)O(4) (Z = Mn, Fe, Co, and Ni) have recently appealed the scientific community due to their interesting magnetic and thermoelectric applications. In the current article, the electronic, magnetic, and thermoelectric properties of LZO have been elaborated using density functional theory-based Wien2k code. The band structures and total density of states ensure the half metallic ferromagnetic (HMF) nature of the studied compounds. Furthermore, the magnetism is discussed in detail using crystal field, John-Teller, and exchange energies involved in the system and spin density. Finally, electrical conductivity, thermal conductivity, power factor, Seebeck coefficient, and thermal efficiency computed by using BoltztraP code suggest these compounds for thermoelectric device fabrications.

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Record 111 of 163

Title: A significant effect of Ce-doping on key characteristics of NiO thin films for optoelectronics facilely fabricated by spin coater

Author(s): Arif, M (Arif, Mohd); Shkir, M (Shkir, Mohd); Ganesh, V (Ganesh, V.); Singh, A (Singh, Arun); Algarni, H (Algarni, H.); AlFaify, S (AlFaify, S.)

Source: SUPERLATTICES AND MICROSTRUCTURES **Volume:** 129 **Pages:** 230-239 **DOI:** 10.1016/j.spmi.2019.03.025 **Published:** MAY 2019

Abstract: NiO has been found to have excellent physical properties which are crucial for several significant electro-optical devices. Herein, we have designed and fabricated high-quality films of NiO with various concentrations of Ce and studied their key properties. X-ray diffraction (XRD) study confirmed the cubic phase, good crystallinity and growth direction along (111) plane in the prepared samples. The crystallite size was noticed in the range of 13-30 nm. For confirming the presence of Ce doping and its homogeneity in NiO films the EDX/SEM mapping was carried out. AFM study provided the topographic information in terms of size of the grains and roughness of all films. The grown films were found to be 70-80% optically transparent in the whole testing region. Optical energy gap was found to expand from 3.60 to 3.68 eV owing to Ce-doping. The refractive index value was noticed to be in the range from 1.7 to 2.7. The n(2) and chi((3)) values for pure and Ce-doped NiO films varied from 2 x 10(-10) to 1.4 x 10(-11) and 1 x 10(-12) to 1.1 x 10(-11) esu, respectively. Obtained results indicated that Ce has strong influence on opto-nonlinear characteristics of NiO films and proposed their application in the opto-nonlinear devices.

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Record 112 of 163

Title: Graphene oxide-based hydrogels as a nanocarrier for anticancer drug delivery

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Source: NANO RESEARCH **Volume:** 12 **Issue:** 5 **Pages:** 973-990 **DOI:** 10.1007/s12274-019-2300-4 **Published:** MAY 2019

Abstract: Graphene oxide (GO) possesses excellent mechanical strength, biocompatibility, colloidal stability, large surface area and high adsorption capability. It has driven to cancer nanotechnology to defeat cancer therapy obstacles, via integration into three-dimensional (3D) hydrogel network with biocompatible polymers as nanocomposites carrier, and controllable release of anticancer drugs. Specifically, the surface of GO affords - stacking and hydrophilic interactions with anticancer drugs. Additionally, modification of GO with various polymers such as natural and synthetic polymers enhances its biodegradability, drug loading, and target delivery. In this review, GO based hydrogels research accomplishments are reviewed on the aspects of crosslinking strategies, preparation methods, the model drug, polymer conjugation and modification with targeting ligands. Moreover, swelling kinetics, drug release profile and biological activity in vivo and in vitro are discussed. The biocompatibility of GO based hydrogels is also discussed from the perspective of its nano-bio interfaces. Apart from that, the clinical potential of GO based hydrogels and its major challenges are addressed in detail. Finally, this review concludes with a summary and invigorating future perspectives of GO based hydrogels for anticancer drug delivery. It is anticipated that this review can stimulate a new research gateway to facilitate the development of anticancer drug delivery by harnessing the unique properties of GO based hydrogels, such as large surface area, chemical purity, high loading capacity of drug, chemical stability, and the nature of lipophilic for cell membrane penetration.

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Record 113 of 163

Title: Nickel Doped Tin Oxide Nanoparticles: Magnetic, Dielectric and Electrical Properties

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Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 5 **Pages:** 614-621 **DOI:** 10.1166/jno.2019.2589 **Published:** MAY 2019

Abstract: Herein, we report a simple and facile co-precipitation technique to synthesize pure and nickel (Ni)-doped tin oxide (SnO2) nanoparticles. Various concentrations of Ni (1, 2 and 3%) were doped into the lattices of SnO2 and the synthesized nanoparticles were examined by several techniques which confirmed the large quantity growth and well-crystalline tetragonal structure of SnO2. The optical studies of the synthesized nanoparticles validated that the band gap of pure SnO2 was 3.78 eV which was reduced to 3.20 eV after Ni doping. Photoluminescence analysis was carried out which reflected that oxygen vacancies were created due to Ni doping into the lattices of SnO2. Interestingly, the Ni-doped SnO2 nanoparticles exhibited room-temperature ferromagnetic properties while the pure SnO2 displayed diamagnetic properties with negative susceptibility at room-temperature. The electrical behavior of the synthesized samples was explained in the Maxwell-Wagner model. Interestingly, it was observed that the values for the AC conductivity were directly proportional with frequency and dopant composition which was increasing with increased values of dopant amount and frequency levels.

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Record 114 of 163

Title: Fabrication and characterization of Zinc Telluride (ZnTe) thin films grown on glass substrates

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Source: PHYSICA B-CONDENSED MATTER **Volume:** 560 **Pages:** 204-207 **DOI:** 10.1016/j.physb.2019.02.043 **Published:** MAY 1 2019

Abstract: In this paper we highlight the fabrication of Zinc Telluride (ZT) thin films grown onto glass substrates at 300 degrees C with varying thickness, in the range of 200 nm-1000 nm, by adopting the simplistic thermal evaporation technique with base pressure of 10(-6) m bar. In addition, their structural and optical characterizations are also studied by exploring the influence of substrate annealing temperature and thickness of the samples. The morphology, crystalline nature and composition analysis of the thin films were done by X-ray diffraction and scanning electron microscopy. These results revealed that the sample having thickness around 1000 nm show crystalline nature while the samples having lower thickness demonstrate amorphous structure. The optical characterizations are described in the form of transmission spectra, refractive index, and absorption coefficient. The band gap values obtained by probing optical data, show that all the samples have direct band gaps in the vicinity of 2.25 eV. This suggests possible applications of ZnTe in optoelectronics devices in the visible region of electromagnetic spectra.

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Record 115 of 163

Title: Optical analysis of nanostructured rose bengal thin films using Kramers-Kronig approach: New trend in laser power attenuation

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Source: OPTICS AND LASER TECHNOLOGY **Volume:** 112 **Pages:** 207-214 **DOI:** 10.1016/j.optlastec.2018.11.024 **Published:** APR 15 2019

Abstract: Highly stable Rose Bengal (RsB) organic semiconductor thin films were deposited on glass substrates with different thicknesses ranging from 95 to 325 nm. Optical transmission, reflection, and absorption studies were employed to analyze various optical constants. Refractive index and extinction coefficient values were attained using Kramers-Kronig calculations from the reflectance data. Dielectric constant, loss and dissipation factor were studied. Third-order nonlinear optical susceptibility and refractive index values were estimated using linear refractive index and absorption coefficient data for RsB films and studied their properties in nonlinear media. Optical limiting characteristics are found to be enhanced by increasing the thicknesses of films. The studied films can be used to limit the laser power of wavelengths 632 run and 532 nm as an optical limiting material. The present work suggests that film of RsB is a promising candidate for wide-scale optoelectronic applications including IR pass filter, laser power attenuation, and selective CUT-OFF laser filters in the wavelength range 490-595 nm.

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Record 116 of 163

Title: Linear and nonlinear optical investigations of N:ZnO/ITO thin films system for opto-electronic functions

Author(s): Arif, M (Arif, Mohd.); Shkir, M (Shkir, Mohd.); AlFaify, S (AlFaify, S.); Sanger, A (Sanger, Amit); Vilarinho, PM (Vilarinho, Paula M.); Singh, A (Singh, Arun)

Source: OPTICS AND LASER TECHNOLOGY **Volume:** 112 **Pages:** 539-547 **DOI:** 10.1016/j.optlastec.2018.11.006 **Published:** APR 15 2019

Abstract: Different concentrations of N (0, 1, 3 and 5 wt.%) added ZnO thin films were primed using spin coater. X-ray diffraction (XRD) patterns confirm the preferred growth orientation of all films along (0 0 2) plane, however, ITO has dominant features owing to low thickness of the films. XRD along with vibrational spectroscopy confirms the single hexagonal phase of ZnO. The crystallite size evaluated from Scherrer's equation increased with increase in N-doping concentrations and is found to lie in the range of 25-36 nm. The increased crystallite size reduces the dislocation density which confirms the reduction of defects in the films. The dislocation density (delta) is found to be 1.569, 1.369, 0.984, and 0.965 for 0, 1, 3 and 5 wt.% N doped ZnO films. N doping in ZnO was confirmed by EDX analysis and its homogeneous distribution was further confirmed by SEM mapping. AFM study confirms the formation of spherical nanoparticles whose size increase with increase in N doping, validating the XRD results. The films are found to have similar to 80% transparency which is quite impressive from window layer application point of view. Absorption edge is found to be red shifted owing to N doping, indicating a reduction in energy gap. Hence energy gap was evaluated using Tauc's relation and is found to reduce from 3.43 to 3.14 eV (Delta E = 0.29 eV) with in content of N-doping. The absorption index, refractive index, real and imaginary dielectric constants were also estimated. The values of chi((1)) and chi((3)) are estimated to be in range of 0.3-9 and 1.0 x 10(-11) -1.0 x 10(-8) , respectively. The Nanocrystalline films with spherical nanocrystallites, high optical transparency and non-linear properties recommend their application in opto-electronic technology.

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Record 117 of 163

Title: Recent Advances and Perspectives of Carbon-Based Nanostructures as Anode Materials for Li-ion Batteries

Author(s): Roselin, LS (Roselin, L. Selva); Juang, RS (Juang, Ruey-Shin); Hsieh, CT (Hsieh, Chien-Te); Sagadevan, S (Sagadevan, Suresh); Umar, A (Umar, Ahmad); Selvin, R (Selvin, Rosilda); Hegazy, HH (Hegazy, Hosameldin H.)

Source: MATERIALS **Volume:** 12 **Issue:** 8 **Article Number:** 1229 **DOI:** 10.3390/ma12081229 **Published:** APR 2 2019

Abstract: Rechargeable batteries are attractive power storage equipment for a broad diversity of applications. Lithium-ion (Li-ion) batteries are widely used the superior rechargeable battery in portable electronics. The increasing needs in portable electronic devices require improved Li-ion batteries with excellent

results over many discharge-recharge cycles. One important approach to ensure the electrodes' integrity is by increasing the storage capacity of cathode and anode materials. This could be achieved using nanoscale-sized electrode materials. In the article, we review the recent advances and perspectives of carbon nanomaterials as anode material for Lithium-ion battery applications. The first section of the review presents the general introduction, industrial use, and working principles of Li-ion batteries. It also demonstrates the advantages and disadvantages of nanomaterials and challenges to utilize nanomaterials for Li-ion battery applications. The second section of the review describes the utilization of various carbon-based nanomaterials as anode materials for Li-ion battery applications. The last section presents the conclusion and future directions.

