



# WPI

## MATERIALS SCIENCE & ENGINEERING

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**Wednesday, October 23,  
2019  
12:00 pm  
Washburn 229**

### *Nanoceria as Auto-Oxygen regulator*

#### **Abstract:**

Nano-rare earth oxides (namely ceria) have shown to effectively protect stainless steels from high temperature degradation. However, recently we discovered the unique antioxidant properties of the same rare earth ceria nanoparticles, where it protects mammalian cells against damage caused by increased reactive oxygen or nitrogen species and has been shown to act as effective superoxide dismutase mimetic in vitro. This presentation will provide a brief overview of the applications of these redox active nanostructures in treatment of disorders by regulating oxygen environment. The talk will conclude by highlighting several research highlights from our group including sustainability in nanomaterials research.

#### **Bio:**

Sudipta Seal, University Distinguished Professor, Trustee Chair and UCF Pegasus Professor, joined University of Central Florida (UCF) in fall 1997 after a postdoctoral work at Lawrence Berkeley National Laboratory, University of California, Berkeley. At UCF, he pioneered nanostructured cerium oxide and other metal/oxide platforms (micro to nano), discovered its antioxidant properties, and applied in various biomedical problems. He is also involved in plasma based large-scale manufacturing of coatings and nano-energetics materials. He served as a Director of Advanced Materials Processing Analysis Center, and Nanotechnology Center, currently Chair of newly created Materials Science and Engineering and holds an appointment with College of Medicine and created the Biionix Research Cluster. He is the recipient of the 2002: Office of Naval Research Young Investigator Award (ONR-YIP), elected to attend the Frontiers of Eng Symposium by National Academy of Engineering and recipient of Fellow of FASM, FAAAS, FAVS, FloN, FAIMBE, FNAI, FECS, FMRS, FRSC. He is inducted the Florida Hall of Fame of Inventors, with more than 70 issued patents.