

Old Dominion University
College of Engineering and Technology
Department of Electrical and Computer Engineering

All lectures to be held at 3:00 p.m. on Tuesdays in Kaufman 224. For more information, contact Dr. Dimitrie Popescu at (757) 683-3741 or e-mail dpopescu@odu.edu. Refreshments provided after the seminar.

Tuesday, September 27, 2016 Seminar Topic:

**MITIGATION OF DEVICE KILLER DEFECTS IN 4H-SiC
EPILAYERS TO COMMERCIALY AVAILABLE DEVICES**

by

Dr. Nadeem Mahadik, Ph.D.,
Naval Research Laboratory in Washington, DC

Abstract:

Silicon Carbide (SiC) is the most promising material for High Power applications due to its wide bandgap, high thermal conductivity, good carrier transport, and native substrates. Serious effort began in year 2000 to drive down the device killer defects such as basal plane dislocations (BPDs) and other extended defects. The material started out with BPD densities $>105 \text{ cm}^{-2}$ to less than 1 cm^{-2} over the last decade. In this talk, this journey of defect reduction and elimination in SiC epilayers, which corresponded to realization of first commercial SiC switches, will be presented.

Bio:

Dr. Nadeem Mahadik is currently working at the Naval Research Laboratory since 2005. He got his Bachelors in Electrical Engineering from Old Dominion University and his Doctorate in Electrical Engineering from George Mason University. His research is focused on materials and device characterization using high resolution XRD, opto-electronic characterization, and microscopy techniques. His extensive research in the field of wide-bandgap materials, infrared sensors, photovoltaics, and III-V materials has resulted in over 80 publications, with over 275 citations, and an h-index of 10.