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Record 118 of 163

Title: Physical properties evaluation of nebulized spray pyrolysis prepared Nd doped ZnO thin films for opto-electronic applications

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Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 8 **Pages:** 7257-7267 **DOI:** 10.1007/s10854-019-01039-z **Published:** APR 2019

Abstract: Thin films of neodymium (Nd) doped zinc oxide (NZO) were coated onto glass substrates at 400 degrees C by nebulized spray pyrolysis using different doping weight percentage (wt%) of Nd. The prepared films were exhibited in hexagonal structure of polycrystalline nature along with (002) preferential orientation. Morphological properties and elemental compositions were performed by scanning electron microscopy and energy dispersive by X-ray, respectively. Tauc's plot discovered the optical energy band gap of 3.17eV for 5wt% Nd doped NZO film. PL profiles depicted a solid green emission peak at around 680nm at room temperature. Optical constants such as refractive indices, dielectric constants, carrier concentration and plasma frequency were evaluated for NZO through optical approximation route. Hall mobility and carrier concentrations were enhanced with rise of Nd doping wt%. A drastic change in the resistivity was observed due to incorporation of Nd dopant and it has evidently demonstrated in detail.

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Record 119 of 163

Title: Investigations on Fe doped SnS thin films by nebulizer spray pyrolysis technique for solar cell applications

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Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 8 **Pages:** 8024-8034 **DOI:** 10.1007/s10854-019-01124-3 **Published:** APR 2019

Abstract: Undoped and different concentrations of iron (Fe) doped tin sulphide (SnS) thin films were coated by nebulizer spray pyrolysis method with the substrate temperature of 350 degrees C. Polycrystalline nature of orthorhombic crystal structured pure and Fe doped SnS (Fe:SnS) thin films confirmed by X-ray diffraction (XRD) patterns. Structural studies further explored the preferential orientation of (201) plane for undoped SnS and their shifts to (400) and (111) directions for Fe:SnS at 6 and 10 wt.% of Fe concentration, respectively. The versatile route of structural modification has obviously demonstrated due to inclusion of Fe doping in SnS. Raman spectra further confirmed the structural variation of Fe:SnS. Topological variations obviously explained by atomic force microscopy images for pure and Fe:SnS. Optical results evidently claimed the deterioration of band gap values from 1.96 to 1.58eV due to increase of Fe doping concentrations from 0 to 10 wt.%, respectively. Luminescence spectra showed a strong emission peak centered at 772nm and low resistivity 3.32x10(-2)cm with the high carrier concentration for 8 wt.% of Fe concentration using prepared Fe:SnS film. The fabricated solar cell device with n-CdS exposed the 0.18% of efficiency for p-Fe:SnS prepared using 8 wt.% Fe concentration.

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Record 120 of 163

Title: A novel optical limiter and UV-Visible filters made of Poly (vinyl alcohol)/KMnO4 polymeric films on glass-based substrate

Author(s): Ali, HE (Ali, H. Elhosiny)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 7 **Pages:** 7043-7053 **DOI:** 10.1007/s10854-019-01021-9 **Published:** APR 2019

Abstract: A poly (vinyl alcohol) polymeric films doped with various stages of concentrations (0, 0.037, 0.185, 0.37, 1.85 and 3.7 wt%) of KMnO4 salt were prepared by casting technique on glass substrate as a new optical limiting and laser filter application. Their structures, molecular complex formation and the morphology of the surface are analyzed by using XRD (X-ray diffraction), FTIR (Fourier transform-IR), and SEM (scanning electron microscopy), while the optical band gap as well as limiting characteristics is determined via UV-Vis spectroscopy, and optical limiting set-up for two laser sources, respectively. As a result of the increment of KMnO4 salt percentage inside the PVA polymer matrix, there is a significant decrease in the number of chain domains with a specific alignment (crystallizing degree) is observed through XRD diffraction and confirmed via Gaussian fitting and Fityk 0.9.8 software. FTIR spectra shows the complex interface interaction between KMnO4 and PVA. The numerical density as well as the size of the particles was increased as clearly seen in SEM images. In addition, the energy gap is markedly decreased from 3.6 eV to 1.1 eV for Pure PVA and 3.7 wt% of KMnO4 doped PVA (KMPVA5), respectively, on the glass substrate sample. The incident light was completely blocked in the UV range and extended to 555 nm in the visible region for the highest doping of KMnO4 in PVA. Moreover, a sharp decrease in the output and normalized power of the two laser sources via KMPVA5 film were detected. Therefore, for low cost optical limiting and laser filter technology, the PVA with the high concentration level of KMnO4 is considered as a promising candidate.

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Record 121 of 163

Title: In-depth study on structural, optical, photoluminescence and electrical properties of electrodeposited Cu2O thin films for optoelectronics: An effect of solution pH

Author(s): Ravichandiran, C (Ravichandiran, C.); Sakthivelu, A (Sakthivelu, A.); Davidprabu, R (Davidprabu, R.); Valanarasu, S (Valanarasu, S.); Kathalingam, A (Kathalingam, A.); Ganesh, V (Ganesh, V); Shkir, M (Shkir, Mohd); Algarni, H (Algarni, H.); AlFaify, S (AlFaify, S.)

Source: MICROELECTRONIC ENGINEERING **Volume:** 210 **Pages:** 27-34 **DOI:** 10.1016/j.mee.2019.03.013 **Published:** APR 1 2019

Abstract: Cu2O thin films were deposited using electrodeposition method at different pH values of the solution (11, 12 and 13). The prepared films were analyzed by XRD, SEM, EDAX, UV-Vis absorption and Photocurrent-voltage measurements. The XRD study revealed that there is a increase of crystallite size as 33, 42 and 52 nm for films deposited at pH of 11, 12 and 13, respectively. SEM images revealed three-face pyramid shaped grains of increased size for the increase of solution pH. Among all grown films, high absorption is found for film grown at solution pH 13. The band gap values are found to be 2.02, 1.98 and 1.92 eV, respectively for different pH values. Photoluminescence spectra displayed sharp emission peak at 618 nm which confirms the formation of Cu2O structure. The Photo response studies revealed increase of photocurrent with increase of pH value. The observed low resistivity of the films grown at solution pH 13 confirms that the film is of better quality among the other films.

Accession Number: WOS:000466258300005

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ISSN: 0167-9317

eISSN: 1873-5568

Record 122 of 163

Title: EFFECT OF Cr DOPING INTO CdSe HOST NANOSIZE THIN FILMS ON THE STRUCTURAL, OPTICAL AND MAGNETIC PROPERTIES

Author(s): Hegazy, HH (Hegazy, H. H.); Shaaban, ER (Shaaban, E. R.); Reben, M (Reben, M.)

Source: CHALCOGENIDE LETTERS **Volume:** 16 **Issue:** 4 **Pages:** 163-173 **Published:** APR 2019

Abstract: Different composition of Cd1-xCrxSe (x = 0, 0.02, 0.04, 0.06, 0.08, and 0.10) films were evaporated by electron beam gun. The effect of Cr doping on the structural, optical, and magnetic properties have been investigated. X-ray diffraction studies confirm the formation of wurtzite structure for all Cd1-xCrxSe films The lattice constants are found to be increased with increasing Cr concentration. The crystallite size increases and the lattice strain decreases with the increase in Cr content. The elemental constituents were characterized by energy dispersive X-ray. Both the refractive index and film thickness have been determined using the envelop method suggested by Swanepoel. Optical studies showed a decrease in refractive index and an increase in energy gap with the increase of the Cr doping. Magnetization measurements via vibrating sample magnetometer showed a hysteresis loop and confirmed room temperature ferromagnetism in Cr-doped CdSe films. The change in Optical constants, energy gap, and magnetic properties, which have been deduced can be interpreted in terms of micro structural parameters.

Accession Number: WOS:000465617200004

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Shaaban, Essam	AAX-1596-2020	

ISSN: 1584-8663

Record 123 of 163

Title: X-ray peak profile analysis and optical properties of CdS nanoparticles synthesized via the hydrothermal method

Author(s): Abd El-Sadek, MS (Abd El-Sadek, M. S.); Wasly, HS (Wasly, H. S.); Batoo, KM (Batoo, Khalid Mujasam)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 4 **Article Number:** 283 **DOI:** 10.1007/s00339-019-2576-y **Published:** APR 2019

Abstract: Cadmium sulfide (CdS) nanoparticles were prepared by hydrothermal method at 150 degrees C under different reaction times. It was found that hydrothermal method is an effective, quick, and eco-friendly method to synthesis CdS nanoparticles of hexagonal structure at lower temperature. X-ray peak profile analysis by Williamson-Hall analysis and size-strain plot was employed to estimate the crystallite size and lattice strain of the synthesized CdS nanoparticles and to investigate their effects on the peak broadening. The values of strain, stress and energy density were determined for all XRD peaks of wurtzite hexagonal phase of CdS, by applying various forms of Williamson-Hall procedure, such as UDM (uniform deformation model), USDM (uniform stress deformation model) and UDEDM (uniform deformation energy density model). The obtained results indicate that the crystallite size of CdS nanoparticles estimated from Scherrer equation, Williamson-Hall plots and size-strain plot, are nearly similar and in the range of 14-37nm. CdS nanoparticles were also investigated using high-resolution transmission electron microscopy (HR-TEM), Fourier transform infra-red spectroscopy (FT-IR), and UV-visible and fluorescence spectroscopy. A dependence of the band gap and the nanoparticle size on the reaction time was reported.

Accession Number: WOS:000463024600001

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Abd El-sadek, Mahmoud Sayed	H-1769-2013	0000-0002-6640-7845

ISSN: 0947-8396

eISSN: 1432-0630

Record 124 of 163

Title: Thermal Stability and Optical Properties of Tellurite Glasses Doped with Rare Earth Containing Lithium Chloride

Author(s): AbouDeif, YM (AbouDeif, Y. M.); Reben, M (Reben, M.); Yousef, ES (Yousef, El Sayed); Al-Salami, AE (Al-Salami, A. E.); Al Shehri, AS (Al Shehri, Alya S.)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 4 **Pages:** 448-455 **DOI:** 10.1166/jno.2019.2585 **Published:** APR 2019

Abstract: The glasses within composition 65TeO(2)-9Nb(2)O(5)-5Li(2)O-15LiCl-5PbO-1.0La(2)O(3) in mol% doped with x(Er2O3), where x= 0, 20000, 25000 and 30000 ppm were prepared by melt-quenching technique. The thermal and optical properties of these glasses were estimated using differential scanning calorimetric (DSC), and ultraviolet/visible/near-infrared (UV/Vis/NIR) spectroscopy, respectively. The results of the thermal analysis indicate that Er3+ ions modified prepared host glass has high thermal stability and anti-crystallization process. The density, oxygen packing density, molar volumes, oxygen molar volume, molar refraction, metallization criterion, molar polarizability, linear refractive index n, third-order non-linear susceptibility and two-photon absorption coefficient were calculated. It was found that, the linear refractive index increases otherwise decrease in the optical energy gap with an increase of Era(3+) ions. The structure of the glasses through Raman spectroscopy from 200 to 1200 nm was scanned.

