

School of Physical Sciences

Journals/Research Articles (77)

- **Bhattacharjee A.B.**, Sharma D., “Enhanced Spin Squeezing and Quantum Entanglement Near the Critical Point of the Jaynes-Cummings-Dicke Model”, *International Journal of Modern Physics B*, 2017, 31: 1750062
- Tyagi A., Verma A.K., **Bohidar H.B.**, “Mechanistic Evaluation Of The Size Dependent Antimicrobial Activity of Water-soluble QDs”, *Anal. Methods*, 2016, 8: 1060-68
- Mir I.A., Das K., **Bohidar H.B.**, “Hot Injection Versus Room Temperature Synthesis of Quantum Dots: A Differential Spectroscopic and Bioanalyte Sensing Efficacy Evaluation”, *Colloid and Surfaces-A*, 2016, 494: 162–69
- Pathak J., **Bohidar H.B.**, “Thermo-Reversibility, Ergodicity and Surface Charge-Temperature Dependent Phase Diagram of Anionic, Cationic and Neutral Co-Gels of Gelatin-BSA Complexes”, *RSC Adv.*, 2016, 6: 40123-36
- Joshi N., Rawat K., **Bohidar H.B.**, “Smoluchowski Aggregation Kinetics, Gelation, Ergodicity Breaking and Aging Dynamics of (1:1) Laponite-Montmorillonite Mixed Clay Dispersions”, *Colloids and Surfaces-A*, 2016, 501: 55-64
- Joshi N., Rawat K., **Bohidar H.B.**, “Influence of Structure, Charge and Concentration on the Pectin-Calcium-Surfactant Complexes”, *J. Phys. Chem. B*, 2016, 120: 4249-57.
- Das K., Rawat K., Patel R., **Bohidar H.B.**, “Size Dependent CdSe Quantum Dot-Lysozyme Interaction and Effect on Enzymatic Activity”, *RSC Adv.*, 2016, 6: 46744-54.
- Joshi N., Sharma A., Rawat K., Ashokan K., Solanki P.R., Lakshmi G.B.S., Kanjilal D., **Bohidar H.B.**, “Comparative Evaluation of Enzyme-free Nanoclay-Ionic liquid based Electrodes for Detection of Bioanalytes”, *RSC Adv.*, 2016, 6: 66120
- Das K., Sanwani S., Haughn C.R., Doty M.F., **Bohidar H.B.**, “Spectroscopic Profile of Surfactant Functionalized CdSe Quantum Dots and their Interaction with Globular Plasma Protein BSA”, *Colloids and Surfaces A*, 2016, 506: 495–506.
- Pawar N., **Bohidar H.B.**, “Self-Assembly of Synthetic Liposome-Like Curcumin Nanoparticles”, *RSC Adv.*, 2016, 6: 73677
- Pathak J., Rawat K., Aswal V.K., **Bohidar H.B.**, “Hierarchical Internal Structures in Gelatin-Bovine Serum Albumin/ β -Lactoglobulin Gels and Coacervates”, *J. Phys. Chem. B*, 2016, 120: 9506-9512
- Mir I.A., **Bohidar H.B.**, “Room Temperature Facile Synthesis of Fluorescent Band-Gap-Tunable CuIn₁-GaSe Nanocrystals”. *Colloids and Surfaces A*, 2016, 509: 182–89
- Sharma A., Solanki P.R., **Bohidar H.B.**, “Surface Patch Binding Induced Exfoliation of Nanoclays and Enhancement of Physical Properties of Gelatin Organogels”, *Polymer International*, 2016, 66: 327-36
- Das K., **Bohidar H.B.**, “Surface Patch Binding Induced Interaction of Anisotropic Nanoclays With Globular Plasma Proteins”, *RSC Adv.*, 2016, 6: 104117-25
- Jayant V., **Das D.**, “1,4-Dioxane-Specific Organic Hosts and Their Polymorphism,” *Cryst. Growth Des.*, 2016, 16: 4183–89
- Srinivas K., Singh N., **Das D.**, Koley D., “Organocatalytic, Asymmetric Synthesis of Aza-Quaternary Center of Izidine Alkaloids: Synthesis of (–)-Tricyclic Skeleton of Cylindricine,” *Org. Lett.*, 2017, 19: 274–77
- Premkumar L., **Das S.P.**, “Fragility Index of Simple Liquid Using Structural Inputs,” *Journal of Statistical Mechanics*, Online at stacks.iop.org/JSTAT/2016/093302, doi:10.1088/1742-5468/2016/09/093302.
- Srivastava P.K., Yadav P., Rani V., **Ghosh S.**, “Controlled Doping in Graphene Monolayers by Trapping Organic Molecules at the Graphene–Substrate Interface”, *ACS Appl. Mater. Interfaces* 2017, 9: 5375–81
- Rani V., Sharma A., **Ghosh S.**, “What could be the Highest Hopping Mobility in Organic Thin-Film Transistors?” *MRS Advances*, 2016, 1: 2659-64
- Yadav P., Srivastava P.K., Ray N., **Ghosh S.**, “Robustness of the Universal Optical Transmittance In Monolayer And Multilayer Graphene Flakes Under Coulomb Interactions”, *Phys. Rev. B (Rapid Com)*, 2016, 94: 121406(R)
- Bhardwaj S.K., Yadav P., Basu T., Mahapatro A.K., **Ghosh S.**, “Biosensing Test-Bed Using Electrochemically Deposited Reduced Graphene Oxide”, *ACS Appl. Mater Interfaces*, 2016, 8: 24350-24360
- Yadav P., Srivastava P.K., **Ghosh S.**, “Non-Oxidative, Controlled Exfoliation of Graphite in Aqueous Medium”, *Nanoscale*, 2016, 8: 15702–11
- Mishra S., Singh B., Roy A., **Ghosh S.**, “Probing charge carrier compensation in high energy ion irradiated III-V semiconductor by Raman spectroscopy and Hall measurements”, *Journal of Raman Spectroscopy*, 2016, 47: 963–970

