



Department of Biomathematics Seminar Series:  
Frontiers in Systems and Integrative Biology

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## **Better Living Through Control: With Applications to Neural and Cardiac Systems**



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Professor

Department of Mechanical Engineering  
University of California, Santa Barbara

**Thursday, November 10, 2016  
4:00 PM**

**A2-342 MDCC, Moss Auditorium  
Marion Davies Children Clinic**

### **ABSTRACT:**

Some brain disorders are hypothesized to have a dynamical origin; in particular, it has been hypothesized that some symptoms of Parkinson's disease are due to pathologically synchronized neural activity in the motor control region of the brain. We have developed a procedure for determining an optimal electrical deep brain stimulus which desynchronizes the activity of a group of neurons by maximizing the Lyapunov exponent associated with their phase dynamics, work that could lead to an improved method for treating Parkinson's disease. The use of related control methods for treating other medical disorders, including cardiac arrhythmias such as alternans, will also be discussed.

Host: Tom Chou, Ph.D.

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