Accession Number: WOS:000462481700002

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Shaaban, Essam	AAX-1596-2020	

ISSN: 1555-130X

eISSN: 1555-1318

Record 125 of 163

Title: Adsorption of CH4 Molecules on Pt-Doped ZnO(001) Surfaces: A Density Functional Theory Study

Author(s): Wei, ZJ (Wei, Zhijie); Zhou, Q (Zhou, Qu); Hong, CX (Hong, Changxiang); Hegazy, HH (Hegazy, H. H.); Umar, A (Umar, Ahmad); Algarni, H (Algarni, H.); Gui, YG (Gui, Yingang); Tang, C (Tang, Chao)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 4 **Pages:** 513-520 **DOI:** 10.1166/jno.2019.2560 **Published:** APR 2019

Abstract: The detection of methane CH4 is of vital importance to judge the early latent faults of the oil immersed transformer. In this paper, based on density functional theory (DFT), first principles calculation is adopted to investigate the doping process and adsorption of CH4 on intrinsic and Pt-doped ZnO(0 0 1) surfaces. The structural parameters and electronic properties of the two models are calculated in DMol(3)module of Materials Studio (MS) and the CH4 adsorption energy, electron transfer and density of states (DOS) are analyzed based on the established adsorption systems. It is found that the doping of Pt atom can effectively narrow the band gap of ZnO(0 0 1) thus changing the adsorption process of CH4 on ZnO(0 0 1) surface. The electron transfer between CH4 and intrinsic ZnO(0 0 1) surface is measured to be about 0.121 e(-), whereas it is 0.136 e(-) for Pt-doped ZnO(0 0 1) surface. All theoretical results suggest that Pt-doped ZnO based sensor could be a high-performance sensor for CH4 detection.

Accession Number: WOS:000462481700011

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ISSN: 1555-130X

eISSN: 1555-1318

Record 126 of 163

Title: Influence of Mn Doping on the Properties of Tin Oxide Nanoparticles Prepared by Co-Precipitation Method

Author(s): Sagadevan, S (Sagadevan, Suresh); Bin Johan, MR (Bin Johan, Mohd Rafie); Aziz, FA (Aziz, Fauziah Abdul); Hsu, SL (Hsu, Hsiu-Ling); Selvin, R (Selvin, Rosilda); Hegazy, HH (Hegazy, H. H.); Umar, A (Umar, Ahmad); Algarni, H (Algarni, H.); Roselin, LS (Roselin, L. Selva)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 4 **Pages:** 583-592 **DOI:** 10.1166/jno.2019.2588 **Published:** APR 2019

Abstract: A simple, facile co-precipitation technique was successfully used to synthesize the pure, and Mn-doped SnO2 nanoparticles (NPs) and characterized by X-ray diffraction (XRD), Fourier Transform Infrared (FT-IR), scanning electron microscopy (SEM), transmission electron microscopy (TEM), UV-vis diffuse reflectance spectroscopy and photoluminescence (PL). XRD analysis indicated that the prepared samples have the pure tetragonal structure of SnO2. The doping of Mn on SnO(2)surface enhances the crystallite size of the SnO2 NPs. The polycrystalline in nature SnO2 nanoparticles was confirmed by SAED pattern. FT-IR analysis illustrates the presence of stretching vibration of the O-Sn-O bond in both SnO2 and Mn-doped SnO2 NPs. SEM and TEM analysis shows that the SnO2 particles are spherical in shape and are uniformly dispersed inside the nanocomposite matrix. The average particle size of SnO2 in pure SnO(2)and Mn-doped SnO2 NPs was determined as similar to 14 and 12 nm respectively. The optical analysis confirmed a redshift by doping Mn on SnO2. The band gap energy for pure SnO2 and Mn-doped SnO2 NPs are 3.14 eV to 2.87 eV, respectively. The visible emission was observed from PL analysis. Photocatalytic activity of the pure SnO2 and Mn-doped SnO2 are tested using Rhodamine B (RhB) dye as a model compound under UV light. The results revealed that the Mn-doped SnO2 NPs exhibited higher efficiency than pure SnO2 for the degradation of RhB dye and furthermore with increasing the amount of Mn doping further enhanced the degradation rate of R-hB dye. The synthesized samples present good reusable stability. Dielectric loss of the prepared pure and Mn-doped SnO2 NPs exhibited a linear trend at higher frequency domain. Increased dopant amount reduced the ac conductivity which is attributed to the particle size effect with the presence of the impurities.

Accession Number: WOS:000462481700018

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ISSN: 1555-130X

eISSN: 1555-1318

Record 127 of 163

Title: Fabrication and characterization of La doped PbI2 nanostructured thin films for opto-electronic applications

Author(s): Khan, MT (Khan, Mohd Taukeer); Shkir, M (Shkir, Mohd); Almohammedi, A (Almohammedi, Abdullah); AlFaify, S (AlFaify, S.)

Source: SOLID STATE SCIENCES **Volume:** 90 **Pages:** 95-101 **DOI:** 10.1016/j.solidstatesciences.2019.02.010 **Published:** APR 2019

Abstract: Herein, we report a facile, cost-effective, solution processed fabrication method for pure and lanthanum (La3+) doped lead iodide (PbI2) thin films and investigated structural, optical, dielectric and electrical properties. Synthesis of PbI2 was confirmed by X-ray diffraction (XRD) and FT-Raman spectroscopy analyses. The fabricated films were grown along (001) plane, with crystallite size in the range of 12-14 nm and observed that crystallinity increases and defects decreases with the increase of La doping concentration. The morphology of fabricated films was observed to be spherical nanoparticles assembled nanosheets, distributed uniformly throughout the films. Moreover, homogeneous La doping in PbI2 was seen via EDX elemental mapping image. Optical band gap was calculated from Ultra violet-visible-near infrared (UV-Vis-NIR) spectra. The band gap of pure PbI2 film was noticed similar to 2.44 eV which increase to 2.63 eV for 3% La3+ doped film. Absorption index, refractive index and dielectric constant values were calculated from optical data and found to be strongly dependent on incident photon energy and all parameters show higher values for La doped PbI2 films. I-V characteristics of pure and La-doped PbI2 thin films were carried out in the device configuration viz. FTO/Pbt(2) (or La-doped PbI2)/Au at room temperature. I-V curve for the pure PbI2 films shows the ohmic behavior while La doped PbI2 films shows non ohmic behavior attributed to space charge limited current. The electrical resistivity values for pure PbI2 film is found to be very high about 1.8 x 10(11) Omega-cm.

Accession Number: WOS:000462471400013

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Author	Web of Science ResearcherID	ORCID Number
Khan, Mohd Taukeer	D-4842-2013	0000-0002-6715-4501
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Shaaban, Essam	AAX-1596-2020	

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eISSN: 1873-3085

Record 128 of 163

Title: Investigation on physical properties of CdO thin films affected by Tb doping for optoelectronics

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

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 4 **Article Number:** 249 **DOI:** 10.1007/s00339-019-2528-6 **Published:** APR 2019

Abstract: Thin films of Tb-doped CdO were grown on FTO substrates using the sol-gel-spin coater technique. XRD studies confirmed the polycrystalline cubic growth of the films with a (200) preferential orientation. XRD analysis was used to estimate the crystallite sizes, dislocation density, and microstrain values, and found that they are highly dependent on the doping percentage. Homogeneous distributions of the nano-gains were observed from the AFM studies. Energy-dispersive spectroscopy and mapping analyses were used for the uniform elemental composition confirmation. All the films displayed high transmission reaching nearly 80% in the visible spectrum and the effect of Tb doping was very clear by corresponding systematic increase in intensities. The direct band-gap values were estimated from the Tauc plots and are found to be highly tunable based on the doping percentage, which was varying between 2.79 and 2.91eV. The refractive index and extinction coefficient values are lies between 1.8 and 2.5 and 0.44 to 0.82. The (1) values are found to be varying

between of 0.05 to 0.45 within the range 1-4eV. This suggests all the linear and nonlinear optical properties of the present samples can be tailored for the various applications by the doping.

Accession Number: WOS:000461138100001

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Manthrammel, Mohamed Aslam	F-1736-2017	0000-0001-8458-2594

ISSN: 0947-8396

eISSN: 1432-0630

Record 129 of 163

Title: The first-principle study of mechanical, optical and thermoelectric properties of SnZrO3 and SnHfO3 for renewable energy applications

Author(s): Mahmood, Q (Mahmood, Q.); Ul Haq, B (Ul Haq, Bakhtiar); Yaseen, M (Yaseen, M.); Ramay, SM (Ramay, Shahid M.); Ashiq, MGB (Ashiq, Muhammad Gul Bahar); Mahmood, A (Mahmood, Asif)

Source: SOLID STATE COMMUNICATIONS **Volume:** 292 **Pages:** 17-23 **DOI:** 10.1016/j.ssc.2019.01.011 **Published:** APR 2019

Abstract: The electronic, optical and thermoelectric properties of SnZrO3 and SnHfO3 for renewable energy applications have been studied within the framework of density functional and Boltzmann transport theories. The structural, thermodynamic and mechanical stability in the cubic phase has been confirmed by tolerance factor, formation energy and Born mechanical stability criteria. The ductile strength has been checked by Poisson and Pugh's ratios critical limits. The optical properties have been elucidated by dispersion, absorption, reflection, optical conductivity and loss factor per unit length. The thermoelectric performance has been explored by the Wiedemann-Franz law, Seebeck coefficient and power factor by classical theory based BoltzTrap code.

Accession Number: WOS:000460127400004

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Yaseen, Muhammad	O-5718-2016	0000-0002-2128-6680

ISSN: 0038-1098

eISSN: 1879-2766

Record 130 of 163

Title: High-performance visible light photodetector based on TlGaSSe single crystal

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

Source: MATERIALS LETTERS **Volume:** 240 **Pages:** 176-179 **DOI:** 10.1016/j.matlet.2018.12.124 **Published:** APR 1 2019

Abstract: Herein, we present the results of high-performance visible light photodetector fabricated from the grown TlGaSSe single crystal for the first time. The growth direction was found to be (1 0 0) and layered structure was confirmed by scanning electron microscope (SEM) micrograph. The photocurrent observed to be increased with increasing the light intensity and voltage. The photo responsitivity (R), detectivity (D) and external quantum efficiency (EQE) were studied for the fabricated device. The maximum value of R is found to be similar to 980 mA V-1. The D value shows a decrease with increasing the light intensity and found in a range of 4.41 x 10(11) to 8.48 x 10(10) Jones. Further, the maximum value of EQE was found similar to 193% at a light intensity of 10 mu W cm(2). Photoswitching behavior of the device was also studied and displayed that the ratio of on and off photo values similar to 45:100. The values of growth and decay time were found to be similar to 218 and 185 ms, respectively. (C) 2019 Elsevier B.V. All rights reserved.

