

# Brain Mapping Center SEMINAR SERIES

**Sponsored by the UCLA Brain Mapping Center Faculty**

The focus of these talks is on advancing the use of brain mapping methods in neuroscience with an emphasis on contemporary issues of neuroplasticity, neurodevelopment, and biomarker development in neuropsychiatric disease.

Hosted By: Shantanu Joshi, PhD, Neurology, UCLA

## **The Pathology of Synchrony in Parkinson Disease: Insights from Invasive Human Neurophysiology**



### **Nader Pouratian, MD, PhD, FAANS FACS**

Associate Professor and Vice Chair, UCLA Neurosurgery

The pathophysiology underlying the motor symptoms of Parkinson's disease (PD) remains incompletely understood with recent conflicting reports of changes in neuronal activity in distinct nodes within the basal ganglia-thalamocortical (BGTC) motor circuit. A unified approach that accounts for conflicting results is needed. Emphasizing the relatively underexplored dynamic relationship between nodes in the circuit, we build upon the hypothesis that exaggerated network-level coupling is the pathophysiologic process underlying the rigidity and bradykinesia of PD by impeding effective information flow. Accordingly, we propose that modulation of network coupling is the common therapeutic mechanism across pharmacologic and surgical therapies. We will review results implicating hypersynchrony underlying PD symptoms and changes in synchrony corresponding with therapeutic improvement. These approaches have important implications for the study of other neuropsychiatric diseases and offer important potential biomarkers to guide the development and evaluation of more advanced therapies, such as closed-loop brain stimulation.

**December 6, 2018 11:00am - 12:00pm**

**Neuroscience Research Building (NRB 132)  
Charles E. Young Dr. South**

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