



# Faculty Member

## Timken Foundation Center for Precision Manufacturing

### Contact Information



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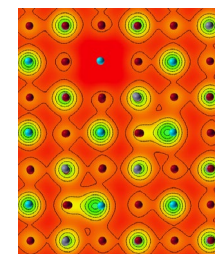
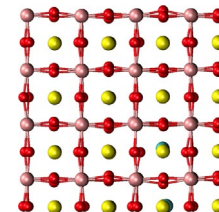
### Research Interests

- Atomistic modeling and simulations of materials
- Machine Learning in materials science
- Mechanical, electronic and transport properties of nanomaterials
- Materials design for energy storage and energy conversion
- Modeling resistivity of composites
- Friction and Adhesion at the nanometer length scales

### Sample Research I:

#### Modifying Perovskites by Defects and Doping

- Perovskites are of industrial interest for many applications.
- Physical properties of the perovskites have been extensively modified by introducing defects and doping
- The evolution of dielectric behavior from a dielectric relaxor to a ferroelectric relaxor with variation of doping concentration is explained by using atomic structures and atomic displacements.



### Sample Research II:

#### Electrical resistivity of composites

- Silicon carbide composites have great scientific and technological importance.
- The electrical resistivity of such composites strongly depend on the dispersed particles, fibers and their volume fractions.
- A two-dimensional model is created to calculate electrical resistivity of such composites.

