

## **CMU Advanced Materials Research Initiative**

### **Advanced materials, advanced results**

The CMU Advanced Materials Research Initiative is a newly funded effort in the College of Science and Technology that supports interdisciplinary education and advanced materials research that addresses fundamental science and engineering concerns important to society.

The Advanced Materials Research Initiative will help to:

- ▶ Elevate CMU's national standing in the research community
- ▶ Enhance student training opportunities
- ▶ Improve research collaboration among scientific disciplines

Research assistantships are available for highly motivated, well-qualified graduate students. This provides an opportunity for students to receive state-of-the-art training in an exciting area crucial to the well-being of society.

### **NEW PROGRAM!**

## **Ph.D. in the Science of Advanced Materials**

**The College of Science and Technology is extremely pleased to announce that the university has approved the creation of a new Ph.D. program in the Science of Advanced Materials (SAM) at CMU.**

The Ph.D. program in the Science of Advanced Materials builds on successful research programs of faculty from several departments in the College of Science and Technology (CST) to provide students with a strong, interdisciplinary foundation in the science of advanced materials, with training in current techniques for the predictive modeling of new materials, their synthesis, and their characterization. It addresses a growing need in Michigan and across the U.S. for workers with training in advanced materials research.

Students will develop a specialization in one or more areas through advanced coursework and by conducting original research leading to a doctoral dissertation. A vibrant materials research community located in mid-Michigan, featuring major corporate research and development labs at Dow and Dow-Corning, the Michigan Molecular Institute, and high-tech start-up companies in the CMU research park (Dendritic Nanotechnologies and Artificial Cell Technologies), creates a unique niche at CMU, where students in the SAM Ph.D. program will benefit from scientific interactions with members of the community.

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### Hands-on experience inside and outside the classroom

CMU is seeking highly qualified graduate research assistants to participate in the Advanced Materials Research Initiative.

Graduate research assistants will work closely with experienced faculty, while receiving a competitive stipend and full remission of tuition and fees.

GRAS will be exposed to world renowned experts in the materials community through an active seminar program that attracts prominent external speakers.

The students will work in a spacious, modern building equipped with major instrumentation required for materials synthesis, characterization, and modeling.

To be eligible for this graduate research assistant position, the student must be admitted to the master's of science program in either physics, biology, or chemistry. Visit the [College of Graduate Students web site](#) for admission requirements.

In addition to conducting studies in CMU's laboratories, the graduate research assistants will be close to several leading research companies, with whom the university is developing research partnerships. These businesses include:

- ▶ The Dow Chemical Company
- ▶ Dow Corning Corporation
- ▶ Dendritic Nanotechnologies
- ▶ Michigan Molecular Institute
- ▶ Central Michigan University Research Corporation

### Life-enhancing research

Advanced Materials Research projects underway at CMU include:

- ▶ Using computational nanophotonics to investigate the response of nanostructured materials to light
- ▶ Developing novel materials for barrier plastic food packaging and dual-function flame retardants for polymeric materials
- ▶ Creating materials for next-generation integrated circuits, focusing on ways to reduce power consumption and heat build-up
- ▶ Designing polymer-supported, time-release antitumor agents
- ▶ Characterizing nanoscale materials, thin films, and polymers by using specialized surface and bulk techniques
- ▶ Studying polysaccharides as improved biomaterials for skin scaffolds for burn victims
- ▶ Developing materials with improved proton conductivity for fuel cell membranes