Full CV

M. Waseem Ashraf

(385) 286-8600 – waseemashraf1584@gmail.com

SKILLS

- Software Skills: SolidWorks, PTC CREO, ANSYS, OpenMP (familiar), **VASP (DFT, DFPT)**, Atomate, MongoDB, **Phonopy**, **QE, MD Lammps, RedHat Linux/Bash** and willing to learn!
- Programming: C++, MATLAB, Python, Simulink, LabVIEW

RELEVANT EXPERIENCE

Brigham Young University - Graduate Research Assistant Aug 2021-Present
Design & Exploration of Zirconia based Solid-State Actuator Provo, UT

- **Phase transformation enthalpy** calculation based on **Quasi-Harmonic Approximation (QHA)** using DFPT (VASP) & Phonopy.
- Used SEM to Study Stability of Metal Fluoride Films When Irradiated with Electron Beam. Learnt **Energy Dispersive X-ray Spectroscopy (EDS, EDX)**, Electron Backscatter Diffraction (**EBSD**)
- Orientation Effects on the Electrically Induced Phase Transformation in Zirconia.
- First-principles study of dielectric properties zirconia doped with Ceria, Yttria.
- In addition to characterizing plastic deformation in composite nanomaterial strain sensors, I analyzed the microstructural behavior of the composite material under stress, focusing on failure mechanisms and optimizing the material's properties to improve sensor performance and durability in high precision, in a biomechanic system.
- High-Performance Computing (**HPC**): Proficient in utilizing HPC clusters for computational modeling, large-scale simulations, and parallel processing in Macro (FEA), and Micro (Molecular & Atomistic) simulations.
- Teaching assistance for Engineering Materials: Selection for Design & Science of Engineering Materials

AWARDS & RECOGNITION

- Recipient of **Ira. A. Fulton Fellowship** (2021-2022)
- One of the finalists for the **Rhodes Scholarships Oxford University** 2018 from Pakistan.
- Awarded certificate of appreciation for best thesis in BS from PIEAS University.
- Awarded merit certificate for academic performance in BS from PIEAS University.

EDUCATION

Brigham Young University Jul 2021-Jul2026
Mechanical Engineering PhD. Provo, UT

- GPA 3.77 / 4.00
- Research project sponsored by National Science Foundation (**NSF**).
- High throughput atomistic modelling of materials, Kinetics of Materials, Metallurgy, DFT, COMSOL.s

VOLUNTEER EXPERIENCE

Brigham Young University Sep 2023-Present

- President Official Mechanical Engineering Graduate Association (OMEGA) 2024-2025.
- Vice-President Official Mechanical Engineering Graduate Association (OMEGA) 2023-2024.

PUBLICATIONS

- Naheed, M., Ashraf, M. W., Rasheed, M., & Faryad, M. (2021). Computation of specific absorption rate for four-layered human head model exposed to HF electromagnetic waves. In Optical Interactions with Tissue and Cells XXXII (Vol. 11640, pp. 56-60). SPIE.