PhD Positions at Texas Tech University

Two PhD positions are available in the research group of Dr. Zeeshan Ahmad in the Mechanical Engineering Department at Texas Tech University with a start date of Fall 2022. Projects of interest include:

- Understanding and circumventing fundamental limitations in Li metal solid-state batteries. The project will involve simulations of interfaces in solid-state batteries using first-principles density functional theory and molecular dynamics and the development of models for coupling external parameters such as pressure and temperature. These simulations will be complemented by battery cycling and imaging experiments in the lab.
- Hybrid semiconductors for photovoltaic, optoelectronic, and quantum information science applications. The project will advance our understanding of the electronic and optical properties of these materials using first-principles simulations. The research will be in close collaboration with experimental colleagues.
- Machine learning techniques for accelerating quantum many-body simulations and high-throughput approaches for materials and interface design. Particular focus will be on developing methods suited to solving problems in energy sustainability.

More information about research and publications can be found at `https://ahzeeshan.github.io/`.
Required qualifications

- A bachelor's or master's degree in mechanical engineering, chemical engineering, materials science, chemistry, physics, or a related field
- Strong analytical skills
- Knowledge of thermodynamics and strong programming skills in one or more of Python, C++, MATLAB, Fortran, Julia
- Interest in materials and methods for energy sustainability and decarbonization

Interested candidates should apply to the PhD program in Mechanical Engineering at Texas Tech University using this link: `https://www.depts.ttu.edu/gradschool/admissions/howtoapply.php` and email Dr. Ahmad at `azeeshan@uchicago.edu` with CV and areas of interest. Early applications are encouraged, however, applications will be considered until the position is filled. Applications from underrepresented minorities are encouraged. Texas Tech is classified as an R1 research institution (very high research activity) by the Carnegie Classification of Institutions of Higher Education.