SHANKHAMALA GHOSH
RESEARCH SCHOLAR
(DOB: 03/08/1991)
Department of Chemistry
Indian Institute of Technology (ISM), Dhanbad, Jharkhand-826004, India
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Education

- **Recent position:**

  Senior Research Fellow, IIT(ISM) Dhanbad, Jharkhand, India.
  Submitted Ph.D. thesis, final viva will be conducted by this month.
  Thesis Title: "*Syntheses and Application of Carboxylate ligand-based Metal Organic Frameworks (MOFs) and Metal Complexes***"**
  Supervisor: Dr. H.P. Nayek, Associate Professor (Dept. of Chemistry, IIT ISM Dhanbad)

- **July 2017 – Jan 2021**

  Senior Research Fellow, IIT(ISM) Dhanbad, Jharkhand-826004, India.

- **July 2015-June 2017**

  Junior Research Fellow, IIT(ISM) Dhanbad, Jharkhand-826004, India.

- **July 2013- May 2015**

  Degree: M.Sc. in Chemistry
  Indian Institute of Technology (Indian School of Mines) Dhanbad, Jharkhand-826004, India
  CGPA: 9.18 out of 10

- **July 2010- June 2013**

  Degree: B. Sc. (Chemistry)
  Presidency University (Formerly, Presidency College, University of Calcutta), West Bengal, India
  % of Marks: 54

- **2009**

  Degree: XII/ Higher Secondary
  Jalpaiguri Govt. Girls' High School, WBCHSE, West Bengal, India
  88.75 %, 1st Class

- **2007**

  Degree: X/Secondary
  Jalpaiguri Govt. Girls' High School, WBBSE, West Bengal, India
  96.4 %, 1st Class

Project works:

- Summer internship (Indian Academy of Science Fellow) at Bhaba Atomic Research Centre (BARC), Mumbai on **"Synthesis and characterization of lanthanide ion doped inorganic photo luminescent materials"** under the supervison of Prof. V. Sudarsan (May- July, 2014)

- M.Sc project work at IIT ISM Dhanbad on **"Application of Cationically Functionalised Guar Gum/SiO_2 Nanocomposite towards Selective Removal of Anionic Dyes"** under the supervision of Dr. Sagar Pal (August 2014- April 2015)

Research skills:

- Worked on designing, syntheses and structural interpretation of organic ligands.
- Worked on designing and various synthetic approach for the synthesis of transition metal and lanthanide-based metal organic frameworks (MOFs).
- Worked on various organic transformations including C-C, C-N coupling reactions.
- Homo and heterogeneous catalysis.
- Handling of several types of hygroscopic reagents, air and moisture sensitive compounds (Schlenk technique).
- Handling of glove box.
- Knowledge of supercapacitors, cyclic voltammetry, galvanostatic charging-discharging and electrochemical impedance spectroscopic analysis.
- Purification of compounds using column chromatography, various crystallization techniques, fractional distillation (for volatile compounds).
- Standard analysis and characterization of organic compounds using FT-IR and NMR spectroscopy, GC-MS, LC-MS, HPLC (Data interpretation only).
- Handling of Single Crystal X-ray Diffractometer, FT-IR Spectrophotometer, UV-Vis Spectrometer, Fluorescence Spectrometer, NMR spectrometer.

Computer Skills:

- Software: WinGx, Diamond, Mercury, Origin, ChemDraw, Mestrec C, MestReNova.
- MS-office, GW-basic, C, C++, Java, Python, MATLAB

Publications

Peer Reviewed International SCI Journals:

- Lanthanide (III) Metal-Organic Frameworks: Syntheses, Structures and Supercapacitor Application
  S. Ghosh, A. D. Adhikari, J. Nath, G. C. Nayak and H. P. Nayek,* *Chemistry Select*, **2019**, 4, 10624-10631.
  (IF: 1.811)

- Synthesis, Structure and Supercapacitor Application of a Cobalt(II) Metal-organic Framework
  S. Ghosh, C. Maity, G. C. Nayak and H. P. Nayek,* *Journal of Solid State Chemistry*, **2020**, 282, 121093
  (IF: 2.726)

- Elucidation of Selective Adsorption study of Congo Red using New Cadmium(II) Metal-Organic Frameworks: Adsorption Kinetics, Isotherm and Thermodynamics
  S. Ghosh, A. Sarkar and H. P. Nayek,* *(Communicated to Journal of Solid State Chemistry, J. Solid State Chem.* ***2021****,* 296, 121929-121940 **(IF: 2.726)**

- Selective removal of toxic anionic dyes from aqueous media using a novel nanocomposite derived from cationically modified guar gum and silica nanoparticles. A. Patra, S. Ghorai, **S. Ghosh**, B. Mandal, S. Pal*. *Journal of Hazardous Materials,* **2016,** 301, 127-136 **(IF: 9.038)**

- L-Leucine derived Cu(II) complex as a potential catalyst for Chan-Lam coupling reaction
  S. Ghosh, A. Sarkar and H. P. Nayek,* *(Communicated)*

- Synthesis and characterization of a tetracarboxylic acid ligand Cd(II) MOF: A potential catalyst for Friedel Craft alkylation reaction.
  S. Ghosh and H. P. Nayek,* *(Communicated)*

Workshops and Training Program Attended

- Participated in "**Annual Workshop on Catalysis (WoC 2017)**", March, 2017, organised by Dept. of Applied Chemistry, IIT (ISM), Dhanbad.

- Participated in "**National Training Programme on Research Methodology**", December, 2017, organised by Faculty Development Centre, IIT (ISM), Dhanbad.

- Presented poster in National Conference on "**Recent Advances on Materials for Sustainable Energy** (RAMSE 2018), March, 2018 organised by Dept. of Applied Chemistry, IIT (ISM), Dhanbad.

- Oral presentation in "**International Conference on Synthetic Potent Molecule and its Application**" (ICSPMIA-2018), October, 2018 organised by Dept. of Chemistry, Sikkim Manipal Institute of Technology (SMIT).

- Presented poster in National Conference on "**Modern trends in Inorganic Chemistry** (MTIC-XVII), December, 2019 organised by Dept. of Chemistry, IIT Guwahati.

Extracurricular activities

- Actively participated in organizing cultural events under the banner of "OITIJHYA"(Bengali cultural organization of IIT(ISM), Dhanbad).

- Hosted and performed in multiple cultural events organized by IIT(ISM), Dhanbad.

- Hosted and organized number of training programs, workshops and short-term courses at IIT(ISM), Dhanbad.

Hobbies

- Recitation
- Painting
- Creative Writing

References:

Dr. Hari Pada Nayek
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Department of Chemistry, IIT(ISM), Dhanbad. Jharkhand-826004, India
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Prof. Dr. G. Udayabhanu
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Dr. V. Sudarsan,
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Chemistry Division
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I solemnly declare that all the information furnished in this document is free of errors to the best of my knowledge.

Shankhamala Ghosh
16.03.2021