- Yadav S., **Ghosh S.**, “Amorphous Strontium Titanate Film as Gate Dielectric for Higher Performance and Low Voltage Operation of Transparent and Flexible Organic Field Effect Transistor”, *ACS Appl. Mater Interfaces* 2016, 8: 10436–42
- Sharma A, Kumar P., Rani V., Ray N., **Ghosh S.**, “Understanding the Dependence Of Transport Parameters On Carrier Concentration Within A Gaussian Density Of States In Molecular Organic Semiconductors”, *J. Phys.: Condens. Matter*, 2016, 28: 235802-06.
- **Gupta V.P.**, Luthra P., “Operator System Nuclearity via C*-envelopes, *J. Aust. Math. Soc.*, 2016, 101: 356 - 75
- **Kumar B.**, Iqbal Y., Ghosh P., Narayanan .R, Reuther J., Thomale R., “Intertwined Hematic Orders in a Frustrated Ferromagnet”, *Phys. Rev. B*, 2016, 94: 224403
- Meenakshi, Kumar A., **Mahato R.N.**, “Effect of Fe Substitution on Structural, Magnetic and Magneto caloric Properties of Nano crystalline $\text{La}_{0.7}\text{Te}_{0.3}\text{Mn}_{1-x}\text{Fe}_x\text{O}_3$ ($x=0.1, 0.3$), *Physica B: Condensed Matter*, 2017, 511: 83-89
- Masud M., **Mehta P.**, “Non-Standard Interactions And Resolving The Ordering Of Neutrino Masses At DUNE and other Long Baseline Experiments,” *Phys. Rev. D*, 2016, 94: 053007
- Masud M, **Mehta P.**, “Non-standard Interactions Spoiling the CP Violation Sensitivity at DUNE and other Long Baseline Experiments”, *Phys. Rev. D*, 2016, 94: 013014
- Masud M., Chatterjee A., **Mehta P.**, “Probing CP Violation Signal at DUNE in Presence Of Non-Standard Neutrino Interactions,” *J. Phys. G*, 2016, 43: 095005.
- Chatterjee A, **Mehta P.**, Choudhury D., Gandhi, R., “Testing Nonstandard Neutrino Interactions in Atmospheric Neutrino Propagation”, *Phys. Rev. D*, 2016, 93: 093017
- Roychowdhury K, Wadhawan D, **Mehta P.**, Karmakar, B, Das, S., “Quantum Hall Realization of Polarized Intensity Interferometry,” *Phys. Rev. B (Rapid)*, 2016, 93: 220101.
- Rout J., Masud M., **Mehta P.**, “Can We Probe Intrinsic CP/T Violations And Non-Unitarity At Long?”, arXiv:1702.02163 [hep-ph], accepted and to appear in *Phys. Rev. D*, 2017
- Shakya Jyoti, Sahoo H.K., **Mohanty T.**, “A study on the interaction between Molebydenum Disulfide and Rhodamine B by Spectroscopic Methods, *Journal of Material Science*, 2017, 52: 3831-40
- Mishra A., Singh V.K., **Mohanty T.**, “Coexistence of Interfacial Stress And Charge Transfer In Graphene Oxide-Based Magnetic Nanocomposites”, *Journal of Material Science*, 2017, 52: 7677–87.
