

**Proforma for information to be provided by the Teaching/ Academic/  
Research Staff**



1. Name: **Dr. Surajit Rakshit**
2. Designation: **Assistant Professor**
3. Academic Qualifications:

Sr.	Degree	Institution	Year
1.	B. Sc.	The University of Burdwan	2007
2.	M. Sc.	The University of Burdwan	2009
3.	Ph. D.	S. N. Bose National Centre for Basic Sciences; Jadavpur University	2014

4. Area of Specialization: (brief write up, 200 words)

**Physical Chemistry and Molecular Spectroscopy Laboratory**

We are a group of physical chemists and our research is directed towards the understanding of electronic and **structural dynamics** of elementary reactions in **Biomimetics** and **Biological** system using ultrafast **laser spectroscopic** techniques.

**Research Interest:**

- Ultrafast Photochemistry & Photophysics
- Macromolecular Crowding & Confinement
- Experimental Biophysics & Nano-Bio Interface

5. Contact Information: Department of Chemistry,  
Institute of Science,  
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Email: [surajit.rak@gmail.com](mailto:surajit.rak@gmail.com); [srakshit.chem@bhu.ac.in](mailto:srakshit.chem@bhu.ac.in)
6. Projects Undertaken as PI/ Co PI:
7. Awards/ Recognitions if any:
  - Junior Research Fellow (JRF) funded by CSIR (Council of Scientific and Industrial Research) India, December 2008.
  - Junior Research Fellow (JRF) funded by CSIR (Council of Scientific and Industrial Research) India, June 2009.
  - All India GATE (*Graduate Aptitude Test in Engineering*) Fellowship-2009, Percentile: 98.81, Rank (all India): 79

8. List of 10 major Publications: (in order of importance)

1. Y.-J. Kim<sup>#</sup>, **S. Rakshit**<sup>#</sup>, G. Y. Jin, P. Ghosh, Y. M. Lee, W.-W. Park, Y. S. Kim, and O.-H. Kwon, "Synergistic Configuration of Diols as Brønsted Bases", [Chem. –Eur. J., 23\(2017\), 17179](#). (<sup>#</sup> equal contribution)
2. **S. Rakshit**, R. Saha, R and S. K. Pal, "Modulation of Environmental Dynamics at the Active site and Activity of an Enzyme under Nanoscopic Confinement: Subtilisin Carlsberg in Anionic AOT Reverse Micelle", [J. Phys. Chem. B, 117 \(2013\) 11565](#).
3. **S. Rakshit**, R. Saha, A. Chakraborty and S. K. Pal, Effect of Hydrophobic Interaction on Structure, Dynamics and Reactivity of Water, [Langmuir, 29 \(2013\) 1808](#).
4. **S. Rakshit**, R. Saha, A. Singha, Z. S. A. Seddigi and S. K. Pal, Molecular Interaction, Cosolubilisation of Organic Pollutants and Ecotoxicity of a Potential Carcinogenic Fuel Additive MTBE in Water, [J. Mol. Liq., 180 \(2013\) 235](#).
5. **S. Rakshit**, R. Saha, P. K. Verma, R. K. Mitra and S. K. Pal, Ultrafast electron transfer in Riboflavin binding protein in macromolecular crowding of nano-sized micelle [Biochimie, 94 \(2012\) 2673](#).
6. **S. Rakshit**, N. Goswami and S. K. Pal, Slow solvent relaxation dynamics of nanometer sized reverse micellar systems through Tryptophan metabolite, Kynurenine, [Photochem. Photobiol., 88 \(2012\) 38](#).
7. **S. Rakshit**, R. Saha, P. K. Verma and S. K. Pal, Role of Solvation Dynamics in Excited State Proton Transfer of 1-Naphthol in Nanoscopic Water Clusters Formed in a Hydrophobic Solvent, [Photochem. Photobiol., 88 \(2012\) 851](#).
8. R. Saha<sup>#</sup>, P. K. Verma<sup>#</sup>, **S. Rakshit**, S. Saha, S. Mayor and S. K. Pal, Light driven ultrafast electron transfer in oxidative redding of Green Fluorescent Proteins, [Sci. Rep., 3 \(2013\) 1580](#).
9. R. Saha, **S. Rakshit**, R. K. Mitra and S. K. Pal, Microstructure, Morphology and Ultrafast Dynamics of a Novel Edible Microemulsion, [Langmuir, 28 \(2012\) 8309](#).
10. S. Batabyal, **S. Rakshit**, S. Kar, and S. K. Pal, An Improved Microfluidics Approach for Monitoring Real-Time Interaction Profiles of Ultrafast Molecular Recognition, [Rev. Sci. Instrum. 83 \(2012\) 043113](#).

9. Additional Information/ Achievements:

**Research Experience:**

2016-2017: Post-Doctoral Research Fellow

Center for Soft and Living Matter, Institute for Basic Science, UNIST, South Korea, with Prof Oh Hoon Kwon.

2014-2016: Post-Doctoral Research Fellow

Center for Nanomaterials and Chemical Reactions, Institute for Basic Science, KAIST, South Korea, with Prof. Hyotcherl Ihee.

