



University of Pittsburgh

School of Engineering
Department of Civil & Environmental Engineering

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Postdoctoral and PhD Research Positions

Several postdoctoral and PhD research positions are currently open in the Advanced Computational Technology (ACT) group at the University of Pittsburgh for the following research projects in the multidisciplinary areas of computational nanomechanics, biotechnology, renewable energy, and nanomedicine:

1. Hydrogen and bio-sensing nanowire fabrication
2. Carbon-based nanomaterials characterization and their applications in optics, nanomedicine, and next-generation nuclear power plants
3. Atomistic-to-continuum thermomechanical theory in solids
4. Energy conversion efficiency prediction in thermoelectric materials
5. Nanoscale non-destructive testing via acoustic emission

Postdoctoral position: Applicants should possess a PhD degree in civil engineering, mechanical engineering, computational mechanics, materials science, physics or a closely related field at the time of appointment. Applicants should have a strong background in computational mechanics and/or material modeling at the nanoscale. Knowledge of and past experience in molecular dynamics (MD) simulations is necessary, and experience with LAMMPS is desirable but not essential. In particular, for the carbon-based nanomaterial project, experience in first-principles calculations based on DFT or tight binding and Monte Carlo methods is desirable. For the atomistic-to-continuum and the thermoelectric materials projects, knowledge and experience in digital signal processing, wavelet theory, and multigrid finite element/meshfree methods are desirable. Part of the atomistic-to-continuum project involves code component coupling and massive parallelization, and hence applicants who have strong background and experience in these areas are encouraged to apply. This position requires a minimum of 2-year commitment.

PhD position: Highly self-motivated individuals interested in computational nanomechanics, biotechnology, energy harvesting, and/or photonics are encouraged to apply. Applicants should possess good programming and computer skills in general.

Successful applicants will carry out challenging research projects in a highly intellectual and dynamic environment. They will gain access to the state-of-the-art computing facilities at the Pittsburgh Supercomputing Center (www.psc.edu). Further, they will have an opportunity to collaborate with other Pitt faculty members to perform validation experiments for their computer simulations. Interested applicants should email Professor Albert C. To (albertto@pitt.edu) their resume and research statement (half to one page) indicating proposed start date, which project(s) they are interested in, their past research works (if any for the PhD position applicants), and future career goals. Questions regarding these positions are welcome and should be directed to Professor To.

Albert C. To, Assistant Professor
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Homepage: www.engr.pitt.edu/civil/facstaff/to_albert.html