

Recent Publications

(From 2017-2022)

2022

- Altered mesopore distribution in exfoliated WS₂ nanosheets with radiation exposure; Bhupali Deka, D Mohanta; *Materials Today: Proceedings*; S2214-7853(22)04947-1.
- Low voltage electrowetting microlens of two immiscible liquid; Mahesh Chandra Dubey, D Mohanta; *Materials Today: Proceedings*; S2214-7853(22)04951-3.
- Micropore filling and temperature dependent electrical transport aspects of PEDOT polymerised Zr- based metal organic framework (MOF); Kakoli Doloi, D Mohanta; *Physica Status Solidi A*, 219: 2200377(2022).
- Adaptive liquid lens based on electrowetting of two immiscible liquids-A study with numerical simulation & analysis; Mahesh Chandra Dubey, D Mohanta; *Journal of Optics*(2022). (DOI: 10.1007/s12596-022-00920-1)
- Structural and XPS studies of polyhedral europium doped gadolinium orthovanadate (Eu³⁺:GdVO₄) nanocatalyst for augmented photodegradation against Congo red; Aftab Ansari, D Mohanta; *Physica E: Low-dimensional Systems and Nanostructures*, 143(09): 115357 (2022).
- Structural, optical and frequency dependent dielectric studies of nanoscale Na_{0.5}Bi_{0.5}TiO₃ processed via non-aqueous route; Manjit Borah, D Mohanta; *Materials Today: Proceedings*(2022). (In press)
- Featuring exfoliated 2D stacks into fractal-like patterns in WS₂/carboxy methyl cellulose nanocomposites; Bhupali Deka, D Mohanta, A Saha; *Surfaces and Interfaces*, 29:101727(2022).
- Au nanoparticle modified GO/PEDOT-PSS based immunosensor probes for sensitive and selective detection of serum immunoglobulin G (IgG); Ankush Medhi, Susmita Baruah, Jyoti Singh, C.A.Betty, D Mohanta; *Applied Surface Science*, 575: 151775(2022).
- Significant red-luminescence from citrate-gel and hydrothermally derived nanoscale Eu³⁺:Gd₂O₃ with alkali metal ion (Na⁺, K⁺) co-doping; Aftab Ansari, Sanchita Dey and D Mohanta; *Bull. Mater. Sci.*, 45:21(2022).

2021

- Biogenic nanosized gold particles: physico-chemical characterization and its anticancer response against breast cancer; Neelu Singh, Monoj Kumar Das, Aftab Ansari, D Mohanta, Paulraj Rajamani; *Biotechnology Reports*, 30, e00612 (2021).
- Biophotonic Coloration in Naturally Occurring Bio-Materials; D Mohanta, S N Aideo; *Encyclopedia of Materials: Electronics*, 1-21(2021). DOI: <https://doi.org/10.1016/B978-0-12-819728-8.00020-6>
- Exploiting valence band mapping and select blue-green and red phosphorescence decay of γ -irradiated nanoscale $\text{Eu}^{3+}:\text{Gd}_2\text{O}_3$ below concentration quenching; Aftab Ansari, D Mohanta, Abhijit Saha; *Optical Materials*, 122:111627(2021).
- Revisiting principles, practices and scope of technologically relevant 2D materials; Hemanga J. Sarmah, D Mohanta; *Journal of Materials Research*, 36:1961–1979 (2021).
- Unusually diverse surface-wettability features found in the wings of butterflies across Lepidoptera order and evaluation of generic and vertical gibbosity-based models; Swati Nawami Aideo, D Mohanta; *Physica Scripta*. 96 (08), 085004 (2021).
- Highly symmetric and delayed excitonic emission response and space charge limited current transport in β -irradiated WSe_2 and WS_2 nanoflakes; Hemanga J. Sarmah, D Mohanta, Abhijit Saha; *Journal of Materials Research*, 36:870–883 (2021).

2020

- Electrical and optoelectronic properties of non-spherical, elongated Zinc Oxide nanoscale systems In (ed. C. Galvan) *ZnO: Production, Properties and Applications*; Sayan Bayan, D Mohanta; *Zinc Oxide: Production, Properties and Applications*, ISBN:978-1-53617-753-4 (Nova Publishers, USA, 2020).
- Observable vibronic modes, visible emission, and de-wetting response mediated via increased roughness due to splitting of WS_2 nano-sheets by energetic Xe^+ ions; SJ Hazarika, PK Kulriya, D Mohanta; *Physica Status Solidi B*, 257, 1900546(2020).
- Impetuous exfoliation of tungsten disulfide into a few-layer nanoscale form due to super active collagenase biomolecules; HJ Sarmah, D Mohanta; *Materials Chemistry Physics*, 250, 123008 (2020).
- Perceptible exciton-to-trion conversion and signature of defect mediated vibronic modes and spin relaxation in nanoscale WS_2 exposed to γ -rays; HJ Sarmah, D Mohanta, A Saha; *Nanotechnology*, 31, 285706 (2020).

