

New Challenges for Mathematical Neuroscience

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Mathematical and computational neuroscience have contributed to the brain sciences by the study of the dynamics of individual neurons and more recently the study of the dynamics of electrophysiological networks. Often these studies treat individual neurons as points or the nodes in networks and the biochemistry of the brain appears, if at all, as some intermediate variables by which the neurons communicate with each other. In fact, many neurons change brain function not by communicating in one-to-one fashion with other neurons, but instead by projecting changes in biochemistry over long distances. This biochemical network is of crucial importance for brain function and it influences and is influenced by the more traditional electrophysiological networks. Understanding how biochemical networks interact with electrophysiological networks to produce brain function both in health and disease poses new challenges for mathematical neuroscience.

The lecture will take place in Thackeray 704 at 3:30pm.
Refreshments will start at 3:00pm.