

## ***Shalini Pandey***

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### **EDUCATION**

#### ***Ph.D. Physical Chemistry,***

**National Institute of Science Education and Research (NISER),** August 2016-  
**Bhubaneswar, Khordha, 752050, Odisha, India.** February 2023

**NA**

***M.Sc. Chemistry,***  
**Indian Institute of Technology (IIT-ISM) Dhanbad, 826004,** July 2014- May 85.0 %  
**Jharkhand, India. (Previously Indian School of Mines)** 2016

#### ***B.Sc. Chemistry (Hons),***

**University of Delhi, New Delhi, 110021, Delhi.** July 2010- May 73.7 %  
2013

***Intermediate (XII<sup>th</sup>),***  
**Uttar Pradesh State Board of High School and Intermediate** May 2010 73.0 %  
**Education**

***High School (X<sup>th</sup>),***  
**Uttar Pradesh State Board of High School and Intermediate** May 2008 76.7 %  
**Education**

### **TEACHING EXPERIENCE**

**Guest Lecturer**, Department of Chemistry, Govt. V.Y.T. Autonomous P.G. College, Durg.

- Joined the department in March,2025.
- Have been Teaching classes at both undergraduate and post-graduate level.

### **RESEARCH EXPERIENCE**

**Doctoral Researcher**, Dr. Arindam Ghosh's Lab, National Institute of Science Education and Research, India.

- Modified and edited pulse programs for achieving higher resolution in multidimensional NMR spectra of proteins.
- Worked towards designing new and efficient dia-CEST MRI contrast agent. Explored various methodologies and mechanisms responsible for amplifying CEST contrast efficiency of diaCEST reagents.
- Introduced carbon dots as diaCEST MRI contrast agents to the laboratory. Personally, carried out synthesis, characterization and analysis of the carbon dots.
- Highlighted the importance of synthetic parameters for carbon dots in tuning the pH-responsive CEST percentage.

## ADDITIONAL ROLES

- In addition to the duties as a doctoral researcher, I trained juniors to use high-field NMR spectrometer and managed regular cryogen filling.
- Contributed in maintaining high field NMR spectrometer facility.
- Developed skill of troubleshooting day to day NMR and other laboratory instruments related problems.

## TECHNICAL SKILLSET

- **NMR:** Acquisition and data analysis of 1D, 2D, and 3D NMR experiments for small organic molecules and larger biomolecules. Skilled in pulse program editing and basic instrumentation.
- **UV-VIS Spectrophotometer:** Basic acquisition and data analysis.
- **IR Spectroscopy:** Basic acquisition and data analysis
- **TEM:** Basic data analysis
- **XPS:** Basic data analysis
- **SOFTWARE:** Familiar with various software including basic MATLAB, Topspin, NMRpipe, Avogadro, Marvin sketch, Origin, ImageJ, ChemDraw. and CasaXPS.

## PUBLICATIONS

- **Shalini Pandey**, and Arindam Ghosh\* Going Above and Beyond: Achieving High Contrast and Higher Offset through Carbon Dot-Based diaCEST MRI Contrast Agent. *Chemical & Biomedical Imaging*, **2025**, *3*, 2, 123–131.
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- **Shalini Pandey**, Rimilmandrita Ghosh, and Arindam Ghosh\* Preparation of hydrothermal carbon quantum dots as a contrast amplifying technique for the diaCEST MRI contrast agents. *ACS Omega*, **2022**, *7*, 38, 33934–33941
- **Shalini Pandey**, Keerthana Anil C., S. Peruncheralathan, Swati Madhulika, Punit Prasad, Arindam Ghosh\*. Hydrothermal treatment as a means to improve solubility and enhance diaCEST MRI contrast efficiency. *New J. Chem.*, **2022**, *46*, 14888-14893.
- **Shalini Pandey**, Subhayan Chakraborty, Rimilmandrita Ghosh, S. Peruncheralathan,\* Arindam Ghosh\* “The role of hydrogen bonding in tuning CEST contrast efficiency: A comparative study of intra and inter-molecular hydrogen bonding.” *New J. Chem.*, **2022**, *46*, 1260-1266.
- Raktim Mukherjee, **Shalini Pandey**, Arindam Ghosh, and Palok Aich\* “Effects of starch-rich or fatrich diets on metabolism, adiposity, and glycemia in immune-biased, C57BL/6, and BALB/c mice.” *J Nutrit. Biochem.*, **2022**, *108*.
- Juhi Dutta, Chinmay Routray, **Shalini Pandey** and Himansu S. Biswal\* “Intermolecular noncovalent interactions with carbon in solution.” *Chem. Sci.*, **2022**, *13*, 14327-14335.
- Bedadyuti Vedvyas Pati, Asit Ghosh, Komal Yadav, Shyam Kumar Banjare, **Shalini Pandey**, Upakarasamy Lourderaj, and Ponneri C. Ravikumar\* “Palladium-Catalyzed Selective C-C Bond Cleavage and Stereoselective Alkenylation between Cyclopropanol and 1,3-Diyne: One-Step Synthesis of Diverse Conjugated Enynes.” *Chem. Sci.*, **2022**, *13*, 2692-2700.
- Dhyanendra Singh, Shalini Pandey, Arindam Ghosh and Palok Aich\* Effects of constant darkness on behavior and physiology of male and female mice. *Eur. J. Neuroscience*, **57**(9), 1498–1515.

## Archives:

- Indranil Ghosh, Subhayan Chakraborty, **Shalini Pandey**, Arindam Ghosh\* “Diagonal free processing of conventional phase sensitive COSY using Filter Diagonalization Method.” *ChemRxiv, 2022, DOI: 10.26434/chemrxiv-2022-f2gf6.*
- Subhayan Chakraborty, **Shalini Pandey** and Arindam Ghosh\*, “Diffusion coefficient measurement inconsistency as a parameter to monitor structural conformational changes in biomolecules” *ChemRxiv, 2022, DOI: 10.26434/chemrxiv-2022-j4h2f.*

## CONFERENCES

1. **Poster Presentation:** International Seminar on Mineral Processing Technology (**MPT-2016**).  
TCS Sahyadri Park on (15-17)<sup>th</sup> December 2016.  
**Title:** ‘HF-deashing to improve Rice Husk Char Properties ‘
2. **Poster Presentation:** Nuclear Magnetic Resonance Society (**NMRS-2020**) at Saurashtra University on (18-21)<sup>st</sup> February 2020.  
**Title:** ‘Undersampling for large biomolecules: A comparative study of non-constant time Vs. constant time evolution in indirect dimension.’
3. **Poster Presentation:** Nuclear Magnetic Resonance Society (**NMRS-2022**) at IIT Gandhinagar on (6- 9)<sup>th</sup> March 2022.  
**Title:** ‘Carbon dots: A new avenue towards making better diaCEST MRI contrast reagents’

## AWARDS AND ACHIEVEMENTS

- Life member of the Chemical Research Society of India (**CRSI**).
- NISER institute fellowship (**2016-2021**)
- Qualified Graduate Aptitude Test in Engineering, MHRD, INDIA (**GATE**) in 2016 with Chemistry (**CY**).

- Qualified Joint Admission Test for Masters in IITs, MHRD, INDIA (**IIT-JAM**) in 2013 and 2014 with Chemistry (**CY**).