

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, December 6, 2016 Seminar Topic:

**ABLATION OF CARDIAC TISSUE WITH
NANOSECOND PULSED ELECTRIC FIELDS**

by

**Dr. Christian Zemlin, Ph.D., Assistant Professor, Department of Electrical and
Computer Engineering, Frank Reidy Research Center for Bioelectrics,
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Abstract:

Ablation of cardiac tissue is an essential tool for the treatment of arrhythmias, particularly of atrial fibrillation, atrial flutter, and ventricular tachycardia. Current ablation technologies suffer from substantial recurrence rates, thermal side effects, and long procedure times. Ablation with nanosecond pulsed electric fields (nsPEFs) can potentially overcome these limitations. We present data from a preclinical study in pigs that show that nsPEFs ablation can quickly and reliably create lesions in a wide range of tissue thicknesses.

Bio:

Dr. Zemlin received his B.S and M.S. degrees in Physics from the Technical University Berlin in 1994 and 1998 and his Ph.D. In Theoretical Physics from the Humboldt University in Berlin. He completed his postdoctoral research in Cardiac Electrophysiology at SUNY Upstate Medical University in Syracuse, NY and became Research Assistant Professor there in 2006 before moving to ODU in 2011.

Dr. Zemlin's research focuses on the mechanisms of arrhythmias, and on the treatment using pulsed electric fields. He uses voltage-sensitive fluorescent probes to experimentally study cardiac activity large-scale parallel computer modeling to understand how arrhythmias are initiated and maintained. Other research interest include imaging of tissue structure using optical clearing and confocal microscopy, and the general theory of excitable media.