**Dr. Sumit Kumar Panja**

Assistant Professor, Department of Chemistry

Uka Tarsadia University, Maliba Campus, Gopal Vidyanagar, Bardoli, Mahuva Road, Surat-394350, Gujrat, India

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**Academic Details**

**Assistant Professor in Chemistry: (01-08-2019 Continue)**

Department of Chemistry

Uka Tarsadia University, Maliba Campus, Gopal Vidyanagar,Bardouli, Mahuba Road, Surat-394350, Gujrat, India.

**Post Doctorate*:* In Physical Chemistry (From 1st Sept. 2016 to 31st August, 2018)**

**Prof. Puspendu K. Das**

Department of Inorganic and Physical Chemistry,Indian Institute of Science, Bangalore-560012, India.

**Topic: Nonlinear Optical Behaviors of Push-pull Organic Systems by Hyper Rayleigh Technique**

**Ph. D.: In** **Physical Chemistry (2011-2016)**

**Supervisor: Dr. Satyen Saha**

Department of Chemistry, Institute of Science, Banaras Hindu University,

Varanasi, 221005, India.

**Thesis Title:** “**Low Melting Ionic Salts and Molecular Complex: Design, Synthesis,**

**Interaction, Photophysical Studies and Their Application**”

**M.Sc. Project Title**: Solvation Dynamics of Organic Dyes in Binary Solvent, **2010**, Banaras Hindu University, Varanasi. (Under supervision of **Dr. Satyen Saha**)

**M.Sc. (Chemistry; Specialization: Physical Chemistry; 2010**): **Banaras Hindu University**, Varanasi-221005, India.

**B.Sc.** (**Chemistry**, **2008)**: City College, **The University of Calcutta**, Kolkata, West Bengal, India.

**Additional Qualifications**

* **UGC-CSIR National Eligibility Test**: **(Lectureship: December-2010, 2011)** qualified in Chemical Sciences.
* **GATE**:Qualified in Chemical Sciences **2010 and 2011.**

**Research Interest**

* Ultrafast energy transfer dynamics in Singlet Fission for solar cell.
* Perovskite Nanocrystals and its application as photocatalyst
* Surface modulated optical and energy transfer process of noble metal (Gold) nanoparticle.
* Optical properties and Application of fluorescence Ionic Liquids.
* Ultrafast Electron and Energy Transfer dynamics of Push-Pull Organic molecules in Solution.

**Expertise In**

* Surface modulated optical and energy transfer process of metal nanoparticle.
* Nonlinear optical behaviors of push-pull organic Material.
* Design, Synthesis, Optical properties and Application of Fluorescence and non-fluorescence Ionic Liquids.
* Experimental and Theoretical Cluster formation in Ionic liquids.
* Fundamental understanding Photo-Isomerism Process of Conjugated Small Organic Molecules.
* Ground and excited state Charge Transfer dynamics of donor-acceptor molecule in solution.
* Ground State, Excited State Proton Transfer and Twisted Intramolecular Charge Transfer (TICT) Process of push-pull organic dyes in Ionic Liquids and convectional solvents.
* Theoretical Calculation for electronic and vibrational properties of Organic molecule.

**Experimental techniques awareness**

* **Fluorescence Spectrometer (Steady State and Time resolved)**.
* **Steady State Raman Spectroscopy**
* **UV-Vis spectroscopy**
* **FTIR Spectroscopy**
* **Polarizable Microscope**
* **LOVIS Viscometer**
* **Dynamics light Scattering (DLS) Instrument**

**Work Experience**

* JRF in a DRDO Funded **Project entitled**: Energetic Low Melting Ionic Salts and Metal Complexes: Design, Synthesis and Structural Studies of Nitrogen Rich Heterocycles for Application as HEDMs **(2013-2014).**
* Junior Research Fellow in a CSIR Funded **Project entitled**: Spectroscopic Study of Singlet Radical Pair Recombination in Reaction Cavities in Room Temperature Ionic Liquids. **(2010-2012)**.

**Conferences/meetings attended (Total 9)**

1. **CBVSESU-International Symposium**

**Venue and Date:** CSIR-National Institute of Oceanography, Goa, India, 7th -8th August, 2016.

1. **6th IJAA-JSPS-International Symposium**

**Topic: Contemporary Advances of Science and Technology**

**Poster Presented:** Importance of Weak interaction in picrate based Ionic liquids: Spectroscopic and Theoretical Studies

**Venue and Date:** Department of Physics, Banaras Hindu University, Varanasi, 7th -9th August, 2015.

1. **Science Academics Lecture’s Workshop**

**Topic: Spectroscopy in Chemical Biology**

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 21st -22nd March, 2014.

1. **Science Academics Lecture’s Workshop**

**Topic: Supramolecular Chemistry: Concepts and Perspectives**

**Venue and Date**: Department of Chemistry, MMV, Banaras Hindu University, Varanasi, 4th-5th March, 2014.

1. **National Symposium on Organic Synthesis and Advance Material (NSOSAM-2014)**

**Poster Presented:** Energetic Low Melting Ionic Salts: Design, Synthesis and Structural Studies.

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 1st -2nd March, 2014.

