



Nathan Gallant

Gallant Receives NSF CAREER Award

The mechanical engineering professor receives support to further his research on combinatorial biomaterials.

Tampa, Fla. (February 23, 2011) – Nathan Gallant, assistant professor of mechanical engineering, received a five-year CAREER award totaling \$500,000 from the National Science Foundation to further his research to engineer combinatorial biomaterials.

A combinatorial approach is uniquely able to accurately recapitulate the range of natural physiology and rapidly analyze the interactions of multiple matrix-mediated mechanical and chemical signals in endothelial cell mechanobiology. Endothelial cells organize on a thin protein matrix and form the lining of every blood vessel in the body. The present proposal integrates research and education activities designed to investigate the complex set of signals that direct the regulation and disease progression of these specialized tissues. Furthermore, the findings of this work will enable the design of materials that template the structure and guide the organization of engineered tissues for repair and replacement.

Concurrently, hands-on tutorials, based on the underlying biophysical principles of mechanotransduction, will be developed for a high school Biomedical Sciences curriculum expected to encourage diversity in STEM disciplines. These tutorials will be designed and delivered by a team of high school students and teachers collaborating with USF faculty and graduate and undergraduate students. The proposed research and outreach activities will provide students opportunities to interact with researchers from a variety of disciplines and share their research with the community.

The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. Such activities should build a firm foundation for a lifetime of leadership in integrating education and research.

The University of South Florida is one of the nation's top 63 public research universities and one of only 25 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. USF was awarded \$394.1 million in research contracts and grants in FY 2009/2010. The university offers 232 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine. The USF System has a \$1.8 billion annual budget, an annual

economic impact of \$3.2 billion, and serves more than 47,000 students on institutions/campuses in Tampa, St. Petersburg, Sarasota-Manatee and Lakeland. USF is a member of the Big East Athletic Conference.

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