- Emergence of Raman active D- band and unusually suppressed conductivity mediated by nanoscale defects in pencil-lead graphitic systems under 80 keVXe⁺ ion irradiation; HJ Sarmah, D Mohanta; *Nuclear Instrumentation and Methods in Physics Research B*, 463, 1-6 (2020).
- Application of Box-Behnken design in optimization of biodiesel yield using WO₃/Graphene Quantum dot (GQD) system and its kinetics analysis; MJ Borah, HJ Sarmah, N Bhuyan, D Mohanta, D Deka; *Biomass Conv. Bioref.*, 12, 221–232 (2020).

2019

- Consequence of surfactant coating on the Raman active modes and highly symmetric blue-emission decay dynamics of cubic phase MnSe quantum dots; A Deka, A Saha, D Mohanta; *Physica E: Low-dimensional Systems and Nanostructures*, 113 (9), 226-232 (2019).
- Nanotechnology-Based Challenges and Scope in the Food Industry: From Production to Packaging; N Singh, MK Das, A Ramteke, R Paulraj, SC Deka, A Ansari, D Mohanta; *Research Methods and Applications in Chemical and Biological Engineering*, ISBN:9781771887687 (Taylor and Francis, 2019).
- Revealing mechanical, tribological and surface-wettability features of nanoscale inorganic fullerene-type tungsten disulfide dispersed in a polymer; SJ Hazarika, D Mohanta; *Journal of Materials Research*, 34 (21), 3666-3677 (2019).
- Thorough evaluation of sweet potato starch and lemon-waste pectin based-edible films with nano-titania inclusions for food packaging applications; KK Dash, NA Ali, D Das, D Mohanta; *International Journal of Biological Macromolecules*, 139, 449-458 (2019).
- Noticeable size dispersity and optical stability of sodium dedecylsulphate (SDS) coated MnSe quantum dots in extreme natural environment; A Deka, D Mohanta; *Applied Physics A*, 125 (09), 595 (2019).
- Enhanced magnetocaloric effect in terbium-doped gadolinium oxide nanoparticles; S Hazarika, D Mohanta, Nirmala, R; *PhysicaB:Condensed Matter*, 570, 324-327 (2019).
- Magnetocaloric effect of Gd₂O₃nanorods with 5% Eu-substitution; S Hazarika, PS Behera, D Mohanta, R Nirmala; *Applied Surface Science* 491, 779-783 (2019).
- Influence of mild Cr³⁺ doping on the structural, optical, photochromic and thermochromic reversibility of nano-titania systems; R Khanam, D Mohanta; *Canadian Journal of Physics*, 97 (4), 347-354 (2019).
- Evidence of diamond like carbon phase formation due to 80 keV Xe⁺ ion impact on pencil-lead graphitic systems with oblique angle incidence; HJ Sarmah, A Deka, P Kulriya, D Mohanta; *Europhysics Letters*, 125 (03), 36003 (2019).
- Excitation dependent light emission and enhanced photocatalytic response of WS₂/C-dot hybrid nanoscale systems; SJ Hazarika, D Mohanta; *Journal of Luminescence*, 206, 530-539 (2019).

2018

- Surface-wettability and structural colouration property of certain Rosaceae cultivars with off-to-dark pink appearance; SN Aideo, D Mohanta; *Journal of Bionic Engineering*, 15 (6), 1012-1024 (2018).
- Exfoliated WS₂ nano-sheets: Optical, photocatalytic and nitrogen-adsorption/desorption characteristics; SJ Hazarika, D Mohanta; *Bulletin of Materials Science*, 41 (6), 163-1-8 (2018).
- Spontaneous exfoliation of tungsten disulfide nanosystems and characterization; HJ Sarmah, D Mohanta ; *Proceedings of the national conference on condensed matter physics*, (2018)
- Surface-wettability and structural colouration property of certain Rosaceae cultivars with off-to-dark pink appearance ;SN Aideo, D Mohanta; *Journal of Bionic Engineering* , 15 (6), 1012-1024 (2018).

2017

- Catalyst-free growth and luminescence response of single-crystalline ZnO nanorods; S Bayan, L Pegu, D Mohanta; *Indian Journal of Pure and Applied Physics*, 55 (7), 512-517 (2017).
- Temperature responsive gadolinium oxide nanoparticles for hyperthermia application; N Paul, JP Borah, D Mohanta; *AIP Conference Proceedings*, 1832 (1), 050125 (2017).
- Exploring structural color in uni and multi- colored butterfly wings and Ag⁺ uptake by scales; S N Aideo, R Haloi, D Mohanta; *Europhysics Letters*, 119 (6), 66003-1-7(2017).
- Noticeable red emission and Raman active modes in nanoscale gadolinium oxyfluoride (Gd₄O₃F₆) systems with Eu³⁺ inclusion; S Hazarika, D Mohanta; *Applied Physics A*, 123 (5), 382(2017).
- Inorganic fullerene type WS₂ nanoparticles: processing, characterization and its photocatalytic performance on Malachite Green; SJ Hazarika, D Mohanta; *Applied Physics A*, 123 (5), 381(2017).
- Anomalous carrier life-time relaxation mediated by head group interaction in surface anchored MnSe quantum dots conjugated with albumin proteins; R Sarma, D Mohanta; *Materials Chemistry and Physics*, 187, 46-53(2017).