1. **National Symposium in Chemistry and Environment (NSCE-2013)**

**Lecture and Poster Presented:** I2-catalyzed three-component protocol for the synthesis of quinazolines

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 15th -16th March, 2013.

1. **15Th CRSI National Symposium in Chemistry (CRSI-2013)**

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 1st -3rd Feb, 2013.

1. **7Th RSC-CRSI Symposium in Chemistry (RSC-CRSI-2013)**

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 31st January, 2013

1. **Science Academics Lecture’s Workshop**

**Topic**: Molecular Spectroscopy: Theory, Instrumentations and Applications

**Venue and Date:** Department of Chemistry, Banaras Hindu University, Varanasi, 2nd -3rd March, 2012.

**Book Chapter (2)**

1. **Tribological Properties of Ionic liquids, Sumit K Panja, InTechOpen Publication, 2020**, [*DOI: 10.5772/intechopen.94024*](https://www.intechopen.com/online-first/tribological-properties-of-ionic-liquids-1)
2. **Efficient Synthetic Protocol and Mechanistic Study of Quinazoline Analogues and Their Biological Importance**

***Sumit K. Panja***\*, Satyen Saha\*, Advances in Organic Synthesis, **2018,** 121-146.

*DOI: 10.2174/9781681086958118090006*

**List of Research Publications (Total 27)**

1. **Applications of Carbon Dots (CDs) in Latent Fingerprints Imaging**

**A Shabashini, *Sumit K Panja*, G. C. Nandi, *Chemistry-An Asian Journal*,** 2021**, 16,** 1057-1072.

1. **Dipolar State Assisted H-type Aggregation and Fluorescence Behavior in Push-pull Organic Chromophore**

***Sumit K. Panja, J. Mol. Struct*.,** 2021**, 1234,** 130140-46.

1. **Thermal and Nonlinear Optical Properties of Xylene Spacer Based Bis–Imidazolium Salts**

Hadji Djebar, Boumediene Haddad,\* ***Sumit K. Panja***, Annalisa Paolone, Mokhtar Drai, Didier Villemin, ***J. Mol. Struct*.,** 2020**, 1220,** 128713-29.

1. **Aggregation and Photodissociation Process of Bis-cyano-benzene in Micelles Environment**

***Sumit K. Panja,*** *J. Photochem. Photobio,* **2020,** 401, 112744-47.

1. **Influence of Anion on Physical and Electronic Property of Imidazolium Ionic Liquids: Role of Weak Interactions**

***Sumit K. Panja, ChemistrySelect,*** 2020, **5,** 2805 –2809.

1. **Coordination assisted reversible photoswitching of spiropyranbased platinum macrocycles**

Soumalya Bhattacharyya, Manoranjan Maity, Aniket Chowdhury, Manik L. Saha, ***Sumit K. Panja*,** Peter J. Stang,\* Partha S. Mukherjee\*

***Inorganic Chemistry*,** 2020, **59**, 2083-2091**.**

1. **Photoacid as ICT Probe for Ground State Proton Transfer Process from Solute to Solvents**

***Sumit K. Panja,\****

***J. Mole. Liquids*,** 2020**, 299,** 112194-112201.

1. **Evidence of Keto-Enol Tautomerization and *J*-type Aggregation in Thermochromic Schiff Base: Experimental and Theoretical Studies**

***Sumit K. Panja*,\***

***SpectroChem Acta*.,** 2020, **229,** 117860-66.

1. **Probing Phenol Dimer in Molecular Complex: Role of Nitro group and Stabilizing Agent**

***Sumit K. Panja*\*,** Supriy Verma, Satyen Saha\*,

***J. Mol. Struct*.,** 1193, **2019,** 103-109.

1. **Cluster formation through hydrogen bond bridges across chloride anions in a hydroxyl‐functionalized ionic liquid**

***Sumit K. Panja*,** Boumediene Haddad, Mansour Debdab, Johannes Kiefer,\* Yassine Chaker, Serge Bresson, Annalisa Paolone

***ChemPhysChem****.,*20, **2019,** 936-940.

1. **Selective Photodissociation of Highly Photoactive Bis-2-benzylidenemalononitrile in Solution**

***Sumit K. Panja*,\*** Suvajit Koley and Haddad Boumediene

***J. Photochem. Photobio*,** 375, **2019,** 18-23.

1. **Temperature Sensor Probe Based on Intramolecular Charge Transfer (ICT) & Reversible Solute-Solvent Interaction in Solution**

***Sumit K. Panja*,\*** Satyen Saha\*

***Spectro. Chem. Acta*.,** 212, **2019,** 128-131.

1. **Cluster of the Ionic Liquid 1-Hydroxyethyl-3-methylimidazolium picrate: From Theoretical Prediction in the Gas phase to Experimental Evidence in the Solid State**