### Visiting Research Scholar (2013- 2014)

Department of Cellular Organization and Signalling, National Centre for Biological Sciences (Prof. Satyajit Mayor's Lab)

#### Conferences Attended and Paper Presented

- Presented a **talk** "Spectroscopic Studies on Structure, Function and Dynamics of Biomolecules in Presence of Other Biologically Relevant Macromolecules" at the **Bose Fest 2013** in S.N. Bose National Centre for Basic Sciences, Kolkata, India.
- Presented a **poster** entitled "Slow Solvent Relaxation Dynamics of Nanometer Sized Reverse Micellar Systems through Tryptophan Metabolite, Kynurenine" at the International Symposium on **Chemistry and Complexity** in IACS, Kolkata, India, 2012.
- Presented a **poster** "Slow Solvent Relaxation Dynamics of Nanometer Sized Reverse micellar Systems through Tryptophan Metabolite, Kynurenine" at the **Bose Fest 2012** in S.N. Bose National Centre for Basic Sciences, Kolkata, India.
- Attend a National workshop on Fluorescence Correlation Spectroscopy (FCS) & Biophotonics **2010**, NEHU, Shilong.

#### 11. Full List of Publications:

1. Y.-J. Kim<sup>#</sup>, **S. Rakshit**<sup>#</sup>, G. Y. Jin, P. Ghosh, Y. M. Lee, W.-W. Park, Y. S. Kim, and O.-H. Kwon, "Synergistic Configuration of Diols as Brønsted Bases", [Chem. –Eur. J., 23\(2017\), 17179](#). (<sup>#</sup> equal contribution)
2. **S. Rakshit**, R. Saha, R and S. K. Pal, "Modulation of Environmental Dynamics at the Active site and Activity of an Enzyme under Nanoscopic Confinement: Subtilisin Carlsberg in Anionic AOT Reverse Micelle", [J. Phys. Chem. B, 117 \(2013\) 11565](#).
3. **S. Rakshit**, R. Saha, A. Chakraborty and S. K. Pal, Effect of Hydrophobic Interaction on Structure, Dynamics and Reactivity of Water, [Langmuir, 29 \(2013\) 1808](#).
4. **S. Rakshit**, R. Saha, A. Singha, Z. S. A. Seddigi and S. K. Pal, Molecular Interaction, Cosolubilisation of Organic Pollutants and Ecotoxicity of a Potential Carcinogenic Fuel Additive MTBE in Water, [J. Mol. Liq., 180 \(2013\) 235](#).
5. R. Saha, **S. Rakshit**, R and S. K. Pal, "Molecular Recognition of a Model Globular Protein Apomyoglobin by Synthetic Receptor Cyclodextrin: Effect of Fluorescence Modification of the Protein and Cavity Size of the Receptor in the Interaction", [J. Mol. Recognit., 26 \(2013\) 568](#).
6. R. Saha<sup>#</sup>, P. K. Verma<sup>#</sup>, **S. Rakshit**, S. Saha, S. Mayor and S. K. Pal, Light driven ultrafast electron transfer in oxidative redding of Green Fluorescent Proteins, [Sci. Rep., 3 \(2013\) 1580](#).
7. R. Saha, **S. Rakshit**, P. K. Verma, R. K. Mitra and S. K. Pal, Protein-Cofactor Binding and Ultrafast Electron Transfer in Riboflavin Binding Protein under the Spatial Confinement of Nanoscopic Reverse Micelles, [J. Mol. Recognit., 26 \(2013\) 59](#).
8. R. Saha, **S. Rakshit**, D. Majumdar, A. Singha, R. K. Mitra, and S. K. Pal, Nanostructure, Solvation Dynamics and Nano-templating of Plasmonically Active SERS Substrate in Reverse Vesicles, [J. Nanopart. Res. 15 \(2013\) 1576](#).

9. **S. Rakshit**, R. Saha, P. K. Verma, R. K. Mitra and S. K. Pal, Ultrafast electron transfer in Riboflavin binding protein in macromolecular crowding of nano-sized micelle [Biochimie, 94 \(2012\) 2673](#).
10. **S. Rakshit**, N. Goswami and S. K. Pal, Slow solvent relaxation dynamics of nanometer sized reverse micellar systems through Tryptophan metabolite, Kynurenine, [Photochem. Photobiol., 88 \(2012\) 38](#).
11. **S. Rakshit**, R. Saha, P. K. Verma and S. K. Pal, Role of Solvation Dynamics in Excited State Proton Transfer of 1-Naphthol in Nanoscopic Water Clusters Formed in a Hydrophobic Solvent, [Photochem. Photobiol., 88 \(2012\) 851](#).
12. R. Saha, **S. Rakshit**, R. K. Mitra and S. K. Pal, Microstructure, Morphology and Ultrafast Dynamics of a Novel Edible Microemulsion, [Langmuir, 28 \(2012\) 8309](#).
13. S. Batabyal, **S. Rakshit**, S. Kar, and S. K. Pal, An Improved Microfluidics Approach for Monitoring Real-Time Interaction Profiles of Ultrafast Molecular Recognition, [Rev. Sci. Instrum. 83 \(2012\) 043113](#).
14. P. K. Verma, **S. Rakshit**, R. K. Mitra and S. K. Pal, Role of <sub>hydration</sub> on the functionality of a proteolytic enzyme alpha-chymotrypsin under crowded environment, [Biochimie 93 \(2011\) 1424](#).

*Surajit Rakshit*

Date: 09/07/2018

Signature

Place: Varanasi