

**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. Chunsheng Xin at (757) 683-3741 or e-mail [cxin@odu.edu](mailto:cxin@odu.edu). Refreshments provided after the seminar.

**Tuesday, January 16, 2018 Seminar Topic:**

**LOW TEMPERATURE PLASMA SOURCES:  
THEIR PHYSICS AND ENGINEERING**

by

**Dr. Mounir Laroussi, PhD Professor in Electrical & Computer  
Engineering at Old Dominion University**

**Abstract:**

Low temperature plasmas (LTP) at atmospheric pressure proved to be very useful for biomedical applications. This is because, in addition to electric fields and UV radiation, they produce copious amounts of chemical species such as reactive oxygen species (ROS) and reactive nitrogen species (RNS) which exhibit strong oxidative properties and/or trigger signaling pathways in biological cells. However, in order to be applied safely to cells and tissues these plasma sources have to maintain gas temperature below 40°C and be electrically safe to the touch. In this talk the physics and engineering of the main LTP sources used in plasma medical research are presented. Special focus is given to the dielectric barrier discharge (DBD) and LTP jets.

**Bio:**

Dr. Mounir Laroussi received his Ph.D. in Electrical Engineering from the University of Tennessee, Knoxville. He now holds a Professor position at the Electrical & Computer Engineering Department of Old Dominion University (ODU) and is the Director of ODU's Plasma Engineering & Medicine Institute (PEMI).

Dr. Laroussi's research interests are in the physics and applications of non-equilibrium gaseous discharges including the biomedical applications of low temperature plasma (LTP). He designed and developed numerous novel LTP devices such as the resistive barrier discharge (RBD) and the plasma pencil. He is co-discoverer of guided ionization waves in low temperature plasma jets. Dr. Laroussi is also widely known for conducting the first pioneering experiments on the use of low temperature atmospheric pressure plasmas for biomedical applications and for highly contributing to the establishment of the interdisciplinary field of "Plasma Medicine". For his scientific achievements in the field of low temperature plasmas and their biomedical applications he was elevated to the grade of Fellow by IEEE in 2009, was the recipient of the Inaugural Award from the International Society for Plasma Medicine, and in 2012 was awarded the highest technical achievement award from the IEEE-NPSS, the Merit Award.