***Sumit K. Panja*,** Haddad Boumediene, J. Kiefer,\*

***ChemPhysChem*.,** 19, **2018,** 3061-3068.

1. **Probing Effect of Weak H-bonding on Conformational Change in Ionic Liquid: Experimental and DFT Studies**

***Sumit K. Panja*,** Haddad Boumediene,\* Mokhtar Drai, Didier Villemin, Serge Bresson,

***J. Mol. Liq*.,** 266**, 2018,** 727-731.

1. **Catalyst-Free One-Pot Access to Pyrazoles and Disulfide-Tethered Pyrazoles via Deamidative Heteroannulation of **-Ketodithioesters with Semicarbazide Hydrochloride in Water**

Suvajit Koley, ***Sumit K. Panja***, Sonam Soni, and Maya Shankar Singh\*,

***Adv. Synth. Catal*.** 360, **2018,** 1780-1785.

1. **Evidence of CF-P and Aromatic πF-P Weak Interactions in Imidazolium Ionic Liquids and its Consequences.**

***Sumit K. Panja*,** Nitin Srivastava, Hemanth Noothalapati, Shinsuke Sigeto, Satyen Saha\*,

***Spectrochimica Acta Part*,** 194, **2018**, 117-125.

1. **Micro-heterogeneity in imidazolium and piperidinium cation based ionic liquids: 1D and 2D NMR studies**

***Sumit K. Panja*\*,** Satyen Saha\*,

***Magn. Reson. Chem*.** 56, **2018**,95-102.

1. **NIR Luminescent Heterodinuclear [ZnII-LnIII] Complexes: Synthesis, Crystal Structures and Photophysical properties**

Nidhi Dwivedi, ***Sumit K. Panja***, Abhineet Verma, Tomohisa Takaya, Koichi Iwata, Sailaja S. Sunkari, Satyen Saha\*,

***J. Luminescence*.,** 192, **2017,** 156-165.

1. **Tunable Intra Molecular Charge Transfer (ICT) Process of Push-Pull System: Effect of Nitro group**

***Sumit K. Panja***, Nidhi Dwivedi and Satyen Saha\* ***RSC Adv****.*6, **2016,** 105786-105794.

1. **Manipulation of Proton Transfer in Molecular Complexes: Experimental and Theoretical Studies.**

***Sumit K. Panja*,** Nidhi Dwivwdi and Satyen Saha\*, ***Phys. Chem. Chem. Phys*.,** 18, **2016**, 21600-21609.

1. **Anion Directed Structural Diversity in Zinc Complexes with Conformationally Flexible Quinazoline Ligand: Structural, Spectral and Theoretical Studies**

Nidhi Dwivedi, ***Sumit K. Panja***, Monika Das, Satyen Saha, Sailaja S. Sunkari\*, ***Dalton Trans*.,** 45, **2016,** 12053-12068.

1. **Highly Stable Naphthalene Core based Novel Strain Molecule: Influence of Intermolecular H- Bonding Architectures**

***Sumit K. Panja*,** Nidhi Dwivedi, Satyen Saha\*, ***RSC Adv*.** 6, **2016,** 59574–59581.

1. **First Report of Application of Simple Molecular Complexes as Organo-Catalyst for Knoevenagel Condensation**

***Sumit K. Panja*,** Nidhi Dwivedi and Satyen Saha\*, ***RSC Adv.,*** 5, **2015,** 65526-65531.

1. **Significance of Weak Interactions in Imidazolium picrate Ionic Liquids: Spectroscopic and Theoretical Studies for Molecular Level Understanding**

***Sumit K. Panja*,** Nidhi Dwivedi, Hemanth Noothalapati, Shinsuke Shigeto, A. K. Sikder, Abhijit Saha, Sailaja S. Sunkari and Satyen Saha, ***Phys. Chem. Chem. Phys*.,** 17, **2015,** 18167-18177.

1. **Anti-cancer Therapeutic Potential of Quinazoline Based Small Molecules Via Global Upregulation of miRNAs**

Smita Nahar, Debojit Bose, ***Sumit K. Panja***, Satyen Saha and Souvik Maiti, ***Chem. Commun*.,** 50, **2014**, 4639-4642.

1. **Recyclable, Magnetic Ionic Liquid bmim[FeCl4] Catalyzed, Multicomponent, Solvent-free, Green Synthesis of Quinazolines**

***Sumit K. Panja*,** Satyen Saha\*, ***RSC Adv.,*** 3, **2013,** 14495-14500.

1. **I2-catalyzed Three-component Protocol for the Synthesis of Quinazolines**

***Sumit K. Panja*,** Nidhi Dwivedi, Satyen Saha\*, ***Tetrahedron Letters*,** 53, **2012,** 6167-6172.

**Declaration**

I hereby declare that the information given above is true to the best of my knowledge.

Your’s faithfully



(Sumit Kumar Panja)

Dare: 04/03/2021

Place: UTU, Bardoli, Surat, Gujrat, India