

# BI-CO MATHEMATICS COLLOQUIUM

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## *“Dynamics of sleep-wake regulation”*

**Monday, March 4, 2013**

Talk at 4:00 – Park 328  
Tea at 3:30 – Park 355, Math Lounge

### Abstract:

Sleep and wake states are regulated by the coordinated activity of neuronal populations in the brainstem and hypothalamus. Synaptic interactions among these populations define sleep-wake regulatory networks; however, the structure and dynamics of these networks, particularly with respect to the regulation of rapid eye movement (REM) sleep, are not well understood. We have developed a mathematical modeling framework that is uniquely suited for investigating the dynamics of sleep-wake regulation. I will discuss our analysis of network dynamics and the interplay between deterministic and stochastic model properties in the production of physiological sleep-wake behavior.

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**Co-Sponsored by the Math Tri-Co Mellon Working Group on Math Modeling**