

# Carnegie Mellon University

## Postdoctoral Positions in Malen & McGaughey Labs on High Thermal Conductivity Polymers

### Job Description

Two postdoctoral research positions to work on high thermal conductivity polymers are open in the [Malen](#) and [McGaughey](#) Laboratories in the Department of Mechanical Engineering at Carnegie Mellon University (CMU). The postdocs will play a key role in our recently-awarded [Multidisciplinary University Research Initiative \(MURI\)](#) titled *Poly-HEATLINE: Polymer HEAT Transfer by Learned Intermolecular Enhancement*. With this project we seek to study the physics of thermal transport in polymers to identify mechanisms that enable both ultra-high thermal conductivity and on-demand control of thermal conductivity by external stimuli. Our unique multidisciplinary team includes synthetic experts, multi-scale modelers, and innovative experimentalists.

One postdoctoral position focuses on thermal transport measurements of thin film and single crystal samples using laser-based metrologies.

### Qualifications for this position

- Doctorate in Mechanical Engineering, Materials Science and Engineering, or Physics on topics related to thermal energy transport.
- Coursework in heat transfer and solid state physics is desired.
- Experience programming in MATLAB and/or Python is desired.
- Experience in laser-based (e.g. time domain thermoreflectance, frequency domain thermoreflectance, transient grating) measurements of thermal transport is desired.
- Experience in micro/nanofabrication is desired.
- Familiarity with characterization tools such as XRD, SEM, FIB, and TEM is highly desired.
- A strong publication record in relevant journals, and excellent verbal and written English communication skills are required.
- The ability to work well in a self-paced, independent manner, while working well in cooperation with team members and partners is required.

A second postdoctoral position focuses on atomistic and mesoscale modeling of thermal transport.

### Qualifications for this position

- Doctorate in Mechanical Engineering, Physics, or Materials Science and Engineering on topics related to thermal energy transport.
- Coursework in heat transfer and solid state physics is desired.
- Experience programming in C++, MATLAB, and/or Python is desired.
- Experience with molecular dynamics simulations (e.g., using LAMMPS), phonon calculations (e.g., lattice dynamics calculations, the Boltzmann transport equation), and/or density functional theory calculations (e.g., using Quantum Espresso) is desired.
- Experience with machine learning is desired.
- A strong publication record in relevant journals, and excellent verbal and written English communication skills are required.
- The ability to work well in a self-paced, independent manner, while working well in cooperation with team members and partners is required.

### More Information

Please visit “Why Carnegie Mellon” to learn more about becoming part of an institution that is inspiring innovations that change the world [www.cmu.edu/jobs/why-cmu](http://www.cmu.edu/jobs/why-cmu).

Employee benefits: [www.cmu.edu/jobs/benefits-at-a-glance](http://www.cmu.edu/jobs/benefits-at-a-glance).

*Carnegie Mellon University considers applicants for employment without regard to, and does not discriminate on the basis of, gender, race, protected veteran status, disability, or any other legally protected status*

To apply please send your CV to [jonmalen@andrew.cmu.edu](mailto:jonmalen@andrew.cmu.edu) and [amcgaugh@andrew.cmu.edu](mailto:amcgaugh@andrew.cmu.edu)