Accession Number: WOS:000458131200046

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Ebrahem, Ashraf Mahmoud	AAT-6263-2020	
Abdel-Wahab, Fouad	AAA-3302-2020	

ISSN: 0167-577X

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Record 131 of 163

Title: A low temperature synthesis of Ag2S nanostructures and their structural, morphological, optical, dielectric and electrical studies: An effect of SDS surfactant concentration

Author(s): Elsaeedy, HI (Elsaeedy, H., I)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 93 **Pages:** 360-365 **DOI:** 10.1016/j.mssp.2019.01.022 **Published:** APR 2019

Abstract: Nanostructures of Silver sulfide (Ag2S) possess wide range of applications as infrared detectors, resistance-switches and nonvolatile memory devices. Hence, the authors aim is to synthesize the Ag2S nanostructures using facile chemical route at low temperature (i.e. similar to 65 degrees) with different concentrations (i.e. from 0 to 1 g) of sodium dodecyl sulfate (SDS) surfactants for such applications. High crystallinity and single phase was proved by X-ray diffraction and EDX analyses as there was no peak due to impurity was seen. The crystallite size was estimated and found in range of 39-44 nm. SEM analysis showed the homogeneous nanoparticles formation is all samples and the size was obtained in range of 40-60 nm for Ag2S samples prepared with 0, 0.1, 0.25 g SDS, however at higher SDS concentrations the size was found in range of 30-50 nm. Diffused reflectance spectra were measured for all samples and Kubelka-Munk theory is applied to estimate the energy gap which is found in range of 1-1.04 eV. The refractive index was also estimated in the range of 1.7-2 in 200-1200 nm wavelength region. The prepared nanoparticles possess high dielectric constant and electrical conductivity.

Accession Number: WOS:000457727300046

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eISSN: 1873-4081

Record 132 of 163

Title: Linear and non-linear optical study of fluorotellurite glasses as function of selected alkaline earth metals doped with Er3+

Author(s): Fuks-Janczarek, I (Fuks-Janczarek, I.); Miedzinski, R (Miedzinski, R.); Reben, M (Reben, M.); Yousef, E (Yousef, El Sayed)

Source: OPTICS AND LASER TECHNOLOGY **Volume:** 111 **Pages:** 184-190 **DOI:** 10.1016/j.optlastec.2018.09.041 **Published:** APR 2019

Abstract: A systematic characterization of optical and chemical properties of fluorotellurite glasses based on 70TeO(2)-5M(x)O(y)-10P(2)O(5)-10ZnO-5PbF(2) glasses as function of alkaline earth metals as network modifiers were studied and analysed. The Z-scan results show that all the compounds have NLO properties such as nonlinear refractive index (n(2)) and two photon absorption (beta). Finally, using (n(2)) and (beta) we also determined the third-order nonlinear optical susceptibility chi(< 3 >). It was found that the alkaline earth metals elements, have an influence on such NLO properties. Based on the ability of the lattice modifiers to decrease the band-gap energy while simultaneously increasing the linear refractive index of the TeO2-based glass, we investigated how these modifiers affect the non-linear refractive index.

Accession Number: WOS:000453499600028

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ISSN: 0030-3992
eISSN: 1879-2545

Record 133 of 163

Title: Magnetic properties of Ce doped M-type strontium hexaferrites synthesized by ceramic route

Author(s): Rehman, KMU (Rehman, Khalid Mehmood Ur); Riaz, M (Riaz, Muhammad); Liu, XS (Liu, Xiansong); Khan, MW (Khan, Muhammad Wasim); Yang, YJ (Yang, Yujie); Batoo, KM (Batoo, Khalid Mujasam); Adil, SF (Adil, Syed Farooq); Khan, M (Khan, Mujeeb)

Source: JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS **Volume:** 474 **Pages:** 83-89 **DOI:** 10.1016/j.jmmm.2018.10.087 **Published:** MAR 15 2019

Abstract: This paper highlights the experimental study of Ce3+ ions doped M-type hexaferrite Sr1-xCexFe12O19 (0.00 <= x <= 0.30) prepared by adopting the conventional ceramic process. The M-type hexagonal structure is confirmed in the X-ray diffraction measurements. There were two phases recognized for the magnetic powders with varying Ce content, one in-between x = 0.00 to 0.20 as a single magneto plumbite segment and the other at x >= 0.20 as a second phase or the so called alpha-Fe2O3 phase. The micrographs of the sintered magnets depicted hexagonal crystal shapes. For magnetic properties a systematic study was done on the room temperature B-H hysteresis measurements. The estimated remanence value first increases with x in the range of x = 0.00 to 0.15 and then showed a decrease at x >= 0.15. Besides, the intrinsic coercivity (H-cj) and magnetic induction coercivity (H-cb) show decreasing-increasing character while maximum energy product (BHmax) and ratio H-k/H-cj demonstrate increasing-decreasing character in the Ce doping range x of x <= 0.15 and x > 0.15 respectively.

Accession Number: WOS:000459494600012

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Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203
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eISSN: 1873-4766

Record 134 of 163

Title: Structural and Optical Constants of Annealed As47.5Se47.5Ag5 Film using DSC Transformation Curve

Author(s): Shaaban, ER (Shaaban, E. R.); Abdel-Rahim, MA (Abdel-Rahim, M. A.); Abd-el Salam, MN (Abd-el Salam, M. N.); Mohamed, M (Mohamed, Mansour); Abdel-Latief, AY (Abdel-Latief, A. Y.); Yousef, E (Yousef, El Sayed)

Source: ACTA PHYSICA POLONICA A **Volume:** 135 **Issue:** 3 **Pages:** 401-408 **DOI:** 10.12693/APhysPolA.135.401 **Published:** MAR 2019

Abstract: The effect of thermal annealing process on both structural and optical properties of amorphous As(47.5)Se(47.5A)g(5) thin films was studied. The X-ray diffraction studies exhibit that the crystallinity was improved by increasing the annealing temperature. Further, the crystallite size and the crystallinity increase whereas dislocation density and strain decrease with increase of annealing temperatures. The optical constants of the as-prepared and annealed of As(47.5)Se(47.5A)g(5) thin films were calculated using envelope method. The optical absorption data in these films were successfully describes by Tauc's relation which exhibit the indirect transitions for as-prepared sample and allowed direct transition for annealed sample above onset temperature T-c. It is evident that the energy gap E-g(opt) decreases and the localized states E-e increases as a function annealing temperature. The dispersion of the refractive index n for these films was discussed using the single oscillator model proposed by the Wemple-DiDomenico relationship.

Accession Number: WOS:000481716600014

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number

Shaaban, Essam	AAX-1596-2020	
Said Yousef, El Sayed		0000-0002-5462-317X

ISSN: 0587-4246
eISSN: 1898-794X

Record 135 of 163

Title: AC Photoconductivity Measurements of TlInS2 Single Crystals

Author(s): Ashraf, IM (Ashraf, I. M.); Salem, A (Salem, A.); Al-Salah, MJ (Al-Salah, M. J.)

Source: ACTA PHYSICA POLONICA A **Volume:** 135 **Issue:** 3 **Pages:** 515-519 **DOI:** 10.12693/APhysPolA.135.515 **Published:** MAR 2019

Abstract: TlInS2 single crystal belonging to the group A(111)B(111)C(v1) gets a great attention nowadays due to its electrical and optical properties, which make it a good candidate for photoconductivity applications. In the present study, the dependence of the AC-photoconductivity of TlInS2 single crystal on the chopping frequency was investigated by plotting (Delta sigma/Delta sigma(st) - omega) versus the chopping frequency (15-300 Hz). The effect of different parameters including temperature (77-300 K), applied voltage (10-70 V), and light intensity (1000-7000 lx) on the dependence of AC-photoconductivity on the chopping frequency was studied. The results indicated that the AC-photoconductivity decreases with the increase in the chopping frequency regardless of the values of the effecting parameters (temperature, voltage, and light intensity). Due to its properties, TlInS2 single crystals represent a promising material for using in photodetector and radiation visualizer employed in recording information in optical devices. Moreover, these materials are suitable for solar batteries due to its ability to generate appreciable quantity of electrical power from sun radiation.

Accession Number: WOS:000481716600030

Author Identifiers:

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Ebrahem, Ashraf Mahmoud	AAT-6263-2020	

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eISSN: 1898-794X

Record 136 of 163

Title: Elastic scattering of one-proton halo nucleus F-17 on different mass targets using semi microscopic potentials

Author(s): Ibraheem, AA (Ibraheem, Awad A.); Al-Hajjaji, AS (Al-Hajjaji, Arwa S.); Farid, ME (Farid, M. El-Azab)

Source: REVISTA MEXICANA DE FISICA **Volume:** 65 **Issue:** 2 **Pages:** 168-174 **DOI:** 10.31349/RevMexFis.65.168 **Published:** MAR-APR 2019

Abstract: The elastic scattering of F-17 from different mass targets (C-12, N-14, Ni-58 and Pb-208) at different energies has been studied. We used the double folding optical model potential based on the density-dependent DDM3Y effective nucleon-nucleon interaction without need to renormalize the generated potentials. Two versions of the density distribution of the one-proton halo F-17 nucleus have been taken into account in order to derive the double folding potentials. The measured angular distributions of elastic scattering differential cross section and corresponding reaction cross sections have been successfully reproduced at different energies using the derived potentials. The energy and the target mass number dependences of imaginary volume integrals as well as the total reaction cross sections have been also studied.

Accession Number: WOS:000470084900009
ISSN: 0035-001X

Record 137 of 163

Title: Design and microelectronic analysis of Au/ZnTe:I/CdTe:I/GaAs/In photosensor for optoelectronic applications using MBE technology

Author(s): Wasly, HS (Wasly, H. S.); Abd El-sadek, MS (Abd El-sadek, M. S.); Karczewski, G (Karczewski, G.); Yahia, IS (Yahia, I. S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 5 **Pages:** 4936-4942 **DOI:** 10.1007/s10854-019-00790-7 **Published:** MAR 2019

Abstract: Molecular beam epitaxy was applied to evaporate a set of Au/ZnTe:I/CdTe:I/GaAs/In heterostructures. The resulted heterostructures were examined for photovoltaic energy conversion application. Electrical characteristics were studied for understanding the relevant electrical transport mechanisms. The current-voltage (I-V) characteristics were checked under dark and light conditions. Ideality factor indicates the recombination mechanisms in the designed device; its value equals (3.22). Under various light intensities (1-140mWcm(-2)), the I-V curves are affected highly by reverse voltage bias. The open-circuit voltage increases exponentially with the illumination and its values of this device increased with increasing light intensity (L), where 55mV at 1mWcm(-2) and 465mV at 140mWcm(-2). Electrical as well as power related parameters of the designed device were interpreted. Photosensitivity and Responsitivity of the studied device showed a high photoresponse under different light intensities. Au/ZnTe:I/CdTe:I/GaAs/In heterostructures is a promising material for photosensor and optoelectronic applications.

