

# NEURAL ENGINEERING SEMINAR SERIES

## Structural, Functional, and Genetic Changes Surrounding Electrodes Implanted in the Brain

<https://psu.zoom.us/j/92405373420>

**March 20, 2024**

12:15 -1:15 p.m. (ET)  
W306 Millennium Science  
Complex



### **Erin Purcell**

*Associate Professor  
Department of Biomedical  
Engineering*

Michigan State University

### **ABSTRACT:**

By stimulating or recording electrical activity, microelectrode arrays implanted in the brain have created a renaissance in the treatment of neurological diseases and injuries. However, questions remain regarding the relationship between the biological response to implanted electrodes, their chronic performance, and features of their design. It is my lab's goal to understand the basic science underlying the interaction between implanted electrodes and brain cells, and to provide guiding principles to improve device design and performance as a result. Recently, we have found novel effects of implants on the structure, function, and gene expression of neighboring neurons and glia in the brain.

### **BIOGRAPHY:**

Dr. Erin Purcell received her bachelor's degree in biomedical engineering from Michigan Technological University in 2001 and her doctoral degree in 2008 in biomedical engineering from the University of Michigan. Erin joined Michigan State University's faculty as an Assistant Professor in the Fall of 2014 in the Department of Electrical and Computer Engineering and became a founding faculty member of MSU's new Department of Biomedical Engineering in 2016. She was tenured as an Associate Professor in the Fall of 2020 and became the Associate Chair for the Department of Biomedical Engineering in 2022. Dr. Purcell studies the integration of implanted electrodes with surrounding brain tissue.