Lockheed Martin And Rice Partner On Nanotech Research

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Lockheed Martin and Rice University today announced the creation of an innovative, strategic partnership to develop new technologies for a broad range of applications in electronics, energy and security.

The Lockheed Martin Advanced Nanotechnology Center of Excellence at Rice University, or LANCER, will pair researchers from Lockheed Martin with Rice experts in carbon nanotechnology, photonics, plasmonics and more. LANCER will be based at Rice's Richard E. Smalley Institute for Nanoscale Science and Technology.

"Nanotechnology promises to impact everything from the clothes people wear to the energy they consume, and it will also revolutionize the systems and services Lockheed Martin delivers to its government customers," said Sharon Smith, director of Advanced Technology, Lockheed Martin. "We are excited to partner with Rice, a recognized leader in nanotechnology research, to collaborate on those breakthroughs leading us to next generation products and services for our nation."

LANCER grew out of a series of technology exchange events between the Smalley Institute and Lockheed Martin scientists in recent years, led by Rice faculty and designed to keep Lockheed Martin researchers apprised of the latest nanotechnology discoveries.

"LANCER formed from the bottom-up, and that sets it apart from other ambitious university-industry research partnerships," said Wade Adams, director of Rice's Richard E. Smalley Institute for Nanoscale Science and Technology. "The folks in the labs are the ones who came to us and said, 'Make it easier for us to work together.'"

When Lockheed Martin researchers visited Rice in March, for instance, the Smalley Institute and the Rice Alliance for Technology and Entrepreneurship sponsored a round-robin session that initiated dozens of conversations between Lockheed Martin project managers and Rice faculty on promising areas of collaborative research. LANCER officials are evaluating a number of specific proposals that grew out of those meetings.

The kinds of technologies discussed include:

-- nanomaterials that could double the efficiency of Lithium-ion batteries

-- airport scanners that can "see" through the soles of shoes

-- solar energy collectors that are twice as efficient as today's best

-- nanomaterials that can extract energy from waste heat

-- "neuromorphic" computers that are structured like mammalian brains

-- stealthy materials that are stronger and lighter than existing products

-- space-based sensors that can closely monitor climate change

LANCER officials expect to fund up to a half-dozen projects per year. Priority will be given to projects that can either be brought to market quickly or dramatically improve upon existing technology.

Nanotechnology refers to devices and specks of matter that are measured in the billionths of a meter. Nanoscale objects can be thousands of times smaller than living cells and include both organic molecules like DNA and inorganic metals and semiconductors. In many instances, scientists can create nanoparticles with great precision -- even controlling the placement of individual atoms. With this precision, scientists worldwide are racing to find new materials and processes that can revolutionize everything from healthcare and electronics to energy production and environmental science.

More than a quarter of the science and engineering faculty hired at Rice in the past two decades are nanotechnology experts who are affiliated with the Smalley Institute, which is named for Rice chemist and nanotechnology pioneer Richard Smalley.

Lockheed Martin

Headquartered in Bethesda, MD, Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation reported 2007 sales of $41.9 billion.

Rice University

Located in Houston, Rice University is consistently ranked one of America's best teaching and research universities. Known for its "unconventional wisdom," Rice is distinguished by its: size -- 3,001 undergraduates and 2,144 graduate students; selectivity -- 12 applicants for each place in the freshman class; resources -- an undergraduate student-to-faculty ratio of 5-to-1; sixth largest endowment per student among American private research universities; residential college system, which builds communities that are both close-knit and diverse; and collaborative culture, which crosses disciplines, integrates teaching and research, and intermingles undergraduate and graduate work.

Smalley Institute

Rice University's Richard E. Smalley Institute for Nanoscale Science and Technology is a venue where researchers from all disciplines of science and engineering meet to share ideas and jointly research nanoscience, nanoengineering and nanotechnology. The institute: provides administrative support to Rice faculty and to joint projects and programs, supports joint research initiatives, performs fund-raising, sponsors seminars and conferences, encourages entrepreneurism, encourages multi-disciplinary collaborations, connects to external organizations, and supports educational initiatives from the kindergarten to the professional level.

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