Accession Number: WOS:000461168600062

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Yahia, Ibrahim Sayed	G-4458-2011	
Wasly, Hamdy Sayed	AAD-7067-2020	0000-0001-7562-4799
Karczewski, Grzegorz	P-8212-2015	
Abd El-sadek, Mahmoud Sayed	H-1769-2013	0000-0002-6640-7845

ISSN: 0957-4522
eISSN: 1573-482X

Record 138 of 163

Title: Fabrication and Biocompatible Characterizations of Bio-Glasses Containing Oxyhalides Ions

Author(s): Algarni, H (Algarni, H.); AlShahrani, I (AlShahrani, Ibrahim); Ibrahim, EH (Ibrahim, Essam H.); Eid, RA (Eid, Refaat A.); Kilany, M (Kilany, Mona); Ghramh, HA (Ghramh, Hamed A.); Ali, AM (Ali, Atif Mossad); Yousef, ES (Yousef, El Sayed)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 3 **Pages:** 328-334 **DOI:** 10.1166/jno.2019.2534 **Published:** MAR 2019

Abstract: The bioglasses with composition 40P(2)O(5) -20Na(2) O-10Ca(OH)(2)-20CaCl(2)-8.0ZnO-2.0BaF(2) in mol% (labeled BGBaF) was fabricated by melt

quenching technique. The phase of beta tricalcium phosphate (beta-TCP) estimated by using X-ray diffraction (XRD) and scanning electron microscope SEM. We studied the effect of the present bioglass with respect to antimicrobial activity, anti-proliferative/cytotoxicity against normal and activated splenic cells. The results obtained that the BGBaF (powder) and BGBaF (nanoparticles) had antimicrobial activities against Gram negative and positive bacteria as well as fungi. We note that the antimicrobial activity of nanoparticles was more than comparing with powder. Otherwise the BGBaF (powder) demonstrated a cytotoxic effect on normal splenic cells with stronger effect regarding the BGBaF nanoparticles. In addition BGBaF (powder) showed no effects on activated splenic cells. With respect to the results above the present bioglasses can be used in the biomedical application.

Accession Number: WOS:000460669000004

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Ibrahim, Essam H.	G-1960-2018	0000-0003-0130-2257
AlShahrani, Ibrahim	AAX-2504-2020	0000-0001-8108-1866

ISSN: 1555-130X

eISSN: 1555-1318

Record 139 of 163

Title: The effect of CdO content on the crystal structure, surface morphology, optical properties and photocatalytic efficiency of p-NiO/n-CdO nanocomposite

Author(s): Zeid, EFA (Zeid, Essam F. Abo); Ibrahem, IA (Ibrahem, Ibrahem A.); Ali, AM (Ali, Atif Mossad); Mohamedd, WAA (Mohamed, Walied A. A.)

Source: RESULTS IN PHYSICS **Volume:** 12 **Pages:** 562-570 **DOI:** 10.1016/j.rinp.2018.12.009 **Published:** MAR 2019

Abstract: Pure NiO nanoparticles and NiO-CdO nanocomposite were prepared with different content of CdO by simple chemical precipitation method at 800 degrees C for 3 h. Crystal structure, surface morphology, elemental composition and function groups present in the prepared samples were characterized by XRD, SEM, EDX, Raman and FTIR analysis, respectively. From XRD, preparation of pure NiO and formation of nanocomposite samples confirmed by the presence of characteristic diffraction peaks of cubic phase structure of NiO and CdO. The particle size increases from 26 to 34 nm with the increase of CdO content in the prepared samples. SEM images show the spherical shape of NiO and plate like shape of nanocomposite samples. The EDX analysis revealed that the absence of any impurity peaks indicates the high quality of prepared samples. Raman and FTIR spectra show the fundamental peaks of NiO and CdO in the samples. The best photodegradation efficiency of methyl orange dye i.e. 60% was achieved as a result of the decrease in the energy band gap from 3.42 to 2.92 eV at the optimum content of CdO (0.12 wt%).

Accession Number: WOS:000460704700076

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Mohamed, Walied	AAE-5459-2021	
Zeid, E.F. Abo	N-8348-2019	
Abo Zeid, E		0000-0002-8431-4888

ISSN: 2211-3797

Record 140 of 163

Title: A general formula of complex synchronizations with complex scaling diagonal matrix and time lag

Author(s): Mahmoud, EE (Mahmoud, Emad E.); Abood, FS (Abood, Fatimah S.)

Source: RESULTS IN PHYSICS **Volume:** 12 **Pages:** 603-614 **DOI:** 10.1016/j.rinp.2018.10.035 **Published:** MAR 2019

Abstract: In this paper, we show a novel sort of complex synchronization. We call this sort complex modified projective lag synchronization (CMPLS). CMPLS, which is a broader instance of synchronizations, is hardly studied or not mentioned fill date. We study it to a framework, with certain or uncertain parameters, of two chaotic complexes n-dimensional owing to chaotic attractors with similar structure direct parts yet differing absolutely or mostly in nonlinear terms. In view of the Lyapunov work with lag in time an approach plans are intended to accomplish CMPLS for such matches of complex frameworks with certain or indeterminate parameters. Logical expressions for the complex control capacity are determined to utilize these plans to accomplish CMPLS. This kind of complex synchronization is considered as a speculation of many sorts of synchronizations and complex synchronizations that have shown up in the current writing. The frameworks in CMPLS can be synchronized using an unpredictable scale diagonal lattice. The viability of the obtained results is represented by concentrating two cases of such coupled chaotic attractors with certain or indeterminate parameters in the complex domain. We can plot the numerical results to clear errors frameworks, modulus errors and phase errors of chaotic attractors and that can be after synchronization to show that CMPLS is accomplished.

Accession Number: WOS:000460704700083

Author Identifiers:

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Mahmoud, Emad		0000-0003-2757-2765

ISSN: 2211-3797

Record 141 of 163

Title: Electronic structure and optical response for Zn1-xBexSe

Author(s): Gassoumi, A (Gassoumi, Abdelaziz); Alshehri, AM (Alshehri, Ali M.); Bouarissa, N (Bouarissa, Nadir)

Source: RESULTS IN PHYSICS **Volume:** 12 **Pages:** 1294-1298 **DOI:** 10.1016/j.rinp.2019.01.027 **Published:** MAR 2019

Abstract: The electronic structures and optical properties of the Zn1-xBexSe semiconductor ternary alloys have been investigated by using the full-potential linear augmented plane wave (FP-LAPW) method. From this study, the energy band gap has a value of about 1.2 eV for zinc-blende ZnSe. However, for Zn0.50Be0.50Se and BeSe, the fundamental band gap energy is found to occur at the highly symmetric X point in the Brillouin zone and has values of about 2.3 eV and 2.8 eV, for Zn0.50Be0.50Se and BeSe, respectively. Optical parameters, such as dielectric constant, refractive index and reflectivity are calculated and analyzed. The results demonstrated that the compounds Zn1-xBexSe have the potential to be used for optoelectronic applications.

Accession Number: WOS:000460704700188

ISSN: 2211-3797

Record 142 of 163

Title: Photosensing properties of ruthenium(II) complex-based photodiode

Author(s): Imer, AG (Imer, Arife Gencer); Dere, A (Dere, Aysegul); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Dayan, O (Dayan, Osman); Serbetci, Z (Serbetci, Zafer); Al-Ghamdi, AA (Al-Ghamdi, Ahmed A.); Yakuphanoglu, F (Yakuphanoglu, Fahrettin)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 3 **Article Number:** 204 **DOI:** 10.1007/s00339-019-2504-1 **Published:** MAR 2019

Abstract: Ru(II) complex containing 2,6-di(1H-pyrazol-3-yl)pyridine ligand was synthesized to prepare organic-based photodiode. After forming the back contact with aluminum metal on p-Si by thermal evaporation, Al/Ru(II) complex/p-Si heterojunction was constructed by inserting Ru(II) complex organic layer into Si substrate. The fundamental electrical parameters and photosensing properties of fabricated heterojunction were investigated by current-voltage and capacitance-voltage measurements under the dark and different light intensities. The studied device exhibits a good rectifying property with rectification ratio of 2.4x10(4) at +/- 7V. It is observed that the photosensing properties such as light sensitivity and photoconductive responsivity of the photodiode based on Ru(II) complex are strongly dependent on the illumination power. The transient measurements show that the heterojunction device has a good photo switching property in the application of the photodiode, photoconductor and photocapacitor. The obtained results declare that the fabricated Ru(II)-based heterojunction device can be used in the organic-based optoelectronic device applications as a photodiode, photosensor, and optical sensor.

Accession Number: WOS:000459384700006

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
dayan, osman	H-4339-2013	
Al-Sehemi, Abdullah	J-9967-2012	
Al-Sehemi, Abdullah	AAK-5902-2020	
al-sehemi, Abdullah	AAM-4039-2020	
dayan, osman		0000-0002-0764-1965
Al-Sehemi, Abdullah		0000-0002-6793-3038

ISSN: 0947-8396

eISSN: 1432-0630

Record 143 of 163

Title: Multifunction applications of TiO2/poly(vinyl alcohol) nanocomposites for laser attenuation applications

Author(s): Yahia, IS (Yahia, I. S.); Mohammed, MI (Mohammed, M., I); Nawar, AM (Nawar, Ahmed M.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 556 **Pages:** 48-60 **DOI:** 10.1016/j.physb.2018.12.031 **Published:** MAR 1 2019

Abstract: The effects of TiO2 nanoparticles on the PVA matrix can design new nanocomposites with new features in the structural, thermal and optical properties. Different nanocomposites films of TiO2-doped PVA are prepared using solution casting method. TiO2/PVA nanocomposites have been examined by using X-ray diffraction (XRD), (DTA), and UV-Vis-NIR spectrophotometric data. The XRD reveals the existence of both anatase and ruffle phases of TiO2. The crystalline size, Inter-crystallite separation, and the inter-planar distance are estimated and PVA crystallinity is enhanced as reflected from XRD studies. DTA studies conclude that the total crystallinity of the nanocomposites is improved after the addition of TiO2. Optical characterizations of TiO2/PVA nanocomposite films have been determined. The transmittance spectrum of 37.037 wt % TiO2-doped PVA showed a blocking of the light in the wavelength region from 190 to 1275 nm which supports this material to be used as UV-Vis-NIR CUT-OFF laser filters with wide scale. The estimated direct optical band gap is varied from 5.6 eV to 2.11 eV with increased TiO2 content. For analysis, the dispersion of the refractive index (n) and the dispersion parameters (E-o and E-d), Wemple-Didomenico single oscillator model is used. Optical limiting was measured and analyzed for the TiO2/PVA nanocomposites and the laser He-Ne laser power was attenuated by increasing the TiO2-contents. It is possible to utilize TiO2/PVA nanocomposites in different aspects of laser power attenuations, wide-scale optical filters and UV-blocking for saving the human skin.

Accession Number: WOS:000457857600010

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Yahia, Ibrahim Sayed	G-4458-2011	
Nawar, Ahmed M.	ABH-8961-2020	

ISSN: 0921-4526

eISSN: 1873-2135

Record 144 of 163

Title: Preparation of polypyrrole-decorated MnO2/reduced graphene oxide in the presence of multi-walled carbon nanotubes composite for high performance asymmetric supercapacitors

Author(s): El-Khodary, SA (El-Khodary, S. A.); Yahia, IS (Yahia, I. S.); Zahran, HY (Zahran, H. Y.); Ibrahim, M (Ibrahim, M.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 556 **Pages:** 66-74 **DOI:** 10.1016/j.physb.2018.11.070 **Published:** MAR 1 2019

Abstract: The present work demonstrates the preparation of polypyrrole-decorated MnO2/rGO by oxidative polymerization method as well as in the presence of CNTs composites. The as-prepared nanocomposites are investigated by XRD, ATR-IR, Raman, TGA, and TEM techniques. Results illustrate polypyrrole with spherical nanoparticles covering the surface of MnO2/rGO and CNTs in which CNTs are intercalated between MnO2/rGO layers (Py@MnG2). In the meantime, the electrochemical performances for the obtained samples are investigated by cyclic voltammetry (CV), galvanostatic charge/discharge (GCD) and electrochemical impedance spectroscopy (EIS) experiments at 2 M KCl aqueous electrolyte. Owing to the presence of CNTs as well as the synergistic effect between polypyrrole and MnO2/rGO layers, the electrochemical performance of Py@MnG2 shows high specific capacitance of 295.83 F g(-1) in a three-electrode system. The asymmetric supercapacitor (ASC) is assembled with Py@MnG2 and microwave exfoliated graphite oxide (MrGO) as positive and negative electrode material respectively. The as-fabricated ASC device exhibits a high energy density of 11.22 Wh Kg(-1) and power density of 807.67 W kg(-1) at 1 A g(-1) in the potential window of 0-1.6 V. Moreover, the ASC device shows good cycling stability (78.42%) after 1000 cycles at 200 mV s(-1).

