



Dr. Suvonil Sinha Ray

M.Sc. ; Ph.D.

*Assistant Professor,
Department of Chemistry*

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AREAS OF INTEREST / SPECIALISATION

- Chemical Application of Group Theory,
- Electronic Structure Theory,
- Many body Quantum mechanics,
- Post Hartree-Fock methods,
- Multireference methods,
- Relativistic Quantum Chemistry

ACADEMIC ACHIEVEMENTS

- B.Sc. in Chemistry (Hons), 2009-2012, University of Calcutta [College- Ramakrishna Mission Vidyamandira, Belur, Howrah, WB, India]
- M.Sc. in Chemistry, 2012- 2014, Banaras Hindu University, Varanasi, India.
- Ph.D. in Theoretical Chemistry (Electronic Structure Theory: Many body Quantum Mechanics), 2014-2018, Indian Institute of Engineering Science and Technology, Shibpur, Howrah, India.

RESEARCH EXPERIENCES

From	To	Name and Address of Funding Agency / Organization	Position held
2014	2016	CSIR-UGC NET	Doctoral Research Fellow (JRF)
2016	2018	CSIR-UGC NET	Doctoral Research Fellow (SRF)

2019	2020	UGC	D.S. Kothari Post-Doctoral Research Fellow
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ACADEMIC EXPERIENCE(S)

- Assistant Professor, Department of Chemistry, Ramananda College, Bishnupur, Bankura - 722122, WB, India (Since November, 2023).
- Guest lecturer in the UG and PG section, Department of Chemistry, Ramakrishna Mission Residential College, Narendrapur, Kolkata (Since August, 2024).
- Full time SACT-1 faculty for both UG and PG course in the Department of Chemistry, Ramakrishna Mission Residential College, Narendrapur, Kolkata - 700103, WB, India. (January, 2020 to November, 2023).
- Guest lecturer in the PG section, Department of Chemistry, Behala College, Kolkata. (Since January, 2018).
- Guest lecturer in the PG section, Department of Chemistry, Ramakrishna Mission Residential College, Narendrapur, Kolkata, Kolkata (January, 2016 to December, 2019).

ADMINISTRATIVE EXPERIENCE(S)

- Joint Convenor, Online Admission Sub-Committee (Since Mar, 26)
- Member, NAAC Sub-Committee-Criteria-3 (Since Mar, 26)
- Member, Digital platform, Website & Maintenance Sub-Committee (Since Nov, 23)
- Member, Online Admission Sub-Committee (Nov, 23 - Feb,26)
- Member, Seminar Sub-Committee (Nov, 23 - Feb,26)
- Member, UG & PG Board of studies, RKMRC, Narendrapur, (Jan,20 – Nov,23)

PUBLICATIONS

(List of Journals / Proceedings / Chapter in Books)

2025:

Suvonil Sinha Ray, Multireference Perturbation Based Quantum Chemical Investigation on Isomerization Alley of Diphosporous Compounds, (book chapter in **Converging Chemical and Biological Sciences for a Sustainable Era**), **Lincoln University College**, 138-145, 2025.

2019:

1. **Suvonil Sinha Ray**, Ab initio diagnosis of isomerization pathway of Diphosphene and Diphosphinylidene, **Chemical Physics**, 529, 110555, 2019.

- **Suvonil Sinha Ray**, Shovan Manna, A. Ghosh, R. K. Chaudhuri, and S. Chattopadhyay, Multireference perturbation theory with improved virtual orbitals for radicals: More degeneracies, more problems, **International Journal of Quantum Chemistry**, 119, 25776, 2019.
- Shovan Manna, **Suvonil Sinha Ray**, S. Chattopadhyay and R. K. Chaudhuri, A simplified account of the correlation effects to bond breaking processes: The Brillouin-Wigner perturbation theory using a multireference formulation, **Journal of Chemical Physics**, 151, 064114, 2019.
- Shovan Manna, **Suvonil Sinha Ray**, P. Ghosh, and S. Chattopadhyay, Structural properties and isomerisation of simple S-nitrosothiols: ab initio studies with a simplified treatment of correlation effects, **Molecular Physics**, 116, 2147-2161, 2019.

2018:

- Shovan Manna, **Suvonil Sinha Ray**, Pradipta Ghosh and Sudip Chattopadhyay, On the conversion $XCN \leftrightarrow XNC$ via an efficient and economic wave function approach, **Molecular Physics**, 116(17):1-15, 2018.
- Santu Maity, **Suvonil Sinha Ray**, Aroni Chatterjee, Nilanjan Chakroborty and Jhuma Ganguly, Sugar based self assembly of hydrogel nanotubes manifesting ES IPT: Theoretical insight and applications in live cell imaging, **Chemistry Select**, 3, 6575, 2018.

