MARYLAND NANOCENTER

nanocenter.umd.edu

Providing cutting-edge nanotechnologies and services for engineering and science researchers in academia, industry and government

Developing future professionals who have hands-on experience in nanotechnology

Promoting a vibrant nanotech economy in the state of Maryland through interactions with established and emerging companies

Artist's rendering of a topological defect in artificial spin ice

The Maryland NanoCenter is founded on the University of Maryland's historic strengths in engineering and science, strategic investments in technology and talent, and a strong culture that stimulates and nurtures the highly cross-disciplinary teams driving nano's progress.

Maryland NanoCenter users and collaborators benefit greatly from extensive on-campus expertise, cutting-edge facilities, strong interactions with corporate partners, and close ties with the nation's greatest concentration of federal laboratories.

THE MARYLAND NANOCENTER WELCOMES AND SERVES:

- Outside users who wish to share our superb facilities for nanofabrication (FabLab) and nanocharacterization (AIMLab)
- Students who seek the excitement of a career in nano and a solid path to obtain it
- R&D collaborators who want to advance their goals in science or technology and product development
- Entrepreneurs who seek partnerships to advance their technology and intellectual property base and to generate new ideas for products in the nanotechnology marketplace.

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UNIVERSITY OF MARYLAND

FEATURES

RESEARCH FROM SCIENCE TO NANOTECHNOLOGY PRODUCTS:

- Nanomaterials Synthesis
- Nanoscale Measurements
- Nanoelectronics
- Microsystems
- Nano-bio technology
- Nano-based energy systems

EDUCATION:

- Undergraduate minor in nanotechnology
- Introductory nanotechnology lab training

CUTTING-EDGE, OPEN FACILITIES:

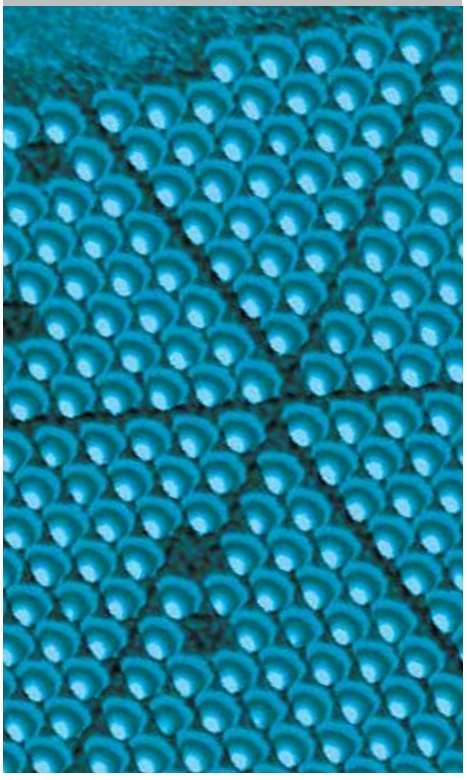
- Nanofabrication in the FabLab
- Nanocharacterization in the AIM Lab

TECHNOLOGY DEVELOPMENT WITH INDUSTRY:

- Collaborative R&D programs
- Open user facilities
- Entrepreneurship opportunities
- Equipment demonstrations

ONE-STOP SHOPPING:

- Nanotechnology expertise
- Specialized equipment
- Joint research programs



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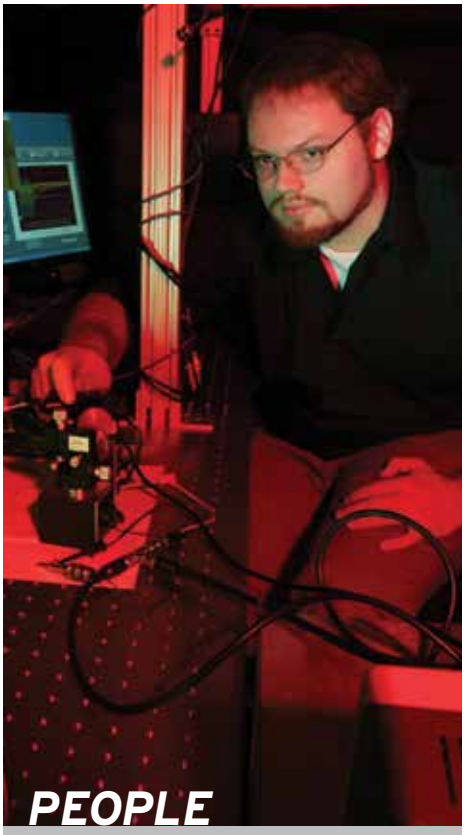

PEOPLE

RESEARCHERS:

100 faculty experts in nano- and micro- science, technology, and manufacturing

PROFESSIONAL STAFF:

Supporting shared user facilities

Open to companies, laboratories, and other institutions, as well as the University of Maryland

STUDENTS:

Students working together from engineering, life sciences, chemistry, physics, and other disciplines

Preparing the nanotechnology workforce

RESEARCH

PROJECTS INCLUDE:

- Nanotube, nanowire, and nanofilm electronic devices
- Flexible, multifunctional, nano-enhanced electronic systems
- Manufactured nanostructures that exploit self-assembly, self-limiting reaction, and self-alignment
- Combinatorial discovery and engineering of multifunctional nanomaterials
- Nanostructured polymer, composite, and biomaterial systems
- Cutting-edge nanocharacterization, particularly through scanning probes and electron microscopy
- Highly controlled nanoparticle synthesis, application, and toxicology
- Targeted, imagable nanoparticle-based drug delivery
- Biomicrosystems and biofabrication for biomolecular reactions and cell response
- Microsystems integrating sensing, actuation, and control
- Novel nanostructures for energy capture, storage, and management

THE MARYLAND NANOCENTER IS A PARTNERSHIP OF:

A. JAMES CLARK SCHOOL OF ENGINEERING

COLLEGE OF COMPUTER, MATHEMATICAL, & NATURAL SCIENCES