Dr. Shibdas Banerjee

Associate Professor, Department of Chemistry
Indian Institute of Science Education and Research (IISER) Tirupati
✉ shibdas@iisertirupati.ac.in | https://sblab.in/
Venkatagiri Road, Tirupati 517619, Andhra Pradesh, India
+91-877 2500 411 (Off.)

RESEARCH INTERESTS

- Microdroplet Chemistry & Interfacial Reactions
- Sustainable Chemistry
- Reactive Intermediate Detection
- Mass Spectrometry Imaging and Ambient Ionization Techniques
- Biomolecular Analysis and Disease Biomarker Discovery
- Real-time in situ Monitoring of Chemical and Biochemical Transformations

EDUCATION

- Ph.D. in Chemical Sciences, **2014**, Tata Institute of Fundamental Research (TIFR), Mumbai, India. **Thesis:** *Study of the Gas-phase Properties of Analytes by Electrospray Ionization Mass Spectrometry and Applications in Cytochrome P450 Biocatalysis* (under Prof. S. Mazumdar)
- M.Sc. in Chemistry, **2008**, Indian Institute of Technology (IIT) Roorkee, India
- B.Sc. in Chemistry Hons., **2006**, University of Calcutta, Kolkata, India

PROFESSIONAL EXPERIENCE

- Associate Professor, Department of Chemistry, IISER Tirupati (July **2022**–Present)
- Assistant Professor, Department of Chemistry, IISER Tirupati (August **2017**–July 2022)
- Postdoctoral Fellow, Prof. Richard N. Zare's Lab, Stanford University (July 2014–July 2017)

SELECTED AWARDS & HONORS

- ✓ Shimadzu Young Scientist Award-GOLD from Asia Pacific (2014)
- ✓ Ramanujan Fellowship, Govt. of India (2018)
- ✓ Early Career Research Award from SERB, DST, Govt. of India (2019)
- ✓ Visiting Assistant Professor, Stanford University, USA (2019)
- ✓ 2022 ACES-CRSI Early Career Award (2022)
- ✓ Merck Young Scientist Award (runner-up) (2023)
- ✓ Thieme Chemistry Journals Award (2024)
- ✓ Early Career Board of Analytical Chemistry, American Chemical Society (2024-2026)
- ✓ Invited International Researcher, Nagoya Institute of Technology, Japan (2024)

KEY RESEARCH CONTRIBUTIONS

- Pioneered interfacial microdroplet chemistry for unusual chemical reactivity
- Developed real-time mass spectrometric tools for reactive species detection
- Uncovered interfacial electrical discharge at water microdroplet
- Developed paper spray ionization MS for whole blood analysis
- Unveiled diacylglycerol as the potential breast tumor marker

RESEARCH FUNDING

- Ramanujan Fellowship (INR 38 Lakhs), Govt. of India (May 2018 – May 2023), "***Mass spectrometric imaging for disease diagnosis***"
- SERB Early Career Research Award, Govt. of India (March 2019 – March 2022), "***Desorption Electrospray Ionization Mass Spectrometric Imaging for Rapid Molecular Diagnosis of Nephrotic Syndrome***"
- SERB-CRG Grant (INR 40 Lakhs), Govt. of India (December 2022 – December 2025), "***Harnessing the Chemistry of Aryl Carbocations in Aqueous Microdroplets***"
- ANRF-ARG Grant (91.68 Lakhs INR), Govt. of India (March 2026 – March 2029)

PROFESSIONAL AFFILIATIONS

- Life Member, Indian Society for Mass Spectrometry (ISMAS)
- Life Member, Chemical Research Society of India (CRSI)
- Life Member, Proteomics Society of India (PSI)

STUDENT MENTORSHIP

- Dr. Supratim Mondal (completed PhD in 2024)
- Dr. Anubhav Kumar (completed PhD in 2024)
- Current Lab Members: 5 PhD students, 2 Postdoctoral Fellows, 1 MS Thesis student

PERSONAL INFORMATION

- Date of birth: 17th Feb 1985
- Sex: Male
- Nationality: Indian

SELECTED PUBLICATIONS (After joining IISER Tirupati)

- ✓ J. Phys. Chem. Lett., **2026**, 17, 1, 389–396
- ✓ J. Am. Chem. Soc., **2025**, 147, 51, 47810–47816
- ✓ J. Am. Chem. Soc., **2025**, 147, 45, 41242–41247
- ✓ J. Am. Chem. Soc., **2025**, 147, 26, 22542–22549
- ✓ Chem. Sci. **2025**, 16, 21020-21027
- ✓ Chem. Sci. **2025**, 16, 11322-11330
- ✓ Angew. Chem. Int. Ed. **2025**, e202424745
- ✓ J. Am. Chem. Soc., **2024**, 146, 31585–31596
- ✓ J. Am. Chem. Soc., **2024**, 146, 28, 19050–19058
- ✓ JACS Au, **2024**, 4, 11, 4488–4495
- ✓ Analytical Chem., **2024**, 96, 26, 10515–10523
- ✓ J. Am. Chem. Soc., **2023**, 145, 29, 15674-15679
- ✓ Analytical Chem., **2023**, 95, 20, 8054-8062
- ✓ J. Am. Chem. Soc., **2022**, 144, 17, 7573–7577
- ✓ J. Am. Chem. Soc., **2022**, 144, 8, 3347–3352
- ✓ J. Am. Chem. Soc., **2021**, 143, 6, 2459-2463
- ✓ PNAS USA, **2019**, 116 (26), 12642-12647