- Patel A.S., Sahoo H.K., **Mohanty T.**, “Investigating the Energy Transfer from Dye Molecules to DNA Stabilized Au Nanoparticles”, *Journal of Fluorescence*, 2016, 26: 1849-55
- Dana S., Keshri S.K., Shukla J.S., Vikramdeo K.S., Mondal N., **Mukhopadhyay P.**, Dhar S.K., Design, Synthesis and Evaluation of Bifunctional Acridinine–Naphthalenediimide Redox-Active Conjugates as Antimalarials, *ACS Omega*, 2016, 1: 318-333
- Kumar S, Kumar Y, Keshri SK, **Mukhopadhyay P.**, Recent Advances in Organic Radicals and Their Magnetism”, *Magnetochemistry*, 2016, 2: 42
- Saini MK, **Murthy S.S.N.**, “Acetaminophen, Methocarbamol, Guaifenesin and Mephenesin in Propylene Glycol: Solubility and Phase Behaviour for Use in Medical Industry”, *Pharm Anal Acta*, 2016, 7: 1000493(1)-1000493(14)
- Chandra G., **Murthy S.S.N.**, “Solid Binary Mixtures of Neopentanol with tert-Butyl Chloride and Carbon Tetrachloride Studied by Thermal, X-ray and Dielectric Techniques, *Thermochimica Acta*, 2016, 631: 36–50
- Prakash R., **Pandey A.**, “Saturation of Number Variance in Embedded Random Matrix Ensembles”, *Phys. Rev. E*, 2016, 93: 052225.
- **Patankar VM.**, Rajan C.S., “Distinguishing Galois Representations by their Normalized Traces”, *Journal of Number Theory*, 2017, 178: 118.
- Sudesh K.P., Neha P., Das T., **Patnaik S.**, “Evidence for Trivial Berry Phase and Absence of Chiral Anomaly in Semi-metal NbP, *Scientific Reports*, 2017, 7, art. no. 46062.
- Sharma V., Saha J., **Patnaik S.**, Kuanr B. K., “Synthesis and Characterization of Yttrium Iron Garnet (YIG) Nanoparticles - Microwave Material”, *AIP Advances*, 2017, 7, art. no. 056405
- Jain P., Saha J., Gupta L.C., **Patnaik S.**, Ganguli A.K., Chatterjee R., “Dramatic Variation of the Multiferroic Properties in Sr Doped $\text{Ca}_{1-x}\text{Sr}_x\text{Mn}_2\text{O}_{12}$ ”, *AIP Advances*, 2017, 7, art. no. 055832
- Sultana R., Neha P., Goyal R., **Patnaik S.**, Awana V.P.S., “Unusual Non- saturating Giant Magneto-resistance in Single Crystalline Bi_2Te_3 Topological Insulator”, *Journal of Magnetism and Magnetic Materials*, 2017, 428: 213-218
- Kumar R., Asokan K., **Patnaik S.**, “Birajdar B., Evolution of Microstructure and Relaxor Ferroelectric Properties in $(\text{La}_{0.8}\text{Ba}_{0.2})(\text{Ti}_{0.8}\text{Sn}_{0.2})\text{O}_3$ ”, *Journal of Alloys and Compounds*, 2016, 687: 197-203
- Maheshwari P.K., Joshi L.M., Gahtori B., Srivastava A.K., Gupta A., **Patnaik S.**, Awana V.P.S., “Flux free Growth of Superconducting FeSe Single Crystals”, *Materials Research Express*, 2016, 3: art. no. 076002

