FALL 2024

SEMINAR FOR NEUROTRAUMA AND DISEASES

SPONSORED BY PLEXON

PRESENTS

ENHANCED NEUROMODULATION FOR SENSATION AND THERAPY

Date: September 18, 2024 **Time:** 4:00 p.m. - 5:00 p.m. EST

Location: DLR 131

FEATURED SPEAKER

KEVIN OTTO, PH.D

Dane A. Miller Head and Professor, Weldon School of Biomedical Engineering, Purdue University

Dr. Kevin J. Otto is the Dane A. Miller Head and Professor of the Weldon School of Biomedical Engineering (BME) at Purdue University, where his research interests include neural engineering, device-tissue interfaces, and neurostimulation. He joined Purdue in 2024, coming from the University of Florida, where he was a Professor of Biomedical Engineering in the J. Crayton Pruitt Family Department of Biomedical Engineering. He received the BS from Colorado State University, MS and PhD from Arizona State University. He was a Research Fellow/Post-Doctoral Fellow at the University of Michigan (2003 to 2006). He was an Assistant Professor and Associate Professor at Purdue University from 2006-2014. He led by serving as PI on several multidisciplinary, multi-investigator research projects.

His research efforts have direct implications for spinal cord injury, sensory restoration, pain management, stroke rehabilitation, and bioelectronic medicine. He has supervised over 56 post-doctoral and graduate trainees, and over 115 undergraduate students. He has received many honors and recognitions, including Mentoring/ Service Award in multiple institutes and professional organizations. and a Fellow of BME, AIMBE, IEEE, and has served on numerous editorial and advisory boards.

ABSTRACT

Direct interfacing of micro-devices with the brain, spinal cord, and peripheral nerves has the potential to revolutionize the medical treatment of many neurological diseases or injuries. Information transfer using a chronically implanted neural interface depends upon the quality of the device-tissue interface. Implanted electrodes offer unique opportunities for device design and performance; however, they can demonstrate challenges in long-term reliability which we seek to address with engineering solutions. Increasingly, high-fidelity neural interfaces are being developed with increasingly smaller electrode site areas; unfortunately, these electrodes can suffer even greater long-term reliability challenges post-implant. Here we will discuss our neuroengineering efforts at the intersection of device development and performance. These efforts have direct implications for spinal cord injury, sensory restoration, pain management, stroke rehabilitation, and bioelectronic medicine.

PURDUE UNIVERSITY | Center for Paralysis Research