

Swapan Chakrabarti
Associate Professor
Department of Chemistry
University of Calcutta
92- APC Road, Kolkata 700009
Email: swcchem@caluniv.ac.in



Personal Information

Nationality: Indian

ORCID ID: 0000-0002-1133-0254

Education:

- 1991** B.Sc.(Chemistry) from Presidency College, India
- 1993** M.Sc.(with specialization in Physical Chemistry) from University of Calcutta
- 2000** PhD(in Physics), University of Calcutta, under Prof. D. Banerjee
Thesis title: Studies on Transport Properties of Polypyrrole by Employing Different Experimental Methods"

Current and previous positions:

- 1999-2001** Lecturer in Chemistry, Dinabandhu Mahavidyalaya, Bongaon
- 2001-2006** Lecturer in Chemistry, University of Calcutta
- 2006-2011** Reader in Chemistry, University of Calcutta
- 2011-present** Associate Professor, University of Calcutta

Fellowships and Awards:

- 1) Guest Professor scholarship for three months, CTCC, University of Tromso, Norway(2008)
- 2) Visiting Researcher Fellowship, KTH, Sweden(2008)
- 3) Distinguished Lectureship Award, 90th Annual meeting of the Chemical society of Japan(2010)
- 4) Royal Society of Chemistry fellowship, Theoretical Chemistry Division, University of Oxford(2012)

Visiting Fellow:

- 1) Rutherford Appleton Laboratory (2009)
- 2) Department of Physics, Humboldt University(2014)
- 3) KTH, Sweden(2014)
- 4) CTCC, Norway(2016)
- 5) Hylleraas Centre for Quantum Molecular Science(2018)

Supervision of PhD and Project Students

PhD students : 6

Project students : 10

Teaching activity:

- 1) Quantum Mechanics(Semester I)
- 2) Statistical Mechanics(Semester II)
- 3) Advanced Quantum Mechanics(Semester IV)
- 4) Numerical Analysis and Programming with F77/F90((Semester IV)

Current Research Collaborators:

Name	Affiliation	Nature of Collaboration
Prof. Kenneth Ruud*	Hylleraas Centre for Quantum Molecular Science, Norway	Multiphoton absorption/photodynamics
Prof. Abhik Ghosh**	UiT- The Arctic University of Norway	Molecular Phosphorescence
Prof. Debojyoti Ghoshal***	Jadavpur University	Theoretical calculation on Metal-Organic framework
Prof. Ankan Paul***	Indian Association for the Cultivation of Science	Multi-reference systems

* **Ten** collaborative papers in prestigious international Journals

** Collaboration under progress

*** 1-2 collaborative papers in International journals of high repute

Book Chapters:

- 1) "Rationalizing the Aromaticity Indexes Used to Describe the Aromatic Behavior of Metal Clusters" by P. Seal and Swapan Chakrabarti in the book entitled "Aromaticity and Metal Clusters" edited by P. K. Chattaraj, Taylor and Francis (2010).
- 2) "Nonlinear Optics with Clusters" Sabyasachi Sen and Swapan Chakrabarti in the book entitled "Handbook of Nanophysics: Nanoelectronics and NanoPhotonics" Edited by Prof. Klaus Sattler, Taylor and Francis (2010).

Peer- reviewed Publications:

More than 75

List of Publications (2014-present)

1. On the origin of the very strong two-photon activity of squaraine dyes—a standard/damped response theory study MM Alam, M Chattopadhyaya, S Chakrabarti, A Rizzo *Physical Chemistry Chemical Physics* 16 (17), 8030-8035, 2014
2. Electrically Controlled Eight-Spin-Qubit Entangled-State Generation in a Molecular Break Junction M Chattopadhyaya, M Alam, D Sarkar, S Chakrabarti *ChemPhysChem*, 15(9), 1747-51, 2014
3. Chemical Control of Channel Interference in Two-Photon Absorption Processes MM Alam, M Chattopadhyaya, S Chakrabarti, K Ruud *Accounts of Chemical Research*, 2014
4. On site coulomb repulsion dominates over the non-local Hartree-Fock exchange in determining the band gap of polymers M Chattopadhyaya, S Sen, MM Alam, S Chakrabarti *Journal of Physics and Chemistry of Solids* 75 (2), 212-223, 2014
5. In silico design of a tunable molecular spin filter using chromium–carbon–chromium chains S Sen, S Chakrabarti *Chemical Physics* 428, 34-42, 2014
6. Cd (II) based metal-organic framework behaving as Schottky barrier diode B Bhattacharya, A Layek, MM Alam, DK Maity, S Chakrabarti, PP Ray *Chemical Communications*, 2014
7. Graphitic Silicon Nitride: A Metal-Free Ferromagnet with Charge and Spin Current Rectification, S Sen S. Chakrabarti *ChemPhysChem*, 15(13), 2756-61, 2014
8. Fe(100)–(borazine)_{n=1-4}–Fe(100): a multifunctional spin diode with spin valve action, Sayantanu Koley, Sabyasachi Sen, Snehasish Saha and Swapan Chakrabarti, *Phys. Chem. Chem. Phys.*, 2016, 18, 14376--14381