- Shruti G.R., Awana V.P.S., **Patnaik S.**, “Single Gap s-wave Superconductivity in Nb₂PdS₅”, *Physica C: Superconductivity and its Applications*, 2016, 524: 24-27
- **Pramanik A.K.**, Banerjee A., “Finite-size effect on evolution of Griffiths phase in manganite nanoparticles”, *J. Phys.: Condens. Matter*, 2016, 28: 35LT02
- Bhatti I.N., **Pramanik A.K.**, “Insulating Phase in Sr₂IrO₄: An Investigation using Critical Analysis and Magneto caloric Effect”, *J. Magn. Magn Mater.*, 2017, 422: 141-48
- Gupta R, **Pramanik A.K.**, “Site dilution in SrRuO₃: Effects on structural and magnetic properties in IOP, *J Phys.*”: *Condens. Matter*, 2017, 29: 115801
- Kumar H., **Pramanik A.K.**, “Evolution of Structure, Magnetism, and Electronic Transport in the Doped Pyrochlore Iridate Y₂Ir_{2-x}Ru_xO₇, *Phys. Rev. B*, 2017, 95: 054415
- Katyal N., Botet R., **Puri S.**, Robustness of the Fractal Regime for the Multiple-scattering Structure Factor}, *J. of Quantitative Spectroscopy and Radiative Transfer*, 2016, 179: 11
- Das, P., **Puri S.**, Schwartz, M., “Clustering and Velocity Distributions in Granular Gases Cooling by Solid Friction, *Phys. Rev. E*, 2016, 94: 032907
- Shankaraiah N, Dubey, A.K., **Puri S.**, Shenoy SR., Dynamical Scaling for Underdamped Strain Order Parameters Quenched below First-order Phase Transitions, *Phys. Rev. B*, 2016, 94: 224101,
- Bupathy A., Verma, R., Banerjee V., **Puri S.**, “Non-Porod Scattering and Non-Integer Scaling of Resistance in Rough Films,” *J. Phys. Chem. Solids*, 2017, 103: 33
- Kumar M., Banerjee V., **Puri S.**, “Random Field Ising Model with Conserved Kinetics: Super-universality Violation, Logarithmic Growth Law and the Generalized Tomita Sum Rule”, *Europhys. Lett.*, 2017, 117: 10012
- Narayanam C, Kumar A., **Puri S.**, Khanna R., “Coarsening Dynamics of True Morphological Phase Separation in Unstable Thin Films, *Langmuir*”, 2017, 33: 3341-48
- Vijai K.R., Sharma B., Sharoff V.R., **Rai A.**, “First Iodine/IL-catalyzed Carbohydrate Activation as Aldehyde Equivalent for [C+2C+N] Construction of β -lactam Ring”, *Tetrahedron Letters*, 2016, 57: 3260-63
- **Rai A.**, Singh, P.K., Shukla P.K., Rai V.K., “Carbocation Catalysed Carboxylic Acid Activation in Staudinger Reaction for Stereoselective Synthesis of β -Lactams. *Tetrahedron Letters*, 2016, 57: 5084-88
- Rai V.K., Sahu G.P., Singh M., **Rai A.**,” A facile Anti-Selective Synthesis Of 3-Nitropyridin-2-Ones Using Morita Baylis Hillman Adduct of Nitroalkene, *Lett. Org. Chem.*, 2016, 13: 547-53
