

SMU Department of Mechanical
Engineering
SEMINAR

**“Laser Textured Bio-Ceramic Coatings for Hard
Tissue Implants”**

Professor Narendra B. Dahotre

*Department of Materials Science and Engineering
The University of North Texas*

Friday, April 19, 2013

3:00 p.m. – 4:00 p.m.

Location: Junkins 113

Abstract: His area of research includes but not limited to: a broad understanding of interactions of lasers with materials and engineering aspects of the laser-materials interactions; implementation of high power lasers for materials processing such as joining and surface engineering; addressing fundamental issues in laser surface engineering of materials for application of this knowledge in the development of new corrosion/oxidation and wear/erosion resistant surfaces in challenging and extreme chemical and mechanical environments; understanding and application of laser based surface engineering on such diverse materials systems as metal matrix composites, ceramic matrix composites, superalloys, ceramics, tool steels, plain carbon steels, bronzes, copper alloys and low melting alloys such as aluminum and lead alloys; unique blend of in-situ diagnostics based on high speed temperature, physical image and radiational signal recording complimented with post-process analytical analysis for development of structure-property relationships in laser engineered surfaces of engineering and bio materials.

Bio: Professor and Chairman, Department of Materials Science and Engineering, University of North Texas (UNT). Prior to joining UNT he held a joint faculty appointment with Oak Ridge National Laboratory and Department of Materials Science and Engineering of the University of Tennessee-Knoxville (2002-2010). He was also a senior faculty member of the Center for Laser Applications at the University of Tennessee Space Institute-Tullahoma (1995-2010). He has been recognized for the pioneering contributions to fundamental understanding and engineering of laser-materials interactions along with implementation of high power lasers in materials processing and surface engineering. He is internationally known for his work on fundamentals and applications of laser surface engineering of metals, ceramics, composites, and biomaterials. His research was extensively funded by the government and industrial organizations including but not limited to Department of Defense, Department of Energy, National Science Foundation, GM, Ford, Honda, ALCOA, and Babcock & Wilcox. His work over 25 years on laser materials-interactions has been compiled in 4 books including 3 books in laser materials processing, 15 U.S. Patents, 12 proceedings and over 200 papers. He has been elected to 2012 Class MRS-I Fellows, 2010 Class of SME Fellows, 2009 Class of AAAS Fellows, 2008 Class of ASME Fellows, 2008 Class of IIM Fellows and 2004 Class of ASM Fellows. He has received 2006 R&D 100 Award, 2006 University of Tennessee Chancellor's

Research and Creativity Achievement Award, 2006 University of Tennessee College of Engineering Research Fellow Award. He has completed B.S. from the University of Poona, India and M.S. and Ph.D. from Michigan State University, USA.