

COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY, OCTOBER 10, 2008
704 THACKERAY HALL
4:00 P.M.

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RELIABILITY OF NEURAL OSCILLATOR NETWORKS

ABSTRACT: I will discuss the reliability of large networks of coupled oscillators in response to fluctuating inputs. The networks considered are idealized models from neuroscience, and reliability means that a signal elicits identical responses upon repeated presentations. I will address the problem on two levels: neuronal reliability, which concerns the behavior of individual neurons embedded in the network, and pooled-response reliability, which measures total outputs from subpopulations. The effects of network structure, cell heterogeneity and noise on reliability will be discussed. Our findings are based largely on dynamical systems ideas (with a bit of a statistical mechanics flavor) and are supported by simulations. This is joint work with Kevin Lin and Eric Shea-Brown.

Refreshments served at 3:30 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705