

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 Fridays 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.

Friday, February 5, 2016 Seminar Topic:

NON-THERMAL PLASMA FOR SURFACE DECONTAMINATION

by

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Abstract:

Non-thermal atmospheric pressure plasma has received much interest for bacterial inactivation applications in heat-sensitive environments, such as tissues and other surfaces. Possible applications range from wound healing to surface sterilization. Plasma interacts with biological materials and organisms via reactive nitrogen and oxygen species, electric currents, and electric fields. Though the precise mechanisms are not well known, these quantities contribute to the deleterious effect of plasma upon many different pathogens, including drug-resistant bacterial strains. This presentation will give a brief introduction to non-thermal plasma and its application for medical uses and will discuss current work on the optimization of a plasma brush for large area surface disinfection and a plasma needle for endodontic use in the inactivation of bacterial biofilms.

Bio:

Johanna Neuber is currently a Master's student in Electrical Engineering at Old Dominion University, graduating this spring. She holds a B.S. degree in Electrical Engineering from the University of Texas at Austin (2014) and will begin studies for a Ph.D. in Biomedical Engineering at ODU in the fall of 2016. She is currently working at the Frank Reidy Research Center for Bioelectrics with Dr. Chunqi Jiang on the development and testing of non-thermal plasma sources for use in bacterial decontamination applications, particularly in root canals and on surfaces. Her work with Dr. Christian Zemlin concerns applying nanosecond pulsed electric fields for defibrillation purposes.