BI-CO MATHEMATICS COLLOQUIUM

Dylan Shepardson
Georgia Institute of Technology

"Modeling adaptable behavior in neurons"
(How mathematics can get on your nerves)

Thursday, January 29, 2009

Talk at 4:15 – Park 336
Tea at 4:00 – Park 355, Math Lounge

Abstract:

Mathematical models can be an effective means of exploring how biological systems might work, and applying the right mathematics to a problem can be an art in itself. As an example, I will focus on a problem from neurobiology. Neurons are remarkably adaptable to their environment, rearranging themselves internally to keep functioning in a consistent manner in order to signal effectively to other parts of the nervous system. Mathematical models are a valuable tool for uncovering the mechanisms behind a neuron's ability to regulate its behavior; and understanding the relationship between a neuron's internal state and its behavior is an important first step. I will explore the kinds of mathematical models that have been used to represent neurons and the analytical techniques being developed to understand their behavior.

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