Accession Number: WOS:000457857600012

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Zahran, Heba	AAR-9136-2020	
El-Khodary, Sherif	R-7915-2019	0000-0002-8113-3547
Yahia, Ibrahim Sayed	G-4458-2011	
IBRAHIM, Medhat		0000-0002-9698-0837

ISSN: 0921-4526

eISSN: 1873-2135

Record 145 of 163

Title: Silicon based photodetector with Ru(II) complexes organic interlayer

Author(s): Karabulut, A (Karabulut, Abdulkerim); Dere, A (Dere, A.); Dayan, O (Dayan, Osman); Al-Sehemi, AG (Al-Sehemi, Abdullah G.); Serbetci, Z (Serbetci, Z.); Al-Ghamdi, AA (Al-Ghamdi, Ahmed A.); Yakuphanoglu, F (Yakuphanoglu, F.)

Source: MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING **Volume:** 91 **Pages:** 422-430 **DOI:** 10.1016/j.mssp.2018.11.035 **Published:** MAR 2019

Abstract: In present work, the electrical properties and illumination effects were investigated for the silicon based photodetector with organic Ru(II) complexes interfacial layer. The current-voltage (I-V) and capacitance/conductance-voltage (C/G-V) measurements were analyzed to determine electrical and photoelectrical properties under dark and different solar light intensity conditions. The reverse bias current values under light conditions were higher than dark conditions, and this situation demonstrates that the fabricated device displays a photo conducting behavior. Besides, some crucial electrical parameters such as series resistance, barrier height and ideality factor values of prepared device were calculated by using current-voltage measurements. The ideality factor and barrier height values of fabricated device were calculated as 9.42 and 0.59 for dark condition. Besides to these experiments, transient photocurrent and photo-capacitance/conductance were also investigated under different light conditions. It was determined from transient measurements that the fabricated device has a high sensitivity to light. The photoresponse of the diode was determined to be around 4479 +/- 1.9 under 100 mW/cm(2)illumination. The examined C/G-V characteristics of the fabricated device strongly depend on voltage and frequency. The analyzed results suggest that the fabricated Al/Ru(II) complexes/p-Si/Al device can be used in rapidly developing optoelectronic applications, especially for the organic materials-based photodetector technology.

Accession Number: WOS:000454537700059

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
dayan, osman	H-4339-2013	
Al-Sehemi, Abdullah	J-9967-2012	
al-sehemi, Abdullah	AAM-4039-2020	
Al-Sehemi, Abdullah	AAK-5902-2020	
dayan, osman		0000-0002-0764-1965
Al-Sehemi, Abdullah		0000-0002-6793-3038

ISSN: 1369-8001

eISSN: 1873-4081

Record 146 of 163

Title: Effect of rare earth elements on low temperature magnetic properties of Ni and Co-ferrite nanoparticles

Author(s): Boda, N (Boda, Nehru); Boda, G (Boda, Gopal); Naidu, MCB (Naidu, M. Chandra Babu); Srinivas, M (Srinivas, M.); Batoo, KM (Batoo, Khalid Mujasam); Ravinder, D (Ravinder, D.); Reddy, AP (Reddy, A. Panasa)

Source: JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS **Volume:** 473 **Pages:** 228-235 **DOI:** 10.1016/j.jmmm.2018.10.023 **Published:** MAR 1 2019

Abstract: The Er/Sm-substituted nickel ferrite and Sm-substituted cobalt ferrite nanomaterials were synthesized via citrate-gel autocombustion technique. The diffraction pattern revealed the formation of cubic spinel structure. In addition, the structural parameters such as lattice constant (a), average crystallite size (D) and X-ray density (rho(x)) were also evaluated. The surface morphology was analyzed using field emission scanning electron microscope (FESEM) and transmission electron microscopes (TEM). Besides, the low temperature magnetic properties were studied using magnetization versus temperature (M - T) & magnetic field (M - H) curves. The obtained results attributed that the NiSm0.1Fe1.9O4 (NSF) and NiEr0.1Fe1.9O4 (NEF) samples exhibited the superparamagnetic property pertaining almost zero value of coercivity (H-c) and remanence (M-r) at 5 K & 300 K. Moreover, the superparamagnetic property was evidenced by zero-field cooled (ZFC) and field cooled (FC) curves. Interestingly, the CoSm0.1Fe1.9O4 (CSF) sample performed the soft magnetic behavior with increase of temperature from 5 to 300 K by possessing certain numerical values of H-c and M-r.

Accession Number: WOS:000450580900034

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Naidu, K Chandra Babu	AAQ-5691-2020	0000-0002-0580-6383
Batoo, Khalid Mujasam	F-2086-2015	0000-0001-8264-8203

ISSN: 0304-8853

eISSN: 1873-4766

Record 147 of 163

Title: Analysis of Alpha Scattering from alpha-Conjugate Nuclei

Author(s): Mahmoud, ZMM (Mahmoud, Zakaria M. M.); Behairy, KO (Behairy, Kassem O.); Ibraheem, AA (Ibraheem, Awad A.); Mokhtar, SR (Mokhtar, Sherif R.); Hassanain, MA (Hassanain, M. A.); Farid, MEA (Farid, M. El-Azab)

Source: JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN **Volume:** 88 **Issue:** 2 **Article Number:** 024201 **DOI:** 10.7566/JPSJ.88.024201 **Published:** FEB 15

2019

Abstract: The alpha-cluster model has been employed to generate the alpha-cluster and nucleon (matter) density distributions for light even-even (N = Z < 20) nuclei. This approach is applied to C-12, O-16, Ne-20, (24)mg, Si-28, S-32, Ar-36, and Ca-40 nuclei. The three-parameter Fermi (3 pF) form has been proposed for the alpha-cluster density distributions inside these nuclei. Accordingly, the corresponding matter density distributions have been deduced. The extracted density parameters revealed clear mass dependences. The obtained densities are tested through constructing the alpha+nucleus optical potential in the framework of the single and double folding models. The single and double folding procedures are carried out based upon the alpha-alpha and JLM nucleon nucleon (nn) effective interactions, respectively. For the sake of comparison, the CDM3Y6 effective nn interaction is also considered in the double folding calculations. The extracted potentials have been introduced in the analysis of alpha-particle elastic scattering from C-12, O-16, Ne-20, (24)mg, and Si-28 targets. Forty-seven sets of data through a wide range of energy (31-240MeV) have been investigated using the derived potentials. Successful predictions of the observed angular distributions of elastic scattering differential cross sections are obtained. The extracted reaction cross sections are also investigated.

Accession Number: WOS:000455726300009

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mahmoud, zakaria		0000-0001-5871-5234

ISSN: 0031-9015

Record 148 of 163

Title: Rapid Growth of TiO2 Nanoflowers via Low-Temperature Solution Process: Photovoltaic and Sensing Applications

Author(s): Akhtar, MS (Akhtar, M. Shaheer); Umar, A (Umar, Ahmad); Sood, S (Sood, Swati); Jung, I (Jung, InSung); Hegazy, HH (Hegazy, H. H.); Algarni, H (Algarni, H.)

Source: MATERIALS **Volume:** 12 **Issue:** 4 **Article Number:** 566 **DOI:** 10.3390/ma12040566 **Published:** FEB 2 2019

Abstract: This paper reports the rapid synthesis, characterization, and photovoltaic and sensing applications of TiO2 nanoflowers prepared by a facile low-temperature solution process. The morphological characterizations clearly reveal the high-density growth of a three-dimensional flower-shaped structure composed of small petal-like rods. The detailed properties confirmed that the synthesized nanoflowers exhibited high crystallinity with anatase phase and possessed an energy bandgap of 3.2 eV. The synthesized TiO2 nanoflowers were utilized as photo-anode and electron-mediating materials to fabricate dye-sensitized solar cell (DSSC) and liquid nitroaniline sensor applications. The fabricated DSSC demonstrated a moderate conversion efficiency of 3.64% with a maximum incident photon to current efficiency (IPCE) of 41% at 540 nm. The fabricated liquid nitroaniline sensor demonstrated a good sensitivity of 268.9 A mM(-1) cm(-2) with a low detection limit of 1.05 mM in a short response time of 10 s.

Accession Number: WOS:000460793300016

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Author	Web of Science ResearcherID	ORCID Number
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Akhtar, M. Shaheer S	D-3967-2017	
Akhtar, M. S.		0000-0001-7698-2619

ISSN: 1996-1944

Record 149 of 163

Title: Electrochemical Stability Enhancement in Reactive Magnetron Sputtered VN Films upon Annealing Treatment

Author(s): Achour, A (Achour, Amine); Islam, M (Islam, Mohammad); Ahmad, I (Ahmad, Iftikhar); Saeed, K (Saeed, Khalid); Solaymani, S (Solaymani, Shahram)

Source: COATINGS **Volume:** 9 **Issue:** 2 **Article Number:** 72 **DOI:** 10.3390/coatings9020072 **Published:** FEB 2019

Abstract: Vanadium nitride (VN) thin films were produced via direct-current reactive magnetron sputtering technique followed by vacuum annealing. The treatment was carried out at different temperatures for any effect on their electrochemical (EC) stability, up to 10,000 charge-discharge cycles in 0.5 M K2SO4 solution. The film surface chemistry was investigated by using X-ray photoelectron spectroscope (XPS) and cyclic voltammetry (CV) techniques. For the as-deposited film, the oxide layer formed on the VN surface was unstable upon K2SO4 immersion treatment, along with 23% reduction in the EC capacitance. Vacuum annealing under optimized conditions, however, made the oxide layer stable with almost no capacitance loss upon cycling for up to 10,000 cycles. Annealing treatment of the VN films makes them a potential candidate for long-term use in electrochemical capacitors.