- Ujjwal S. R., Punetha N., **Ramaswamy R.**, “Phase Oscillators in Modular Networks: The Effect of Nonlocal Interactions, *Phys. Rev. E*, 2016, 93: 012207-1–10.
- Ujjwal S.R., Punetha N., **Ramaswamy R.**, Agrawal M., Prasad A., Driving-Induced Multistability In Coupled Chaotic Oscillators: Symmetries And Riddled Basins, *Chaos*, 2016, 26: 063111-1–6
- Kumar R, Bilal S., **Ramaswamy R.**, Synchronization properties of coupled chaotic neurons: The role of ambient noise, *Chaos*, 2016, 26: 063118-1–8
- Jafri H.H., Brojen Singh R, **Ramaswamy R.**, “Generalised Synchrony In Coupled Stochastic Processes. With Multiplicative Noise”, *Phys. Rev. E*, 2016, 94: 052216-1–8.
- Ujjwal R., Punetha N., Prasad A., **Ramaswamy R.**, Emergence of chimeras through induced multistability, *Phys. Rev. E*, 2017, 95: 032203-1–8.
- Mekala R., **Supriya S.**, Das S.K., Isolation of Blackberry-Shaped Nanoparticles of a Giant {Mo₇₂Fe₃₀} Cluster and Their Transformation to a Crystalline Nanoferric Molybdate, *Inorg. Chem.*, 2016, 55: 12504-12507
- Singh M.K, Shweta H., **Sen S.**, Dispersed Dynamics of Solvation in G-quadruplex DNA: Comparison of Dynamic Stokes Shifts of Probes in Parallel and Antiparallel Quadruplex Structures Methods Appl. *Fluoresc.*, 2016, 4: 034009
- Singh M..K., Shweta H., Khan M.F., **Sen S.**, New Insight into Probe-Location Dependent Polarity and Hydration at Lipid/Water Interfaces: Comparison Between Gel- and Fluid-Phases of Lipid Bilayers, *Phys. Chem. Chem. Phys.*, 2016, 18: 24185. (Inside Cover-Page Article)
- Rawal M.K., Khan M.F, Kapoor K., Goyal N., **Sen S.**, Saxena A.K., Lynn A.M., Tyndall J.D.A., Monk B.C., Cannon R.D., Komath S.S., Prasad R., “Insight into Pleiotropic Drug Resistance ATP-binding Cassette Pump Drug Transport through Mutagenesis of Cdr1p Transmembrane Domain”, *Sci. Rep.*, 2016, 6: 27132
- Khan M.F., Singh M.K., **Sen S.**, Quantifying Size Parameters of Water-in-Oil Microemulsion Droplets: Why Fluorescence Correlation is Advantageous over Light Scattering Correlation? *ISRAPs Bulletin*, 2016, 28: 40
- Upadhyay A.N., Tiwari R.S., **Singh K.**, “Microstructural and Thermal Investigations of Carbon Nanotube Additive Se₈₀Te₁₆Cu₄ Glassy Composites”, *Materials Letters*, 2016, 164: 449-451
- Upadhyay A.N., Tiwari R.S., **Singh K.**, “Study of Optical Properties of Vacuum Evaporated Carbon Nanotube Containing Se₈₀Te₁₆Cu₄ Thin Films”, *Materials Research Express*, 2016, 3: 086405 1-6

