



NJIT<sup>®</sup>

New Jersey's Science &  
Technology University

# EMERGING TECHNOLOGIES AT THE EDGE IN KNOWLEDGE

NJIT's strategic plan identified three interdisciplinary research areas with high potential for the university and for New Jersey: neural engineering, nanotechnology, and advanced engineered particulate materials. Each has significant advances to report:

- **Tara Alvarez**, director of NJIT's Vision and Neural Engineering Lab, received an NSF CAREER grant to support her studies related to traumatic brain injury. She was also named as an Outstanding Woman of Science by the New Jersey Association of Biomedical Research.
- Assistant Professor **Bryan J. Pfister** also received an NSF CAREER grant to support and expand his research into rapid axon stretch growth, and to develop a nerve-tissue interface that would allow for a thought-controlled prosthesis that would behave like a natural limb.
- **Mesut Sahin** has NIH support for his work with a spinal cord computer interface to assist patients with spinal cord injuries in gaining mobility, environmental control and computer access. He is developing floating micro-stimulators as neural prostheses, to assist those with spinal injuries with bladder control and locomotion.
- **Zafar Iqbal**, research professor of chemistry, is developing technology that applies the principles and materials of nanotechnology to a novel biofuel cell that converts the body's own glucose to power devices like pacemakers and glucose biosensors for diabetics. The device uses highly conductive nanomaterials – carbon nanotubes and gold quantum dots – to guide the electrons.
- **Rajesh Dave**, director of the New Jersey Center for Engineered Particulates, is lead investigator in the NSF-supported Engineering Research Center for Structured Organic Composites, which operates in collaboration with Rutgers University, Purdue University and the University of Puerto Rico, Mayaguez.



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