Accession Number: WOS:000460700700010

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
	K-8385-2013	0000-0003-0117-6422
solaymani, shahram		0000-0003-2922-7439

eISSN: 2079-6412

Record 150 of 163

Title: Microstructure evolution and tensile creep behavior of Sn-0.7Cu lead-free solder reinforced with ZnO nanoparticles

Author(s): Abd El-Rehim, AF (Abd El-Rehim, A. F.); Zahran, HY (Zahran, H. Y.); Yassin, AM (Yassin, A. M.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 3 **Pages:** 2213-2223 **DOI:** 10.1007/s10854-018-0492-0 **Published:** FEB 2019

Abstract: This paper presents the influence of aging temperature as well as ZnO nanoparticles addition on the properties of Sn-0.7Cu solder. A series of Sn-0.7Cu-ZnO composite solders with ZnO nanoparticles traces (0, 0.1, 0.25, 0.5 and 1.0wt%) has been fabricated. After being solution heat treated at 443K for 2h, specimens were cooled at 273K by water quenching. All the specimens were isochronally aged for 2h at temperatures up to 423K. Subsequently, all samples were quenched into iced water at 273K. The microstructure evolution, the tensile creep properties and the thermal behavior of the new fabricated solder alloys were studied. Differential scanning calorimetry measurements indicated that the ZnO nanoparticles addition increases slightly the melting

point of the investigated composite solders within the range of 227.7-229.2 degrees C with less than 1.6 degrees C temperature difference. Microstructural evolutions revealed the efficient refinement of the Cu6Sn5 and Cu10Sn3 intermetallic compounds by the addition of ZnO nanoparticles. Tensile creep tests showed that the creep rate at the steady state stage increases with increasing both the aging temperature and the applied stress. The improvement of the solders creep resistance has been achieved by the increasing of the nanoparticles content up to 0.25wt%. The deficiency of the creep resistance occurred with the excessive addition of ZnO particles. The mean values of the stress exponents and activation energies indicated that the steady state creep stage is controlled by dislocation-pipe diffusion in the tin matrix as the dominant operating mechanism.

Accession Number: WOS:000460143900026

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
El-Rehim, A. Abd	M-4861-2019	
Yahia, Ibrahim Sayed	G-4458-2011	
Zahran, Heba	AAR-9136-2020	

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Record 151 of 163

Title: Influence of rare earth material (Sm3+) doping on the properties of electrodeposited Cu2O films for optoelectronics

Author(s): Ravichandiran, C (Ravichandiran, C.); Sakthivelu, A (Sakthivelu, A.); Kumar, KDA (Kumar, K. Deva Arun); Davidprabu, R (Davidprabu, R.); Valanarasu, S (Valanarasu, S.); Kathalingam, A (Kathalingam, A.); Ganesh, V (Ganesh, V.); Shkir, M (Shkir, Mohd); Algarni, H (Algarni, H.); AlFaify, S (AlFaify, S.)

Source: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS **Volume:** 30 **Issue:** 3 **Pages:** 2530-2537 **DOI:** 10.1007/s10854-018-0527-6 **Published:** FEB 2019

Abstract: Herein, we report samarium (Sm) dopant concentration effect on Cu2O films characteristics prepared by electrodeposition method. XRD patterns of the films indicated that pristine and Sm:Cu2O films have polycrystalline cubic structure with (111) preferred orientation. It was seen from the SEM photographs pinhole free dense triangle shaped grains for undoped Cu2O thin films and the grain size was decreased as concentration of samarium was increased. Raman spectroscopy showed peaks at 108, 146, 217, 413 and 637cm(-1) which conformed the Cu2O phase formation and intensity of the peaks was decreased with a increase in dopant concentration. UV-Vis spectra exhibited that the absorption value of Cu2O films is increased gradually with reduction in band gap value for the increase ofsamarium content. Photoluminescence (PL) spectra revealed that all films display a visible light emissions and its intensity was reduced due to increase in doping concentration. Photosensitivity observation study indicated that the photocurrent of deposited Cu2O films was increased along with the increase in dopant material concentration.

Accession Number: WOS:000460143900059

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ISSN: 0957-4522

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Record 152 of 163

Title: Numerical Analysis of Unsteady Magneto-Biphase Williamson Fluid Flow with Time Dependent Magnetic Field

Author(s): Bibi, M (Bibi, Madiha); Malik, MY (Malik, M. Y.); Zeeshan, A (Zeeshan, A.)

Source: COMMUNICATIONS IN THEORETICAL PHYSICS **Volume:** 71 **Issue:** 2 **Pages:** 143-151 **DOI:** 10.1088/0253-6102/71/2/143 **Published:** FEB 2019

Abstract: Numerical investigation of the dusty Williamson fluid with the dependency of time has been done in current disquisition. The flow of multiphase liquid/particle suspension saturating the medium is caused by stretching of porous surface. The influence of magnetic field and heat generation/absorption is observed. It is assumed that particle has a spherical shape and distributed uniformly in fluid matrix. The unsteady two-dimensional problems are modeled for both fluid and particle phase using conservation of mass, momentum and heat transfer. The finalized model generates the non-dimensioned parameters, namely Weissenberg number, unsteadiness parameter, magnetic parameter, heat generation/absorption parameter, Prandtl number, fluid particle interaction parameter, and mass concentration parameters. The numerical solution is obtained. Locality of skin friction and Nusselt number is deliberately focused to help of tables and graphs. While inferencing the current article it is clearly observed that increment of Williamson parameter, unsteadiness parameter, magnetic parameter, volume fraction parameter, and mass concentration parameter reduces the velocity profile of fluid and solid particles as well. And increment of Prandtl number, unsteadiness parameter, volume fraction parameter, and mass concentration parameter reduces the temperature profile of fluid and solid particles as well.

Accession Number: WOS:000458632200001

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ISSN: 0253-6102

eISSN: 1572-9494

Record 153 of 163

Title: A One Pot Room Temperature Synthesis of Pure and Zn Doped PbI2 Nanostructures and Their Structural, Morphological, Optical, Dielectric and Radiation Studies

Author(s): AlFaify, S (AlFaify, S.); Shkir, M (Shkir, Mohd)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 2 **Pages:** 255-260 **DOI:** 10.1166/jno.2019.2487 **Published:** FEB 2019

Abstract: One pot room temperature synthesis of pure and Zn doped PbI2 single crystalline nanosheets (SCNs) have been achieved through chemical route. SEM mapping study confirm homogeneous doping of Zn in PbI2. Hexagonal shape of SCNs of average dimension similar to 41 nm was confirmed through TEM analysis predominantly with slight modification in morphology due to Zn doping. Vibrational modes are found to be red shifted compared to bulk. Absorption spectra contains two absorbance bands at similar to 284 and 330 nm in pure at 280 and 326 nm in doped PbI2. Owing to this band gap is increased from 2.91 to 3.04 eV. Dielectric constant and ac electrical conductivity are enhanced for doped SCNs. Radiation absorption ability is enhanced by similar to 2 times in doped compared to pure. The enrichment in key characteristics of PbI2 due to Zn doping indicates its better applications.

Accession Number: WOS:000456186500016

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ISSN: 1555-130X

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Record 154 of 163

Title: Surface area, optical and electrical studies on PbS nanosheets for visible light photo- detector application

Author(s): Shkir, M (Shkir, Mohd); Ashraf, IM (Ashraf, I. M.); AlFaify, S (AlFaify, S.)

Source: PHYSICA SCRIPTA **Volume:** 94 **Issue:** 2 **Article Number:** 025801 **DOI:** 10.1088/1402-4896/aaf55a **Published:** FEB 2019

Abstract: Herein, we report the morphological, surface area and detailed electrical properties of PbS nanosheets. Scanning electron microscope elemental mapping confirms the formation of PbS and homogeneous distribution of Pb and S in final product. Morphology was confirmed as nanosheets by transmission electron microscopy. Specific surface area was found to be similar to 7 m(2) g(-1) through Brunauer-Emmett-Teller analysis. The diffused reflectance spectrum was measured and optical energy gap was estimated similar to 1.284 eV. Such a value of the energy gap makes it suitable for solar cell and other optoelectronic applications. An increase in photosensitivity with increasing the light intensity was observed due to an increase in the generation rate of photo-carriers. The recombination value is calculated similar to 0.59, it indicates that the defect states continuously distributed in the energy gap. The differential lifetime increases with time and also the life time of the current carrier is enhanced with light intensity.

Accession Number: WOS:000455936900001

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ISSN: 0031-8949

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Record 155 of 163

Title: Nonlinear behavior of the current-voltage characteristics for erbium-doped PVA polymeric composite films

Author(s): Elsaeedy, HI (Elsaeedy, H. I.); Ali, HE (Ali, H. Elhosiny); Algarni, H (Algarni, H.); Yahia, IS (Yahia, I. S.)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 125 **Issue:** 2 **Article Number:** 79 **DOI:** 10.1007/s00339-018-2375-x **Published:** FEB 2019

Abstract: The universal casting method for an aqueous solution has been used to synthesize PVA solid samples with 0, 0.037, 0.37, 3.7, 18.5, and 37wt% of Er3+-ions. The semi-crystalline nature of solid films was proved by analyzing the pattern of the XRD, while the complex formation has been confirmed via FTIR spectroscopy. SEM shows the formation of clusters oftheEr(3+)-ions on the superficiality of PVA. The optical parameters, dielectric permittivity, and I-V characteristics have been studied. The incident light is completely absorbed in UV-region by PVA: 37wt% Er3+-sample. Moreover, the indirect energy,E-g1, gap decreased from 4.98 to 4.74eV, whereas the index of refraction increased from 1.53 to 2.85 with Er3+-ions concentration. Dielectric permittivity decreases with a high proportion of Er3+-ions in PVA and an interesting nonlinear behavior of I-V characteristics is observed in PVA: 37wt% Er3+-sample. The characteristics of synthesized materials revealed that it can be used for manufacturing cheaper varistor device, UV-protector, and optoelectronic applications.

Accession Number: WOS:000455091100003

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ISSN: 0947-8396

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Record 156 of 163

Title: Structural, Linear and Third Order Nonlinear Optical Properties of Sol-Gel Grown Ag-CdS Nanocrystalline Thin Films

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

Source: JOURNAL OF ELECTRONIC MATERIALS **Volume:** 48 **Issue:** 2 **Pages:** 1122-1132 **DOI:** 10.1007/s11664-018-6832-2 **Published:** FEB 2019

Abstract: Pure and Ag doped CdS nanocrystalline films with different Ag doping concentrations were successfully grown on glass substrates by a sol-gel spin coating method. Ag doping was performed using silver acetate aqueous solution with 0.01, 0.02 and 0.03M concentrations via ion exchange. The influences of Ag doping on structural, vibrational, morphological, linear and third order nonlinear optical properties of CdS nanocrystalline films were studied. The x-ray diffraction patterns of the films exhibited a broad peak centered at an angle 2=26.5 degrees along the (111) plane, which confirms the cubic structure and formation of nanocrystalline films. Raman spectra of films demonstrate a shift in longitudinal optical phonon vibrations as compared to the bulk counterpart. Pure CdS film shows high transmittance (83%) in the visible and near infrared (NIR) regions. With Ag doping, a significant red shift in the band edge and reduction in the transmittance of the films in visible and NIR regions were observed. However, the films doped with Ag showed appreciable transmittance in visible region for window layer applications. A significant effect on optical parameters such as absorption index, refractive index, and optical dielectric constant was observed after Ag doping. The nonlinear optical properties of films were enhanced with incorporation of Ag atoms into the CdS binary system. The values of nonlinear optical susceptibility ((3)) and refractive index n(2) were found to increase with increasing Ag concentration and were estimated to be in the range of 2.92x10(-10)-1x10(-7)esu and 1.00x10(-9)-2.00x10(-7)esu, respectively. These values suggest that these films can be potential candidates for nonlinear optical device applications.

