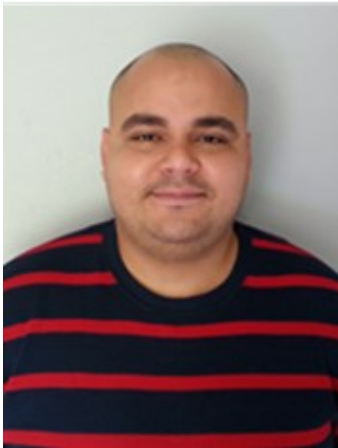




UNIVERSITY OF CENTRAL FLORIDA

NANOSCIENCE TECHNOLOGY CENTER  
ADVANCED MATERIALS PROCESSING & ANALYSIS CENTER

## GRADUATE RESEARCH SEMINAR SERIES



Friday  
October 10<sup>th</sup>,  
2014

12:00 — 1:00PM

NSTC  
Conference Room

### Jean Calderon (12 – 12:30PM) - Dr. Lei Zhai's Group

**Abstract:** Polymer-derived ceramics (PDCs) are used to create remarkable shaped ceramics and devices as a result of versatile polymer precursor. PDCs commonly display superior thermomechanical properties, high chemical durability, and low sintering temperatures. While these are great characteristics of PDCs, it has been a challenge to the scientific community to make fully dense bulk PDCs materials. Here we study polymer-derived Silicon Carbon Nitride (SiCN) ceramics composite with a framework of reduced graphene oxide (rGO) aerogels which allows a route for fully dense bulk PDCs. The morphology, mechanical properties, electrical and thermal conductivity of SiCN/rGO composite with different amount of rGO aerogels (0.1-1%) is presented. SiCN/rGO composite are synthesized through a simple back-filled and pyrolysis process of preceramic oligosilazane into rGO aerogels.

### Extended Simulation of Zip-DNA

### Gregory Shinaberry (12:30-1PM) - Dr. Alexander Balaeff Group

**Abstract:** A simulation of the force extension of double stranded DNA is presented. The original B structure obtains a new, stable configuration referred to as Zip-DNA wherein the nucleobases are interlocked without forming the Watson-Crick pairs. The feasibility of this structure is explored in select points along the force-extension curve by means of molecular dynamics simulation.

**Pizza and drinks will be provided**