THEERTHA BABU T

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EDUCATION

Indian Institute of Science Education and Research (IISER),Kolkata **2021-present**
BS-MS Fourth Year
CGPA: 8.46

Bharatiya Vidya Bhavans,Poochatty,Thrissur,Kerala **2019-2021**
Higher Secondary School Education, AISSCE: 95.6%

S N Vidya Bhavan,Chentrappinni,Thrissur,Kerala **2018-2019**
Secondary school Education, AISSE: 96.6%

PERSONAL STATEMENT

An enthusiastic fourth-year BS-MS Chemistry student with a strong passion for organic chemistry research. My interest lies in the field of organocatalysis, specifically focusing on the design, synthesis, and characterization of organic molecules for their application in the biomedical and industrial sectors. In the domain of sustainable production technologies, my research focus is driven by a strong fascination with the increasing necessity to confront environmental challenges in our modern world.

RESEARCH EXPERIENCE

- **Currently working in REDOX LAB**
  Ongoing Project, IISER,Kolkata **Jan 2024 till date**
  Principal Investigator: Prof. Dr.Suman De Sarkar

  Currently working on organic synthesis with gold catalysts to develop methodologies for novel photo-electro-redox reactions.

- **'Synthesis of Novel Rare Earth MOFs : RE-NU-400 and RE-PAP-UiO'**
  Summer Project,Concordia University, Montreal,Quebec **May 2024 - Aug 2024**
  Principal Investigator: Dr.Ashlee Howrath

  During my 12-week summer internship, I pursued research on two key projects, beginning with the successful synthesis of a novel rare earth metal-organic framework, RE-NU-400, using Yttrium, which was subsequently characterized through P-XRD, FE-SEM, and BET techniques. The second project focused on the synthesis and characterization of RE-PAP-UIO, where I made substantial progress. I remain actively engaged in ongoing research and further applications related to both projects.

- **'Synthesis Of Aubagio'**
  Course Project, IISER Kolkata **March 2024 - May 2024**
  Course Instructor: Prof.Dr.Suman De Sarkar

  The project focused on the synthesis and characterization of Teriflunomide (commonly known as Aubagio) which is a novel disease-modifying drug, that was recently approved for use in the treatment of Multiple Sclerosis (MS).

- **'Synthesis and Characterization of Dirac Semimetal and Chiral Intermetallic'**
  Summer Project, Jawaharlal Nehru Centre for Advanced Scientific Research(JNCASR), Bangalore **May 2023 - July 2023**
  Principal Investigator: Prof.Sebastian C. Peter

The work primarily focused on the synthesis and characterization of a Hydrogen Evolution Reaction (HER) Catalyst. The project commenced with the synthesis of high-quality single crystals of ZrSiS, a Dirac Semim etal, utilizing the Chemical Vapor Transport technique. The ensuing characterization involved an array of analytical techniques, including Powder X-ray Diffraction, Field-Emission Scanning Electron Microscopy (FE-SEM), and Raman Spectroscopy. In a parallel project, I was able to synthesized a pure phase Pd13.38Sn8.62 compound, followed by a strategic reduction in particle size through ball milling. This material held substantial promise for advancing the realm of asymmetric catalysis.

- **'Polyethylene-Birth to Ban'**
  Course Project, IISER Kolkata **January 2023**
  Course Instructor: Dr. Subhajit Bandyopadhay

  The project examined the complete lifecycle of polyethylene, from its production to its eventual prohibition. I analyzed the environmental consequences of polyethylene manufacturing, including resource extraction and waste generation. I also investigated the challenges posed by plastic waste accumulation and explored potential substitutes for polyethylene.

CONFERENCES AND SYMPOSIUMS

- **"Trends in Physical Chemistry" virtual conference by ACS Publications on 9th June 2023**
- **"Asymetric Organocatalysis" by Prof. Santanu Mukherjee, Department of Organic chemistry, Indian Institute of Science, Bengaluru**
- **"Inter IISER-NISER Chemistry Meet (IINCM) 2024" held at IISER Kolkata**
- **" 2024 Thermal Analysis InfoDays" held at Concordia University,Montreal,Quebec.**

PREMAJORS

- **CHEMISTRY**
- **BIOLOGY**
- **EARTH SCIENCE**

SKILLS AND TECHNIQUES

- **Teaching Assistant - Inorganic Chemistry**
- **Knows to handle UV and IR spectroscopy, Arc-melter, Dual Zone Tubular Furnace, Powder-XRD,FE-SEM,BET and NMR Spectroscopy**
- **Knows to Analyse FE-SEM,Raman Spectroscopy, NMR spectrum.**
- **Proficient in using Diamond software and VESTA.**
- **Good communication and public speaking**
- **Basic computer skills in Gnuplot,Latex,Microsoft Excel,Python,Origin**

HONOURS AND ACTIVITIES

- **Selected for Mitacs Globalink Research Internship 2024 in Chemical Sciences**
- **Selected for Summer Research Fellowship Program(SRFP)-2023 in Chemical Sciences**
- **Belongs to top one percent of the state in AISSE**
- **JEE Mains score of percentile 94.8**
- **Secured All India Rank 520 out of 50,000 candidates in the IISER Aptitude Test (IAT)**

- **MTSE,SSAT Scholar**

RELEVANT COURSES

Courses at IISER Kolkata(Click here to view teaching plan)

- **Elements of Chemistry(CH1101)**
- **Fundamentals of Spectroscopy (CH2201)**
- **General Physical Chemistry(CH1201)**
- **Organic Chemistry (1,2,3) (CH2202),(CH3102),(CH3202)**
- **Inorganic Chemistry(CH2101)**
- **Introduction to Computation (CS2201)**
- **Quantum chemistry (1,2) (CH2102),(CH3103)**
- **Phscial Organic Chemistry (CH3104)**
- **Computer Programming(CS1101)**
- **Inorganic and spectroscopy Laboratory(CH2103)**
- **Organic Synthesis Laboratory(1,2) (CH2203),(CH3204)**

TRAINING ATTENDED

- **Hazardous Materials Minor Spill Response**
- **Radiation Safety – Sealed Sources and X-Ray Devices**
- **Safe Storage of Hazardous Materials**
- **Safe Handling of Nanomaterials**
- **WHMIS for Laboratory Personnel**
- **Hazardous Waste Disposal Training for Lab Personnel**
- **Corrosive Substances**

HOBBIES/EXTRA-CURRICULAR ACTIVITIES

- **Classical Dancer**
- **Reading,Hiking**
- **Kabbadi and Football player**