

Dr. ARUP KUMAR GHOSH

CURRENT POSITION : Assistant Professor

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ACADEMIC EXPERIENCE:

- **April 2021 - Present:** Assistant Professor, Department of Chemistry, SVNIT, Surat-395007, Gujarat, India.
- **Jul 2017- April 2021:** Assistant Professor, Department of Chemistry, Dharmsinh Desai University, Nadiad-387001, Gujarat, India.
- **Oct 2016- Jun 2017:** Guest Faculty, Department of Chemistry, Aliah University, New Town, Kolkata, India.
- **Dec 2015- Jan 2017 :** Research Associate, Group of Prof. Tapas Chakraborty, Department of Physical Chemistry, Indian Association for the Cultivation of Science (IACS), Kolkata, India.
Project Title: “Photodissociation studies of fluorephenols and their clusters.”
- **Aug 2014- Aug 2015 :** Post-Doctoral Researcher, Group of Prof. Purnendu K. Dasgupta at the Department of Chemistry and Biochemistry, University of Texas at Arlington, Texas, USA.
Project Title: “Development and testing of Arsenic analyzer for commercial use.”

RESEARCH INTERESTS:

- Environmental Chemistry
- Detection of Trace Level Pollutants
- Pollutants from VOCs
- Instrumentation
- Spectroscopic Analysis
- Mass Spectrometry

LIST OF PROJECTS:

- *Title: An accurate, environment friendly and fully automatic ppb level arsenic analyser.*
Status: Ongoing Start Date: 09/03/2019 Duration: 3 Years
Role: Principal Investigator Total Grant: 21.94 Lakhs
Funded by: DST, Division :Science for Equity Empowerment and Development (SEED)
Programme/Scheme :Scheme for Young Scientists and Technologists

LIST OF PUBLICATIONS:

1. "Barrierless Proton Transfer in the Weak C-H...O Hydrogen Bonded Methacrolein Dimer upon Nonresonant Multi-Photon Ionization in the Gas Phase" P. Chatterjee, **Arup K. Ghosh**, M. Samanta, and T. Chakraborty. *J. Phys. Chem. A* ., **2018**, *122*, 5563-5573.
2. "Hydrogen bond induced HF elimination from photoionized fluorophenol dimers in the gas phase." P. Chatterjee, **Arup K. Ghosh**, and T. Chakraborty. *J. Chem. Phys.*, **2017**, *146*, 084310 (1-11).

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3. “A Fast, Accurate, Speciation-Capable, Automated, and Green Gas-Phase Chemiluminescence based Approach for Analyzing Waterborne Arsenic.”, **Arup K. Ghosh**, A. N. Das, and P.K. Dasgupta. *LCGC Special Issues*, **33**, Issue 10, 10-17 (2015).
4. “Keto-enol tautomerization and intermolecular proton transfer in photoionized cyclopentanone dimer in the gas phase” **Arup K. Ghosh**, P. Chatterjee and T. Chakraborty. *J. Chem. Phys.*, **2014**, *141*, 044303(1-9).
5. “Signatures of isomerization in photodissociation of trans-crotonaldehyde probed by multiphoton ionization mass spectrometry” **Arup K. Ghosh**, S. Datta, A. Mukhopadhyay and T. Chakraborty. *J. Phys. Chem. A*, **2013**, *117*, 8710-8717.
6. “Isomeric effects on fragmentation of crotonaldehyde and methacrolein in low-energy electron-molecule collisions” **Arup K. Ghosh**, A. Chattopadhyay, A. Mukhopadhyay and T. Chakraborty. *Chem. Phys. Lett.* **2013**, *561-562*, 24-30.
7. “Electron ionization and cross section of 1, 2-Cyclohexanedione” A. Mukhopadhyay, **Arup K. Ghosh**, M. Mukherjee and T. Chakraborty. *Int. J. Mass Spectrom.* **2012**, *309*, 192-199.
8. “An alternate mode of binding of the polyphenol quercetin with serum albumins when complexed with Cu (II)” A. S. Roy, D. R. Tripathy, **Arup K. Ghosh** and S. Dasgupta. *J. Lumin.* **2012**, *132*, 2943–2951.
9. “UV photolysis of 1, 2-Cyclohexanedione in the gas phase” A. Mukhopadhyay, M. Mukherjee, **Arup K. Ghosh** and T. Chakraborty. *J. Phys. Chem. A* **2011**, *115*, 7494-7502.

