

Michigan Math Club

Thursday at 4pm in the Commons

Free Pizza and Pop

The Mathematics of the Brain: An Introduction to Computational Neuroscience

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Abstract for 05 February 2015

Computational neuroscience is one of the fastest growing fields in applied mathematics, utilizing mathematical techniques to analyze brain activity and perform “in silico” experiments that would be unfeasible to perform in vitro or unethical to perform in vivo. In this talk, we will derive one of the most fundamental results in the field, the Hodgkin Huxley equations, a system of ordinary differential equations which accurately describe the generation of action potential signaling in neurons. Additionally, we will discuss the ways in which these equations are used in both elementary and advanced research in the field, and see examples of some of this research, time permitting.

