

UM Nanotech Center Gaining National Recognition

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The University of Maryland today announced the opening of its new Maryland Center for Integrated Nano Science and Engineering (M-CINSE) in the recently completed Jeong H. Kim Engineering Building. Yet, even before its official introduction, the new center's name already was being "dropped" in important places.

For example, the new Maryland center is named in an article recognizing the university's rapidly developing leadership in nano science and engineering that appeared in the May/June issue of *Small Times* magazine. In that issue, the magazine -- which details technological advances, applications and investment opportunities in micro and nanotechnology -- ranks the University of Maryland as number one in both nano research and nano education. Maryland was ranked number two in micro research (tied with Michigan).

In a print article, *Small Times* cites ranking factors that included the university's creation of the Maryland Center for Integrated Nano Science and Engineering, the laboratory facilities of the new Kim Building, and the nearly 100 Maryland faculty who published 120 nanotechnology-related papers and pulled in more than 400 grants in 2004.

"Nanotechnology's potential for creating mind-stretching new products in medicine, electronics, defense and other fields is well known," said University of Maryland President C.D. Mote Jr. "Our new center has just the right balance of scientific, engineering and business expertise to realize that potential, a strong commitment to environmentally benign outcomes and a collegial, service-oriented approach that welcomes collaborators and clients!"

Creating Big Innovations at Near Atomic Size

Mote cited three examples of nanotech innovations already being pursued by university researchers: "disease-targeting" magnetic nanotubes that can

deliver medication right to diseased tissues; record-breaking carbon nanotube "transistors" that may become key building blocks for a future generation of smaller and more powerful electronics; and tiny "motors" able to move within fluid microenvironments that may lead to new medical implants.

"These exciting developments depend on creative cross-fertilizations of ideas that occur across the normal boundaries between science and engineering," stated Dr. Mote. "We have a strong record of success in such boundary-breaking at the University. We are accelerating the process even further by locating the center's primary laboratories in the new Kim Engineering Building, which provides a basketball-court-sized clean room for nanofabrication, atom-resolving microscopes and other technologies, all the infrastructure required for cross-disciplinary partnerships."

"The University of Maryland's excellence in nanotech research and education is significant to our region," said Aris Melissaratos, Secretary of Business and Economic Development for the state. "This powerhouse institution is generating the ideas and people who will fuel Maryland's technology economy and create future prosperity. This outstanding resource also helps the U.S. maintain its edge in scientific innovation and gives our region a considerable advantage in building one of the world's premiere nanotech business clusters."

From Laboratory to Production Line

Crucial to the university's success in creating revolutionary nanotechnology inventions that power regional and national business will be the new center's ability to attract the interest of industry and investors, and to support the process of taking new ideas from the lab to the production line. Answering this need are the Clark School of Engineering's highly regarded technology entrepreneurship and incubator programs (based in the school's Maryland

Technology Enterprise Institute, M-TECH); the university's Office of Technology Commercialization (OTC); and the Center for Nano Manufacturing and Metrology, a new partnership between the university and the National Institute of Standards and Technology that focuses on commercial production at the nanoscale.

"With M-TECH, OTC and our center with NIST," notes Mote, "we provide the ingredient missing in most academic nanotechnology centers -- an established system for commercializing inventions. That system not only brings in financial investment, it keeps researchers aware of market opportunities and requirements."

The university's new nano science and engineering center offers opportunities in economic development as well. "Nanotechnology's potential is based in part on its ability to create entire new industries," Mote explained. "The center will help public officials at the municipal, state and federal levels accelerate nanotechnology businesses, jobs and tax revenues."

Research Results Vs. Reputation

The *Small Times* rankings that placed Maryland at the top of the nation's colleges and universities in nano research and education were based on a combination of quantitative and qualitative measures. The magazine notes that not all schools were evaluated in the rankings because not all schools returned the requested information. The magazine also listed separate reputation-based rankings for nano and micro research and education. Maryland was not in the top five of these reputation-based rankings. In discussing the two sets of rankings the magazine notes that, "Given the speed with which these [nano and micro] sectors are evolving, the perception of strength is likely to be a lagging indicator."

Visit the homepage of the Maryland Center for Integrated Nano Science and Engineering at:
www.nanocenter.umd.edu

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