Accession Number: WOS:000455263100045

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Record 157 of 163

Title: Properties of Polymeric Surfactant Mediated ZnWO4 Nanoparticles for Photocatalytic Application

Author(s): Geetha, GV (Geetha, G., V); Sivakumar, R (Sivakumar, R.); Ganesh, V (Ganesh, Vanga); Sanjeeviraja, C (Sanjeeviraja, C.)

Edited by: Sadasivuni KK; Kurian J; Damodaran SV; Joseph J; Joseph D; Tom E; Thomas D

Source: PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS (ICAM 2019) **Book Series:** AIP Conference Proceedings **Volume:** 2162 **Article Number:** 020112 **DOI:** 10.1063/1.5130322 **Published:** 2019

Abstract: ZnWO4 has received a great deal of attention among the researchers, because of its multi-dimensional characteristics in the field of sensors, optoelectronics and photocatalytic devices. In this work, we report on the synthesis of ZnWO4 nanoparticles using co-precipitation technique with polymeric surfactant. This study aimed to investigate the effect of increasing concentration of surfactant on the morphology, particle size and crystal structure of the synthesized catalyst. The synthesized sample was investigated by XRD, UV-Vis, FT-IR and SEM-EDX to identify its various properties. The XRD analysis confirmed the formation of monoclinic structure of ZnWO4. The EDX study proved the purity of synthesized product. The characteristic molecular vibrational information of ZnWO4 product was obtained through FT-IR measurement.

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Conference Title: International Conference on Advanced Materials (ICAM)

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Record 158 of 163

Title: MHD and Slip Effect on Two-immiscible Third Grade Fluid on Thin Film Flow over a Vertical Moving Belt

Author(s): Khan, Z (Khan, Zeeshan); Tairan, N (Tairan, Nasser); Mashwani, WK (Mashwani, Wali Khan); Rasheed, HU (Rasheed, Haroon Ur); Shah, H (Shah, Habib); Khan, W (Khan, Waris)

Source: OPEN PHYSICS **Volume:** 17 **Issue:** 1 **Pages:** 575-586 **DOI:** 10.1515/phys-2019-0059 **Published:** JAN 2019

Abstract: The present paper related to thin film flows of two immiscible third grade fluids past a vertical moving belt with slip conditions in the presence of uniform magnetic field. Immiscible fluids we mean superposed fluids of different densities and viscosities. The basic governing equations of continuity, momentum and energy are incorporated. The modeled coupled equations are solved analytically by using Adomian Decomposition Method (ADM) along with Homotopy Analysis Method (HAM). The residual errors show the authentication of the present work. For comparison, numerical method (ND-Solve) is also applied and good agreement is found. The effects of model parameters on velocity, skin friction and temperature variation have been studied. At the end, the present study is also compared with single layer flow and revealed in close agreement with the result available in the literature.

Accession Number: WOS:000489174500005

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ISSN: 2391-5471

Record 159 of 163

Title: Graphene Oxide Nanoscrolls: Synthesis, Characterization, Optical, and Electrical Properties

Author(s): Awad, MA (Awad, Manal A.); Aljasem, L (Aljasem, Leena); Modkhali, NA (Modkhali, Nawal A.); Aldakheel, H (Aldakheel, Hajar); Alenazi, W (Alenazi, Wadha); Laref, A (Laref, Amel); Ortashi, KMO (Ortashi, Khalid M. O.); Hendi, AA (Hendi, Awatif A.)

Source: JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS **Volume:** 14 **Issue:** 1 **Pages:** 1-7 **DOI:** 10.1166/jno.2019.2460 **Published:** JAN 2019

Abstract: Graphene oxide aroused an appreciable recognition owing to its distinctive electronic and optical characteristics, which could be exploited in diverse tremendous functionalities, such as electronic nanodevices. By applying the modified Hummers technique, graphene oxide (GO) nanoscrolls (NSs) were successfully synthesized, and their structural, morphological, electrical, and optical properties were inspected. Particularly, the morphology of GO NSs were analyzed by means of the transmission electron microscopy (TEM) and scanning electron microscopy (SEM). Also, their structure were inspected by Raman spectroscopy and X-ray diffraction (XRD) techniques. Moreover, the occurrence of oxygen-holding the functional groups in the GO suspension was discerned by using the Fourier-transform infrared (FT-IR) and energy-dispersive X-ray (EDX) techniques. The inspection of electrical characteristics of GO NSs were conducted by means of the Zeta potential and cyclic voltammetry measurements. Eventually, the UV-VIS and X-ray fluorescence (XRF) analyses highlighted the intriguing optical response of the GO NSs.

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Record 160 of 163

Title: Silver nanoparticles decorated stain-etched mesoporous silicon for sensitive, selective detection of ascorbic acid

Author(s): Harraz, FA (Harraz, Farid A.); Faisal, M (Faisal, M.); Al-Salami, AE (Al-Salami, A. E.); El-Toni, AM (El-Toni, Ahmed Mohamed); Almadiy, AA (Almadiy, A. A.); Al-Sayari, SA (Al-Sayari, S. A.); Al-Assiri, MS (Al-Assiri, M. S.)

Source: MATERIALS LETTERS **Volume:** 234 **Pages:** 96-100 **DOI:** 10.1016/j.matlet.2018.09.076 **Published:** JAN 1 2019

Abstract: Novel silver nanoparticles decorated porous silicon (AgNPs-PSi) was fabricated via stain etching of Si, followed by simple immersion plating of Ag and applied successfully for enhanced electro-oxidation and quantification of ascorbic acid (AA). The newly developed nanocomposite consists of mesoporous Si (<20 nm) decorated by crystalline 15-50 nm AgNPs. Remarkable sensing performance was achieved with high sensitivity (1.279 mu A mu M cm(2)), fast response time (<5 s), wide linear range (20-600 mu M: R-2 = 0.9933), low limit of detection (0.83 mu M at S/N = 3) and excellent anti-interference and repeatability behavior. The current Ag-PSi modified glassy carbon electrode was further applied to a commercially available vitamin C supplement with satisfactory detection result. (C) 2018 Elsevier B.V. All rights reserved.

Accession Number: WOS:000447151800024

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Record 161 of 163

Title: Influence of interparticle interaction on the structural, optical and magnetic properties of NiO nanoparticles

Author(s): Arif, M (Arif, Mohd); Sanger, A (Sanger, Amit); Shkir, M (Shkir, Mohd); Singh, A (Singh, Arun); Katiyar, RS (Katiyar, R. S.)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 552 **Pages:** 88-95 **DOI:** 10.1016/j.physb.2018.09.023 **Published:** JAN 1 2019

Abstract: In this work, we have synthesized nickel oxide (NiO) nanoparticles using a simple wet chemical method. The synthesized nanoparticles were annealed at different temperatures ranging from 573 to 973 K. The structural, magnetic, and optical properties were characterized using X-ray diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM) and Transmission Electron Microscopy (TEM), Superconducting Quantum Interference Device (SQUID), UV-VIS and Photoluminescence (PL) spectrophotometer. The optical properties depict that as NiO particles grow bigger, the intensity of the UV emission increases. The broad emission band can be attributed to the direct recombination of photogenerated charge carriers from the conduction band with the holes in the valence band. This kind of emission due to the transition of 3d(8) electrons of the Ni2+ ions was also observed in the PL spectra. NiO nanoparticles exhibit antiferromagnetic behaviour with varied magnetic moment values of 3.08-5.72 mu(B). The ZFC curves of all samples show cusp and sharp decrease in magnetization at temperatures in the region of 10-21 K. This is due to the surface cluster spins whose thermal fluctuations freeze in a cluster-glass-like state. The bifurcation temperature between ZFC-FC curves increases with respect to the particle size due to the exchange field which is related to the overlap of electron wave functions of two magnetic ions (Ni2+). This field acts indirectly through the neighbouring anions O2-, as Ni2+ ions are too far apart for direct exchange forces mechanism called super exchange and originates from Pauli exclusion principle and electrostatic force.

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Record 162 of 163

Title: Physical, structural, optical and gamma ray shielding behavior of (20+x) PbO-10 BaO-10 Na2O-10 MgO - (50-x) B2O3 glasses

Author(s): Kumar, A (Kumar, Ashok); Kaur, R (Kaur, Ramandeep); Sayyed, MI (Sayyed, M., I); Rasha, M (Rasha, M.); Shing, M (Shing, Mandeep); Ali, AM (Ali, Atif Mossad)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 552 **Pages:** 110-118 **DOI:** 10.1016/j.physb.2018.10.001 **Published:** JAN 1 2019

Abstract: Glass samples of composition (20 + x) PbO - 10 BaO - 10 Na2O - 10 MgO - (50-x) B2O3 (x = 0, 5, 10, 15 and 20 mol%) have been prepared by melt quenching technique. Density, molar volume, average boron-boron separation, ion concentration, polaron radius, inter-nuclear distance, field strength, oxygen packing density and oxygen molar volume have been determined to study the physical properties of the glasses. The presence of no sharp peak in the XRD spectra confirms the amorphous nature of the glasses. The structural properties of these glasses have been investigated using Fourier Transform Infrared (FTIR) spectroscopic techniques. The direct and indirect band gap energies, refractive index, dielectric constant, optical dielectric constant, molar fraction, reflection loss and metallization have been also investigated from the UV-VIS spectra. Besides, the radiation attenuation features for the prepared glasses have been calculated using XCOM program. The mass attenuation coefficient values and effective atomic numbers are found to increase with an increase in the PbO content. The radiation shielding study revealed that Pb40B30 and Pb20B50 glasses have the lowest and highest values of mean free path and half value layer values. This indicates that the Pb40B30 glass has the highest photon shielding competence.

Accession Number: WOS:000451027700016

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Record 163 of 163

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

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, Alexander, V)

Source: PHYSICA B-CONDENSED MATTER **Volume:** 552 **Pages:** 62-70 **DOI:** 10.1016/j.physb.2018.09.040 **Published:** JAN 1 2019

Abstract: In this work, nanostructured methyl violet-10B (MV-10B) thin films of various thicknesses were coated on glass substrates by a low-cost spin coating method at different rpm. The structural analysis of nanostructured MV-10B thin films was carried out by X-ray diffraction and atomic force microscope. Optical measurements were carried out, and the direct band gap of MV-10B films was estimated. The study showed that the prepared MV-10B thin films act in the same manner as that of conventional direct bandgap semiconductors. From optical studies, the sample exhibited bandpass filter characteristics in IR range from 700 nm to 900 nm and in the visible range centered around 408 nm. Also, the sample absorbs or attenuates the range of wavelengths in the visible spectrum between 470 and 650 nm creating a good absorption band valley making a CUT-OFF laser filter. Optical constants such as refractive index (n) and extinction coefficient (k) were computed using Kramers-Kronig relations. The real and imaginary components of dielectric constant were calculated on the basis of polarization of light when it is impinging on semiconductors. Nonlinear index of refraction and susceptibilities were estimated by linear refractive index dispersion principles. Optical limiting studies showed that the MV-10B thin films are very good optical limiters even at low thickness. The MV-10B showed a laser attenuation behavior for He-Ne and green lasers. The obtained results suggest that the newly designed thin films are the promising candidate in different applications.

Accession Number: WOS:000451027700009

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