

NU receives \$12.4 million NSF grant for creation of nanomanufacturing institute

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The National Science Foundation today announced a **\$12.4 (\$12.376 million for five years) million grant for a new nanoscale science and engineering center** to be headquartered at Northeastern University. The grant fortifies a partnership between Northeastern and the University of Massachusetts Lowell, the University of New Hampshire Durham, and a number of industry partners, and will enable research focused on developing mass production capabilities of nanoscale devices.

As the lead institution, Northeastern will receive \$4.7 million from NSF; much of the research associated with the project will be conducted at the George Kostas Nanomanufacturing facility on the 4th floor of the Egan Center, which is currently under construction.

Among the greatest challenges in nanotechnology is the ability to commercially produce devices that work at the nanoscale level, which is measured at one-billionth of a meter. If developed, these systems could catapult the field into a \$1 trillion industry by 2015.

The NSF grant establishes the Center for High Rate Nanomanufacturing, which will be headquartered at Northeastern under the leadership of Ahmed Busnaina, the William Lincoln Smith Professor and director of the Nanomanufacturing Research Institute and the NSF Center for Nano and Microcontamination Control. The Center will develop tools and process to mass-produce devices aimed at fulfilling the promise of nanotechnology on a larger scale, a key component in advancing the technology. The center will accomplish this through high-rate/high-

volume guided self-assembly of nanoelements, accelerating the creation of highly anticipated commercial products to enable the creation of an entirely new generation of applications yet to be imagined. At the same time, the Center will also assess the environmental, economic, regulatory, and ethical impacts of nanomanufacturing.

“ While shrinking dimensions hold the promise of exponential increases in data storage densities and other electronic, medical and energy applications, realistic commercial products cannot be realized without first answering the question of how to mass produce the technology,” Busnaina said. “We need to find an economical nanoscale manufacturing or the technology will remain in the laboratory and no one will use them. If this works, it will be revolutionary.”

Building on NU’s strengths in micro-fabrication, control of nanoscale defects in manufacturing, materials processing and sensor technology, the NSF grant creates a collaboration between the mechanical and electrical engineering, physics, chemistry, philosophy and political science departments at the university, as well as industry and partner universities (UML, UNH and MSU).

" Northeastern aims to be at the forefront of nanotechnology research," said Ahmed Abdelal, provost at Northeastern. "With our initial gift from alumnus George Kostas, we were able to establish a state-of-the-arts nanomanufacturing facility. The awarding of the NSF grant will provide a solid foundation to build on for both NU and other members of the consortium. NU will very much be a player in the nanomanufacturing and biotechnology fields." In addition to nanomanufacturing, Northeastern also has strong research programs in nanomaterials and nanomedicine.

Nanotechnology – the application of science at the atomic and molecular level -- is among the fastest growing and hottest sectors in industry

today. At Northeastern, where the nanotech and biotech initiatives are new but expanding rapidly, a strong emphasis has been placed on this emerging technology with two new associated degree programs offered, including a master's in bioinformatics and a master's in biotechnology, both of which have been created in the past two years alone.

Northeastern University, located in the heart of Boston, Massachusetts, is a world leader in cooperative education and recognized for its expert faculty and first-rate academic and research facilities. Through co-op, Northeastern undergraduates alternate semesters of full-time study with semesters of paid work in fields relevant to their professional interests and major, giving them nearly two years of professional experience upon graduation. The majority of Northeastern graduates receive a job offer from a co-op employer. Cited for excellence two years running by U.S. News & World Report, Northeastern was named a top college in the northeast by the Princeton Review 2003/04. In addition, Northeastern's career services was awarded top honors by Kaplan Newsweek's "Unofficial Insiders Guide to the 320 Most Interesting Colleges and Universities," 2003 edition. For more information, please visit www.northeastern.edu.

Source: NU

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