- 9. Eye-Catching Dual-Fluorescent Dynamic Metal–Organic Framework Senses Traces of Water: Experimental Findings and Theoretical Correlation, Dr. Biswajit Bhattacharya Arijit Halder Lopa Paul Dr. Swapan Chakrabarti Debajyoti Ghoshal, *Chem. Eur.J.* 22,14998 –15005, 2016.**
- 10. Origin of Dual-Peak Phosphorescence and Ultralong Lifetime of 4,6-Diethoxy-2-carbazolyl-1,3,5-triazine, Lopa Paul, Swapan Chakrabarti , and Kenneth Ruud, *J. Phys. Chem. Lett.*, 8 (6), pp 1253–1258, 2017.**
- 11. Anomalous Phosphorescence from an Organometallic White-Light Phosphor, , Lopa Paul, Swapan Chakrabarti , and Kenneth Ruud, *J. Phys. Chem. Lett.*, , 8 (19), pp 4893–4897, 2017.**
- 12. In Silico Test of Different Derivatives of Donor– σ –Acceptor System To Realize Bipolar and Unipolar Spin Rectifier, Sayantanu Koley and Swapan Chakrabarti, *J. Phys. Chem. C*, 121 (39), pp 21695–21702, 2017.**
- 13. Large Negative Differential Resistance and Rectification from a Donor– σ –Acceptor Molecule in the Presence of Dissimilar Electrodes, Sayantanu Koley and Swapan Chakrabarti, *Chem. Eur.J.* 24,5876-5882, 2018.**
- 14. Vanishing Thermal Conductance of Carbon Nanotube upon Encapsulation by Zigzag Sulfur Chain Sayantanu Koley, Sabyasachi Sen, and Swapan Chakrabarti, *J. Phys. Chem. Lett.*, 9 (11), pp 3105–3109, 2018.**
- 15. Unraveling the Microscopic Origin of Triplet Lasing from Organic Solids Lopa Paul, Ambar Banerjee, Ankan Paul, Kenneth Ruud and Swapan Chakrabarti *J. Phys. Chem. Lett.*, 9 (15), pp 4314–4318, 2018.**
- 16. Intersystem crossing rate dependent dual emission and phosphorescence from cyclometalated platinum complexes: a second order cumulant expansion based approach Torsha Moitra, Md Mehboob Alam^b and Swapan Chakrabarti *Phys. Chem. Chem. Phys.*, 20, 26053–26062, 2018.**
- 17. Strong Duschinsky Mixing Induced Breakdown of Kasha’s Rule in an Organic Phosphor, Lopa Paul, Torsha Moitra, Kenneth Ruud and Swapan Chakrabarti *J. Phys. Chem. Lett.*, 10, 369–374, 2019.**
- 18. Thermoelectric Switching of Single Walled Carbon Nanotube Due to Encapsulation of Iodine Atomic Chain” Sayantanu Koley, Sabyasachi Sen, and Swapan Chakrabarti, *J. Phys. Chem. C* 123, 7, 3996, 2019**
- 19. The influence of spin–orbit coupling, Duschinsky rotation and displacement vector on the rate of intersystem crossing of benzophenone and its fused analog fluorenone: a time dependent correlation function based approach, Pijush Karak, Swapan Chakrabarti, *Phys. Chem. Chem. Phys.* 22, 24399-24409, 2020**
- 20. Behind the scenes of spin-forbidden decay pathways in transition metal complexes, *Phys. Chem. Chem. Phys.* Accepted, 2020(Invited article <https://doi.org/10.1039/D0CP05108J>)**

Other Notable

Other Notable Publications:

1. Ferromagnetically Coupled Cobalt– Benzene– Cobalt: The Smallest Molecular Spin Filter with Unprecedented Spin Injection Coefficient S Sen, S Chakrabarti *Journal of the American Chemical Society* 132 (43), 15334-15339, 2010.
2. Electrostatic Spin Crossover and Concomitant Electrically Operated Spin Switch Action in a Ti-Based Endohedral Metallofullerene Polymer M Chattopadhyaya, MM Alam, S Sen, S. Chakrabarti *Physical Review Letters* 109 (25), 257204, 2012.