

## Dr. Suvonil Sinha Ray



M.Sc. ; Ph.D.  
Assistant Professor,  
Department of Chemistry  
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### AREAS OF INTEREST/SPECIALISATION

Physical Chemistry,  
Electronic Structure Theory,  
Many body Quantum mechanics,  
Post Hartree-Fock methods,  
Multireference methods

### ACADEMIC QUALIFICATIONS

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

### ACADEMIC ACHIEVEMENT

1. Selected as a Dr. D. S. Kothari Postdoctoral Fellow by UGC 2019.
2. Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholar (2009-2014)
3. Qualified CSIR-UGC NET EXAM (JRF) in Chemical Sciences 2013
4. Qualified GATE 2014
5. Passed M.Sc. With Distinction, awarded by Institute Of Science, BHU 2014

## TEACHING EXPERIENCE

1. Assistant Professor, Department of Chemistry, Ramananda College, Bishnupur, Bankura - 722122, WB, India (Since November, 2023)
2. 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)
3. Guest lecturer in the PG section, Department of Chemistry, Behala College, Kolkata. (Since January, 2018)
4. Guest lecturer in the PG section, Department of Chemistry, Ramakrishna Mission Residential College, Narendrapur, Kolkata, Kolkata. (January, 2016 to December, 2019)

## RESEARCH EXPERIENCE

1. Doctoral Research Fellow (CSIR-UGC NET) (2014 to 2018)
2. D.S. Kothari Post- Doctoral Research Fellow (2019 to 2020)

## PUBLICATIONS

1. **Suvonil Sinha Ray**, Ab initio diagnosis of isomerization pathway of Diphosphene and Diphosphinylidene, **Chemical Physics**, 529, 110555, 2019.
2. **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.
3. **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.

4. **Suvonil Sinha Ray**, Anirban Ghosh , Anind ita 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.
5. **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**”}
6. **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.
7. **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.
8. **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.
9. 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**”}.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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**].

## **PRESENTATIONS**

- New Frontiers in Chemistry - From Fundamentals to Applications,  
(organized by BITS Pilani, K K Birla Goa Campus) Dec 2015
- The Research Scholar Colloquium  
(organized by Indian Institute of Engineering Science and Technology, India) Aug 2016
- Theoretical Chemistry Symposium  
(jointly organized by School of Chemistry, University of Hyderabad,  
Indian Institute of Chemical Technology, Hyderabad  
Indian Institute of Information Technology, Hyderabad) Dec 2016

## **PERSONAL DETAILS IN BRIEF**

**Date of joining (Ramananda College):** 24/11/2023

**Marital Status** : Married

**Nationality** : Indian

**Current Designation** : Assistant Professor

**Permanent Address** : Haripal, Hooghly, WB, Pin - 712405

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