

# Department of Applied and Computational Mathematics and Statistics Colloquium



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***Think fast: transient dynamics in neuroscience, and mathematical methods for identifying and analyzing transients***

Historically, the study of dynamical systems has featured a great emphasis on long-time dynamics and steady states. These properties provide nice ways to classify trajectories within individual systems and to understand relationships between different systems. A variety of exceptions to this trend have emerged, however, including several in the study of problems relating to neuroscience and other areas of biology. I will briefly review some transient phenomena in neuroscience and then will discuss a new approach that we have developed for studying transient dynamics, which we call “local orthogonal rectification”, or LOR. I will provide examples of the use of LOR to identify and analyze dynamics relating to periodic behavior as well as to precisely define and identify structures known as rivers, which serve as regions of transient attraction or repulsion within flows.

**Monday, September 30, 2019**

**4:30 PM – 5:30 PM**

**127 Hayes-Healy Center**

Colloquium Tea 4:00 PM to 4:30 PM 101A Crowley Commons Room