WORKSHOPS/ TUTORIALS ATTENDED:

1. AICTE-ISTE approved Refresher Programme on “*Application of Applied Mathematics in Enginnering.*” Date: 27 Nov-01 December, 2017.
Venue: Dharmsinh Desai University, Nadiad-387001, Gujarat, India.
2. AICTE-ISTE approved Short term training Programme on “*Mathematical, Statistical and Computational Methods in Research*” Date: 02 April-13 April, 2018.
Venue: Dharmsinh Desai University, Nadiad-387001, Gujarat, India.

EDUCATION:

- **Ph. D. in Chemistry (2009-2015): University of Calcutta, Kolkata, India.**
Dissertation Title: “A time of flight mass spectrometric study of multiphoton dissociation and ionization of selected atmospherically important compounds” under the supervision of Prof. Tapas Chakraborty, Department of Physical Chemistry, Indian Association for the Cultivation of Science (IACS), Kolkata, India.
- **M. Sc. in Chemistry (2007-09) : Indian Institute of Technology, Kharagpur, India.**
Project Title: “Interaction of Human Serum Albumin with Quercetin Copper (II) complex” under the supervision of Prof. Swagata Dasgupta Department of Chemistry, Indian Institute of Technology, Kharagpur, India.
- **B. Sc. in Chemistry (Hons) (2004-2007): Burdwan University, West Bengal, India.**

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LIFE MEMBERSHIPS:

1. Indian Association for the Cultivation of Science (IACS), Kolkata, India.
2. The Indian Society for Technical Education (ISTE), New Delhi, India.

SCHOLARSHIPS AND FELLOWSHIPS:

- Merit-cum-Means (MCM) scholarship awarded by IIT Kharagpur (2007-2009).
- Qualified for the **Graduate Aptitude Test in Engineering (GATE)** in 2008.
- Qualified for the **National Eligibility Test (NET)** in the subject Chemical Sciences under the Joint CSIR-UGC test for the JRF and Eligibility for Lectureship and received the **Junior Research Fellowship (JRF)** under the **Council of Scientific & Industrial Research (CSIR)** and **Eligibility for Lectureship** in 2009. Subsequently received the **Senior Research Fellowship (SRF)** under CSIR in 2011.

EXPERTISE:

1. First-hand experience in building a linear **Time of Flight (TOF) mass spectrometer** and studying the photodissociation products of volatile organic compounds under supersonic jet cooled conditions using REMPI spectroscopy.
2. Experience in working with a **Quadrupole Mass Spectrometer (Extrel CMS)** and studying the fragmentation of various compounds upon interaction with low-kinetic energy electrons.
3. Experienced with working with lasers in the ultra-violet range like Nd-YAG (Spectra Physics, LAB 150 and Litron, Nano TRL Nano TRL) and Dye Lasers (Continuum, ND6000 and Fine Adjustments, PulsarePro).
4. First-hand experience in developing a fully automated laboratory and commercial set-up for measuring arsenic as low as 1 part per million.
5. Electronic structure calculations of molecules, clusters, and ions using Gaussian 09 software.
6. Data Acquisition using Visual Basic and LabVIEW programming languages.

ORAL PRESENTATIONS IN INTERNATIONAL SYMPOSIUM:

Name of the Symposium: International Symposium on Molecular Spectroscopy- 69th Meeting

Dates & Venue: 16-20 June, 2014

Venue: University of Illinois, Champaign-Urbana, Illinois, USA

Titles of Oral presentation:

- 1) Isomeric effects on fragmentations of crotonaldehyde and methacrolein in low-energy electron-molecule collisions.
- 2) Photoionization induced intermolecular proton transfer in the CH---O hydrogen bonded cyclopentanone dimer in the gas phase.