

Dr. Shib Shankar Singha

Assistant Professor & H.O.D

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Education

B.Sc. (Physics Hons.) 2009, Raiganj University

M.Sc. Physics, 2011, I.I.T. Delhi

Ph. D (Expt. Phy.), Bose Institute

Title of thesis: *Optical properties and applications of Molebdenum disulphide.*

Area of specialization

Solid state physics (M.Sc.); Micro Raman Spectroscopy

Teaching Experience

Since 17.03.2015 to till date in undergraduate (Physics –Honours& General) teaching in Brahmananda Keshab Chandra College.

Subject taught

Vector calculus, Solid state physics, Optics, Electronics.

Areas of Research

Light-matter interaction of 2D materials

Surface enhanced Raman scattering

Biosensor, Energy harvesting

Research Experience

Junior research fellow (2013-2015), Bose Institute, Kolkata

Guest researcher (2015-till now), Bose Institute, Kolkata

Recent Selected Publications

1. *Room temperature ethanol sensing by chemically reduced graphene oxide film*, PTiwary, SG Chatterjee, **Shib Shankar Singha**, R Mahapatra, AK Chakraborty **FlatChem** 30, 100317 (2021).
2. *Tailoring phonon modes of few-layered MoS₂ by in-plane electric field*, S. Mitra, D. Srivastava, **Shib Shankar Singha**, S. Dutta, B. Satpati, M. Karppinen, A. Ghosh, A. Singha, **2D Materials and Applications-Nature** 4, 6 (2020).
3. *Mn incorporated MoS₂ nanoflowers: A high performance electrode material for symmetric supercapacitor*, **Shib Shankar Singha**, S. Rudra, S. Mondal, M. Pradhan, A. K. Nayak, B. Satpati, P. Pal, A. Singha, **Electrochimica Acta** 338, 135815 (2020).

4. *Inherent Oxygen- and Nitrogen-Doped Porous Carbon Derived from Biomass of Tamarind Leaf for High-Performance Supercapacitor Application*, R Chakroborty, PK Majhi, AKN C. Verma, Shib Shankar Singha, M Pradhan **Energy Technology** 200734, 1-12 (2020).
5. *Spectral characteristics upon harvesting plasmonic hot electrons at the Ag/ZnO heteromicrostructures*, D. S Rahman, S. K. Pal, **Shib Shankar Singha**, S. Kundu, S. Basu, Sujit K. Ghosh, **Materials Advances**, 1 (8), 2897-2907 (2020).
6. *Tailoring light-matter interaction in WS₂-gold nanoparticles hybrid systems*, T.S Bhattacharya, S. Mitra, **Shib Shankar Singha**, P.K Mondal, A. Singha, **Phys. Rev. B** 100, 235438 (2019).
7. *Electroless deposition of Pd nanostructures for multifunctional applications as surface enhanced Raman Scattering substrate and non-enzymatic sensor*, A. Roy, **Shib Shankar Singha**, S. Majumdar, A. Singha, S. Banarjee, B. Satpati, **ACS, Appl nano mater.** 2, 2503 (2019).
8. *Au nanoparticles functionalized 3D-MoS₂ nanoflower: An efficient SERS matrix for biomolecule sensing*, **Shib Shankar Singha**, S. Mondal, T. S. Bhattacharya, L. Das, K. Sen, B. Satpati, K. Das, A. Singha, **Biosensors and Bioelectronics** 119, 10 (2018).
9. *Clustered vacancies in ZnO: Chemical aspects and consequence on physical properties*, S. Pal, A. Das, **Shib Shankar Singha**, D. Kanjilal, A. Singha, D. Jana, **J. phys. D: Appl. Phys.** 51, 105107 (2018).
10. *Phytomediated generation of Ag, CuO and Ag-Cu nanoparticles for dimethoate sensing*, Z. Ansari, A. Saha, **Shib Shankar Singha**, K. Sen, **J. Photochem. Photobiology A** 367, 200 (2018).
11. *Photoluminescence modulation due to conversion of trions to excitons and plasmonic interaction in MoS₂-metal NPs hybrid structures*, **Shib Shankar Singha**, D Nandi, TS Bhattacharya, PK Mondal, A Singha, **Journal of Alloys and Compounds** 723, 722-728 (2017).
12. *Shallow acceptor state in ZnO realized by ion irradiation and annealing route*, S Pal, T Rakshit, **Shib Shankar Singha**, K Asokan, S Dutta, D Jana, A Sarkar, **Journal of Alloys and Compounds** 703, 26-33 (2017).
13. *Emerging photoluminescence from bilayer large-area 2D MoS₂ films grown by pulsed laser deposition on different substrates*, PP Arun Barvat, Nisha Prakash, Biswarup Satpati, **Shib Shankar Singha**, Prabir pal, **Journal of applied physics** 122, 015304 (2017).

14. *Tuning the photoluminescence and ultrasensitive trace detection properties of few-layer MoS₂ by decoration with gold nanoparticles*, **Shib Shankar Singha**, D Nandi, A Singha, **RSC Advances** 5 (31), 24188-24193 (2015).
15. *Sensitization of an endogenous photosensitizer: electronic spectroscopy of riboflavin in the proximity of semiconductor, insulator, and metal nanoparticles*, S Chaudhuri, S Sardar, **Shib Shankar Singha**, P Lemmens, SK Pal, **The Journal of Physical Chemistry A** 119 (18), 4162-4169 (2015).

Recent Seminar Conference attend

International Seminar Contributory Talk: International Workshop on Physics and Semiconductor Device (17-20 December 2019) Kolkata.

Contributory Talk : 3rd Annual Conference on Quantum Condensed Matter (QMAT 2020), S.N.Bose Institute, Kolkata.

Recognition:

Potential Reviewer of “Biosensor and Bioelectronics” Elsevier, 2019-till now.

Member: PG BOS