

Undergraduate Research Opportunity

Development of Spectroscopic techniques for analysis of molten Fluoride salts

Nuclear Engineering and Engineering Physics Department
Heat and Mass Transport Group-Professor Raluca Scarlat

Research Overview:

Molten Fluoride salts are unique solvent involved in many domains as, heat storage materials in advanced solar thermal systems and as coolant for the advanced reactor designs - Molten salt reactors (MSRs) and Fluoride salt cooled high temperature reactors (FHR).

The objective of this project is to develop techniques or modify existing techniques to analyze the chemistry of molten fluoride salts. These studies have to be performed in-situ at elevated temperatures (temperatures higher than their melting points) as it is understood that the properties of salts in solid state is much different than that in molten state. The chemistry of molten fluoride salts will be analyzed using various spectroscopic techniques as, UV-Vis spectroscopy, diffuse-reflectance FTIR, high temperature NMR and Raman spectroscopy. We are seeking undergraduates who will be working on our experiment side. Major work includes helping to set up the experiment facility and perform test experiments.

Eligibility: Relevant engineering or science background. Students with experience on UV-Vis and FTIR spectroscopy are preferred.

How to Apply:

If interested, please email Ruchi Gakhar (rgakhar@wisc.edu), Postdoc in Professor Raluca Scarlat's group (roscarlat@wisc.edu). In your correspondence, please attach your CV, relevant coursework and project/research experience.