Miswar Yousuf T

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Personal Profile

Currently pursuing 5th semester (3rd Year) of Integrated MSc. Chemical Sciences in the University of Hyderabad. I am interested in working on condensed matter and nanoparticle research.

I am experienced in nanomaterial synthesis and would like to apply my knowledge in interdisciplinary fields of science. I am seeking for a challenging opportunity to develop and enhance my scientific research and professional work skills.

Research Interest

- Nanomaterial composites
- 3DOM nanomaterials
- Electrochemical sensors
- Metal oxides
- Energy materials
- Nanothermites

Education

Student at **University of Hyderabad** — Hyderabad, India
-Integrated MSc. Chemical Sciences — 2020–Current
Special focus on interdisciplinary science Chemistry, Physics, Biology and Mathematics

Student at **Indian Institute of Technology Madras** — Online
-Foundation in Programming and Data Science — 2021–Current

Training

Biosensor: Design and Applications — Karaikudi, India
CSIR-Central Electrochemical Research Institute — September 2022

- Electrochemical (Bio)sensor development
- Training included topics from fundamental electrochemistry to advanced biosensor fabrication.
- Hands-on experience in the synthesis of basic electrochemical sensors and the fabrication of screen-printed carbon electrodes
- Detailed discussion on uses and applications of electrochemical biosensors in various domains like medicine, fitness, and defense

NIUS Chemistry Programme — Mumbai, India
Homi Bhabha Centre for Science Education, TIFR — December 2021

- Introduction to different branches of chemistry
- Planning of experiment
- Experimental sessions on physical, analytical and organic chemistry
- Introduction to the role of Physicochemical Properties in Drug Transport
- Introduction to cardiac system heart waves and arrhythmia
- Insights into therapeutics and vaccine development combining chemistry and engineering
- Reading and writing research paper

Projects and Experience

University of Hyderabad Hyderabad, India
Student Researcher September 2022–Current

- Synthesis of 3DOM Al/Mn3O4 energetic chips
- Chemical synthesis of Aluminium nanoparticles
- Synthesis of 3DOM Al/Mn3O4 nanothermite
- Thermite reaction characterisation using TG/DSC
- Synthesis of energetic chips and ignition tests
- Characterisation of the formed compounds by various analytical methods

National Institute of Technology Calicut Calicut, India
Summer Project Intern June 2022–August 2022

- Synthesis of Three Dimensionally Ordered (3DOM) Mn3O4 for Nanothermite synthesis
- Synthesised Mn3O4 **nanoparticles** by sol-gel method
- Synthesised **nanocrystalline** Mn3O4 particles at room temperature
- Hydrothermal synthesis of Mn3O4 **nanorods**
- Synthesised Poly(methyl methacrylate) and Polystyrene **nanospheres**
- 3DOM Mn3O4 synthesis by template method
- Characterisation of the formed products using various spectroscopic and microscopic techniques like XRD, SEM, TEM, FTIR and NMR

Key Skills

- Nanomaterial synthesis
- Metal oxides synthesis
- Electrochemical sensor development
- Catalyst synthesis
- Polymer synthesis
- Spectroscopy
- Analytical skills

Instrument experience

- X-Ray Diffraction (XRD)
- Fourier-transform Infrared Spectroscopy (FTIR)
- Scanning Electron Microscopy (SEM)
- Transmission Electron Microscopy (TEM)
- Nuclear Magnetic Resonance (NMR) Spectroscopy
- Gel Permeation Chromatography (GPC)
- UV-vis Spectroscopy

Other Skills

- Ability to work as a team
- Ability to learn new concepts quickly
- Basic Molecular dynamic simulation using GROMACS
- Experienced in XRD data analysis and graph plotting
- Experienced in organic, analytical and physical laboratory methods
- Experienced in electricity and magnetism laboratory methods
- Experienced in various advanced spectroscopic and microscopic techniques like SEM, TEM, FTIR, XRD, NMR, etc.
- Experienced in basic Python programming
- Advanced knowledge in Latex, Microsoft Excel and Word
- Strong interpersonal and communication skills