

PROFIE

Name: Dr. Sumit Kumar Das

Date of Birth: 19th May, 1993

Designation: Assistant Professor, Department of Physics

Service: W.B.E.S

Date of Joining in W.B.E.S: 22nd July, 2020

Date of Joining in this College: 22nd July, 2020

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Academic Qualifications:

Ph.D (Science), Jadavpur University (2021)

M.Sc (Physics), Jadavpur University (2016)

Teaching Experience: 2.5+ years as assistant professor

Research Experience: 6+ years (5 years as research scholar)

Research Interest: Raman Spectroscopy, Surface enhanced Raman Spectroscopy (SERS), Spectroscopic properties of molecules organised in Langmuir-Blodgett film, FDTD Simulation studies of plasmonicnanomaterials

List of Publications:

1. Effects of surface topography on SERS response: Correlating nanoscopy with spectroscopy: **Sumit Kumar Das**, Manash Ghosh, Joydeep Chowdhury, *Appl. Surf. Sci.*, 439, 1-10 (2018)
2. SERS active substrates of gold nanoparticles embedded in the pool of 5-CB liquid crystal molecules organized in Langmuir–Reverse Schaefer films: A facile fabrication route to make the topological defects useful: **Sumit Kumar Das**, Manash Ghosh, Sharmistha Ghosh, Joydeep Chowdhury, *Appl. Surf. Sci.*, 484, 1263-1273 (2019)

3. Fabrication of SERS active Langmuir–Blodgett Film substrate for screening human cancer cell lines: Experimental observations supported by multivariate data analyses: **Sumit Kumar Das**, Kunal Pal, Tara Shankar Bhattacharya, Parimal Karmakar, Joydeep Chowdhury, *Sensors & Actuators: B. Chemical*, 299, 126962-126970 (2019)
4. How SERS responses of probe molecules depend on topographies of the substrates? A vis- à-vis exploration: **Sumit Kumar Das**, Somsubhra Saha, Manash Ghosh, Joydeep Chowdhury, *Vibrational Spectroscopy*, 107, 103031-103038 (2020)
5. Deciphering the near-field response with the far-field wavelength-scanned SERS spectra of 4-mercaptopyridine adsorbed on gold nanocolloidal particles entrapped in Langmuir Reverse Schaefer film of 5CB liquid crystal molecules: **Sumit Kumar Das**, Tara Shankar Bhattacharya, Joydeep Chowdhury, *Phys. Chem. Chem. Phys.*, 22, 8719-8729 (2020)
6. Probing blood plasma samples for the detection of diabetes using SERS aided by PCA and LDA multivariate data analyses: **Sumit Kumar Das**, Tara Shankar Bhattacharya, Manash Ghosh, Joydeep Chowdhury, *New J. Chem.*, 45(5), 2670-2682 (2021)
7. Fabrication of gold nanoparticles tethered in heat-cooled calf thymus-deoxyribonucleic acid Langmuir-Blodgett film as effective surface-enhanced Raman scattering sensing platform: Rajdeep Sinha, **Sumit Kumar Das**, Manash Ghosh, Joydeep Chowdhury, *Front. Chem.*, 10, <https://doi.org/10.3389/fchem.2022.1034060>, (2022)
8. Self-assembled gold nanoparticles on the serpentine networks of Calf Thymus-DNA Langmuir-Blodgett films as efficient SERS sensing platform: Fabrication and its application in thiram detection: Rajdeep Sinha, **Sumit Kumar Das**, Manash Ghosh, Joydeep Chowdhury, *Mater. Chem. Phys.*, 295, p.127140. (2023)

Participated in Conferences / Seminars / Workshops

1. “Self-assembly of Gold nanocolloids on the organised Langmuir- Blodgett Film of Liquid Crystal: Evidence of an efficient SERS sensing platform.” **Sumit Kumar Das** and Joydeep Chowdhury. Fourth International Symposium on Semiconductor Materials and Devices [ISSMD4], organized at the School of Material Science and Nanotechnology, **Jadavpur University, Kolkata**, West Bengal, INDIA during March

8-10, 2017. Format: *Poster Presentation*, Paper No: 233.

2. “Surface morphology and SERS activity: An integrated approach.” **Sumit Kumar Das**, Manash Ghosh, Joydeep Chowdhury. National Conference on Recent Trends in Condensed Matter Physics [RTCMP 2017] October 31– November 3, 2017, At **BOSE Institute**. Format: *Poster Presentation*, ID: NTF046.
3. “Wavelength – Scanned SERS spectra of 4- Mercaptopyridine Adsorbed on Nanocolloidal Gold Entrapped in Langmuir Reverse Schaefer Film Of 5CB Liquid Crystal: An Approach to Correlate Near-Field Response With Far-Field SERS Enhancement.” **Sumit Kumar Das**, Tara Shankar Bhattacharya and Joydeep Chowdhury in the 7th International Conference on Perspectives in Vibrational Spectroscopy [ICOPVS-2018] organized by **Bhabha Atomic Research Centre** on November 25-29, 2018 at DAE-Convention Centre Anushaktinagar, Mumbai-400094. Format: *Poster Presentation*. Content No: 74.
4. “Fabrication of Salt induced microtubular of Gold nanoparticles organized in Langmuir Reverse Schaefer film as an efficient SERS sensing platform” **Sumit Kumar Das** and Joydeep Chowdhury. VISPEC 2019 Conference “Emerging Trends in Vibrational Spectroscopy” held in **Brescia, Italy** from September 11-13, 2019. Format: *Poster Presentation*, ID: P09.
5. “Self-assembly of Gold nanocolloids on the organised Langmuir Reverse Schaefer film of CT-DNA: Evidence of an efficient SERS sensing platform.” **Sumit Kumar Das**, Manash Ghosh and Joydeep Chowdhury. National Seminar on Physics at Surfaces and Interfaces of Soft Materials [PSISM-2019] during 26-27th September, 2019 held at Department of Physics, **Jadavpur University**. Format: *Oral Presentation*. ID: Oral-4.

Awards and others academic achievements

- INSPIRE Scholarship [1750/2011] award by DST
- Qualified JAM-2014 in Physics.
- Qualified UGC NET with JRF in Physical Sciences (December, 2015)
- Qualified GATE-2018 in Physics.

I hereby declare that all the statements made above are correct to the best of my knowledge and belief.

Sumit Kumar Das

Date: 24.06.2023

Place: West Bengal, India