Dr. Rina Ghosh

Designation: Associate Professor, Department of Chemistry

Director, Central Research Facility, St. Xavier's College

Positions held:

1. Research fellow, Indian Association for The Cultivation of Science, Kolkata **1986-1991**
2. Senior Research Associate, CSIR at Indian Association for The Cultivation of Science, Kolkata **1991-1995**
3. Assistant Professor, Serampore College, Hooghly **1996-2000**
4. Visiting Research fellow, University of California, Davis, California, USA **2000-2001**
5. Assistant Professor (Senior), St. Xavier's College, Department of Chemistry, **2001-Current date**
6. HOD, Chemistry **2009-2013**
7. Director, Central Research Facility, St. Xavier's College, **2015-Current Date**

Research interests:

- ***Pre-doctoral and post-doctoral***

Laser Induced Phenomena: Photo-physics in the excited state, Nanosecond and Picosecond scale electron transfer and proton transfer phenomena. Free and Caged Radical Photochemistry and Effect of Externally applied magnetic field on singlet – triplet transitions.

- ***Current area of research:***
  - Biophysical Chemistry - aspects of structural biology dealing with multi-tryptophan cage proteins - characterization through fluorescence and phosphorescence studies.
  - Protein phosphorescence and energy transfer phenomena, folding and unfolding studies, temperature dependence studies, Energy transfer and sensitized emission (Antenna affect) from protein – rare earth ion complexes.
  - Corroboration of Tryptophan residue location through docking studies, Accessibility of such residues to ligands.

- ***Inter-Departmental collaboration:*** Dr. Sudeshna Shyam Chowdhury, Department of Microbiology.

- ***Ph.D supervision (joint-supervisor)***
  1. Ms. Priyanka Mukherjee, Part – time

- ***Publication(s): 2022 - 2025***
  - Tracking zone-wise perturbation during unfolding of some globular proteins using Eu(III) complex of Tetracycline as a probe exhibiting Stark splitting, Moumita Mukherjee, Pinki SahaSardar, Maitrayee Basu Roy, Priyanka Mukherjee, **Rina Ghosh**, and Sanjib Ghosh SpectrochimicaActa A - Molecular and Biomolecular Spectroscopy 264 (2022) 120231, pp 1386 – 1425.
  - Triplet state spectroscopy reveals involvement of the buried tryptophan residue 310 in Glyceraldehyde-3-phosphate dehydrogenase (GAPD) in the interaction with acrylamide: Priyanka Mukherjee, Titas Kumar Mukhopadhyay, Manini Mukherjee, Pritam Roy, Rina Ghosh, Pinaki Saha Sardar and Sanjib Ghosh Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy 2024, 307(12) 123622.
  - Photophysical and structural aspects of poly-L-tryptophan: $\pi - \pi$ stacking interaction with an excited state intermolecular proton transfer probe 3-Hydroxynaphthoic acid revealed by experiments and molecular

simulation, Priyanka Mukherjee, Titas Kumar Mukhopadhyay, Sagarika Sanyal, Kaushik Kundu, Rina Ghosh, Sudeshna Shyam Chowdhury and Sanjib Ghosh Biophysical Chemistry 107416 (2025), pp 320 – 321.

- ***Paper(s) communicated:***
  - Insight on structural, enviromental and dynamical behaviour of multi-tryptophan proteins by analysis of their low temperature Phosphorescence spectra: A review,
    Priyanka Mukherjee, Sanjukta Chatterjee, Sourav Banerjee, Sudeshna Shyam Chowdhury, Rina Ghosh Spectrochimica Acta A - Molecular and Biomolecular Spectroscopy – Submitted.