



UNIVERSITY OF CENTRAL FLORIDA

NANOSCIENCE TECHNOLOGY CENTER
ADVANCED MATERIALS PROCESSING & ANALYSIS CENTER

GRADUATE RESEARCH SEMINAR SERIES

Friday
February 27, 2015

12:00 PM — 1:00 PM

Research Pavilion
NSTC
Conference Room 475

*Pizza and drinks
will be provided*

Mechanistic Investigation of *In Vitro* Myotube Response to Chemical and Physiological Treatment Using a Multiplexed Functional Assay System

Christopher McAleer (12:00 PM - 12:30 PM)
Dr. James Hickman's Group

Abstract: A high-content multiplexed *in vitro* assay system capable of interrogating functional muscle output and endurance is of paramount importance in the drug discovery and development process. We have been successful in deriving contractile skeletal muscle from an array of cell sources including rat, mouse, and most importantly human, while utilizing serum-free medium components. Force and endurance profiles of skeletal muscle have been altered chemically, utilizing an array of drug compounds as well as physically, via mechanical or electrical manipulation. These alterations to typical *in vitro* physiological response have resulted in significant changes in both contractile peak force and fatigability. This multiplexed silicon based cantilever system utilizing serum-free conditions is adept at measuring both acute and chronic skeletal muscle adaptations on a high-content scale making it an ideal system for initial drug screening applications.



Thermoelectric Characterization of Fine-Grained Ti_5O_9 Magnéli Phase Ceramics

Sudeep Jung Pandey (12:30 PM—1:00 PM)
Dr. Romain Gaume's Group

Abstract: Pure Magnéli phase Ti_5O_9 ceramics with 200-nm grain-size were fabricated by hot-pressing nanopowders of titanium and anatase TiO_2 at 1223 K. The thermoelectric properties of these ceramics are investigated from room temperature to 973 K. The experimental variation of the Seebeck coefficient with temperature follows a non-parabolic band model and a thermoelectric figure-of-merit ZT of 0.9 is obtained at 973K.