2017:

- **Suvonil Sinha Ray**, Uttam Sinha Mahapatra, Rajat K. Chaudhuri and Sudip Chattopadhyay; Combined complete active space configuration interaction and perturbation theory applied to conformational energy prototypes: Rotation and inversion barriers, **Computational and Theoretical Chemistry**, 1120, 56, 2017.
- **Suvonil Sinha Ray**, Anirban Ghosh, Anindita Shit, Rajat K. Chaudhuri and Sudip Chattopadhyay; A simplified *ab initio* treatment of diradicaloid structures produced from stretching and breaking chemical bonds, **Physical Chemistry Chemical Physics**, 19, 22282, 2017.
- **Suvonil Sinha Ray**, Shovan Manna, Rajat K. Chaudhuri and Sudip Chattopadhyay; Description of the C2 dissociation using the naive treatment of dynamical correlation in the presence of quasidegeneracy of varying degree, **Molecular Physics**, 115, 2789, 2017 { Published as a part of “**Special issue in honour of Debashis Mukherjee**” }
- **Suvonil Sinha Ray**, Pradipta Ghosh, Rajat K. Chaudhuri, and Sudip Chattopadhyay; Improved virtual orbitals in state specific multireference perturbation theory for

prototypes of quasi-degenerate electronic structure, **Journal of Chemical Physics**, 146, 064111, 2017.

- **Suvonil Sinha Ray**, Rajat K. Chaudhuri, and Sudip Chattopadhyay; Viewing the ground and excited electronic structures of platinum and its ion through the window of relativistic coupled cluster method, **Journal of Chemical Physics**, 146, 011102, 2017.
- Anirban Ghosh, **Suvonil Sinha Ray**, Rajat K. Chaudhuri, and Sudip Chattopadhyay, Four Component Relativistic State-Specific multireference perturbation theory with a simplified treatment of static correlation., **Journal Of Physical Chemistry A**, 121, 1487, 2017 {Published as a part of special issue “**Mark S. Gordon Festschrift**”}.

2016:

- **Suvonil Sinha Ray**, Anirban Ghosh, Sudip Chattopadhyay and Rajat K. Chaudhuri; Taming the electronic structure of diradicals through the window of computationally cost effective multireference perturbation theory, **Journal of Physical Chemistry A**, 120, 5897, 2016.
- Sudip Chattopadhyay, Rajat K. Chaudhuri, Uttam Sinha Mahapatra, Anirban Ghosh, and **Suvonil Sinha Ray**, State-specific multireference perturbation theory: development and present status, **WIREs Comput Mol Sci**, 6, 266, 2016 [**Wiley Publication**].

RESEARCH PAPER PRESENTATIONS AS RESOURCE PERSON / INVITED SPEAKER / PRESENTER

- New Frontiers in Chemistry - From Fundamentals to Applications Dec 2015
(organized by BITS Pilani, K K Birla Goa Campus)
- The Research Scholar Colloquium Aug 2016
(organized by Indian Institute of Engineering Science and Technology, India)
- Theoretical Chemistry Symposium Dec 2016
(Jointly organized by School of Chemistry, University of Hyderabad,
Indian Institute of Chemical Technology, Hyderabad &
Indian Institute of Information Technology, Hyderabad)
- Recent Advances in Physical and Chemical Sciences Dec 2024
(Jointly organized by S. N. Bose National Centre for Basic Sciences, Kolkata and
Kandi Raj College, Kandi, WB)
- Innovation, Expansion, Impacts and Challenges in Chemical Jan 2025
and Biological Sciences (ICBS, 2025), Surendranath College, Kolkata

SEMINAR / CONFERENCE / OTHER EVENT ORGANIZED, if any

Name of the Seminar/Conference/ Event	Name of the Funding Agency / Organization	Date	Level (International/ National/State etc.)	Responsibility (Secretary/Conv enor/Treasurer etc.)
Emerging Trends in Photovoltaic Energy Research	WB-DSTBT	10/03/26 to 11/03/26	National	Joint Coordinator

PERSONAL DETAILS IN BRIEF

Date of Birth : 26/08/1991
Nationality : Indian
Permanent Address : Haripal, Hooghly, WB, India, Pin- 712405
Marital Status : Married
Date of joining (Ramananda College): 24/11/2023
Current Designation : Assistant Professor
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