- Upadhyay A.N., **Singh K.**, “Kinetics of Phase Transformation of Carbon Nanotube Containing $\text{Se}_{85}\text{Te}_{10}\text{Ag}_5$ Glassy Composites”, *Materials Research Express*, 2016, 3: 125201 1-5
- Singh A.K., Srivastava O.N., **Singh K.**, “Shape and Size-Dependent Magnetic Properties of Fe_3O_4 Nanoparticles Synthesized Using Piperidine”, *Nanoscale Research Letters*, 2017: DOI 10.1186/s11671-017-2039-3

Contribution in Conference Proceedings (11)

- Shakya J., **Mohanty T.**, Microwave irradiation induced band gap tuning of $\text{MoS}_2\text{-TiO}_2$ nanocomposites. AIP conf. Proc., 2016, 1731: 050032
- Mishra A., **Mohanty T.**, Analysis of surface potential and magnetic properties of Fe_3O_4 /graphene oxide nanocomposites. AIP Conf. Proc., 2016, 1731: 050010
- Neha P., Srivastava P., Shruti S., Sudhesh S., **Patnaik S.**, Synthesis and characterization of Indium doped $\text{La}_3\text{Co}_4\text{Sn}_{13}$ skutterudite superconductor. AIP Conf. Proc., 2016, **1728**: 020485
- Kumar R., Asokan K., **Patnaik S.**, Birajdar B., Synthesis, Microstructure and Dielectric Properties of Zirconium Doped Barium Titanate. AIP Conf. Proc., 2016, **1731**: 030025
- Maurya V.K., Shruti S., Jha R., Awana V.P.S., **Patnaik S.**, Pressure Effect On Topological Crystalline Insulator SnTe and Derived Superconductor $\text{Sn}_{0.5}\text{In}_{0.5}\text{Te}$. AIP Conf. Proc., 2016, **1731**: 100011
- Shruti S., Maurya V.K., Srivastava P. **Patnaik S.**, Emergence of Super-conductivity in Topological Insulator Bi_2Se_3 by Sr intercalation. AIP Conf. Proc., 2016, **1731**: 130046
- Neha P., Srivastava P., Kanojia M.K., Jha S.K., **Patnaik S.**, Synthesis and Characterization of Bi_3Ni Superconductor. AIP Conf. Proc., 2016, 1731: 130050
- Saha J., Chaudhary S., Majumdar P., Kuanr BK, **Patnaik S.**, High Temperature Magneto-Electric Effect in Yttrium Iron Garnet (YIG). AIP Conf. Proc., 2016, 1731: 140056
- Kumar P., Sudhesh S., **Patnaik S.**, Possible Superconductivity in Weyl Semimetal NbP. AIP Conf. Proc., 2016, **1731**: 140063
- Kumar H., **Pramanik A.K.**, Evolution of Magnetic and Transport Properties In Hole Doped $\text{Y}_2\text{Ir}_2\text{O}_7$. Journal of Physics: Conference Series (Accepted), 2016
- Das P., Saha-Dasgupta T., **Puri S.**, Kinetics of Order-Disorder Transitions in Binary Mixtures: A Monte Carlo Study, J. Phys.: Conf. Series, 2016, 759: 012010

Books (01)

- **Ramaswamy R.** (Ed.). *Adventures into the Unknown: Essays by D. D. Kosambi*, Three Essays Collective, Gurgaon, 2016.

Chapters in Books (02)

- Keshri S.K., Dana S., Ajayakumar M.R., **Mukhopadhyay P.**, Chapter 3: Functional Supramolecular Materials for Electron Transfer Reactions; in *RSC: Monographs in Supramolecular Chemistry*; 2017; ISBN 978-1-78262-540-7.
- **Ramaswamy R.**, Years of Change: My tenure at the University of Hyderabad in Governance in Action, *Reminiscences of Vice Chancellors*. F. Qamar and S. R .Devi Pani (Eds.), New Delhi: Association of Indian Universities, 2017, pp. 315–340. ISBN: 9788175201385

Media Articles (02)

- **Rajaraman R.**, “Legacy Quest for a Safer World”, *The Hindu*, Edit page, <http://www.thehindu.com/opinion/op-ed/us-president-barack-obama-legacy-quest-for-a-safer-world/article8960435.ece>, 9 August, 2016
- **Rajaraman R.**, “It is Time India Signs the Nuclear Test Ban Treaty”, *The Wire*, <https://thewire.in/94539/india-nuclear-test-ban-treaty/>, 6 January, 2017