

The ***Coulter School of Engineering*** at Clarkson University is pleased to announce the recipients of its 2009 annual seed grant program. This program is one mechanism to help the school and University to meet our strategic goals related to research and academic excellence.

This year's seed grant program focused on build strategic partnerships, especially with other universities and industries. The partners can bring access to broader areas of expertise, equipment resources, international perspectives, or the capacity to serve underrepresented populations. The funded proposals included the development and partnerships with industries and U.S. and international universities. Clarkson research in the areas of rehabilitation/biomedical engineering, advanced materials, energy and the environment, and innovation are targeted strategic growth areas.

The funded grants include:

Professors Stephanie Schuckers (ECE) and E. Silvana Andreescu (Chem) – “Development of a Partnership between Clarkson University and Dartmouth University Focused on Biomedical Engineering & Biotechnology.” This project will begin to provide detection and accurate measurements of the concentrations of neurotransmitters (NTs) in the brain. This could help to facilitate early diagnosis, monitoring and treatment of such human diseases as Parkinson's disease, Alzheimer disease, schizophrenia, and depression. The goal of the proposed research project is to develop electrochemical sensors and to produce unique “fingerprints” as a reliable, rapid and cost-effective method for identifying specific NTs levels. Collaboration with Dartmouth Medical School will provide essential real-life animal data for verification of the proposed approach.

Prof. Naryanan Neithalath (CEE) – “Ultrasonic and Electrical Impedance Based Methods for Property Estimation and Condition Evaluation of Concretes.” Prof. Neithalath's team will develop novel methods to evaluate the condition of concrete in infrastructural components such as roads and bridges. Concrete deterioration requires premature repairs and strengthening of structures, costing billions of dollars and lost productivity. Hence, it is important to know the performance of the material immediately after placed and while in service to reduce these costs. This research will be carried out in collaboration with Indian Institute of Technology Madras

Prof. Sitaraman Krishnan – “Flexible Thin-films of Oriented Polyacetylene for High Efficiency Solar Cells.” Dr. Krishnan's work is part of a larger effort at Clarkson's Center for Advanced Materials Processing (CAMP) that seeks to meet current energy and environmental challenges through research and application of advanced materials. He will work with Aitken International, a small business entity in the New York State, to develop higher efficiency ways to harness solar energy using inexpensive thin polymer films. These could be used to build solar antennas for light harvesting. The antenna approach is quite attractive because the theoretical efficiency of light to electricity conversion is expected to be greater than 85%.

Prof. Ratneshwar Jha - “Strategic Partnership with IITs for Research in Smart Structures.” Dr. Jha's research also utilizes advanced materials. His research will enable on-line monitoring of structures, such as composite aircraft wing, to detect damages early and ensure safety. The international partnership with Indian Institutes of Technology at Madras and Kanpur will complement current research at Clarkson, which is funded by US Air Force Office of Scientific Research.