

NETWORK CORRELATES OF NORMAL AND PATHOLOGICAL BRAIN FUNCTION

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Thursday, April 4 ❖ 4:00 P.M. ❖ 184 NSH

Brain is a complex and evolving network. While a lot is known about its biology, the dynamical principles underlying information processing in the brain remain elusive. Collective network dynamics seems the natural substrate on which this problem can be elucidated, as it becomes apparent that to understand dynamics of brain function one has not only understand dynamical properties of individual cells, but also of the whole networks. In this talk I will use example of various cognitive processes to highlight the link between evolving network dynamics and the brain function. At the same time, I will use experimental and theoretical results obtained in my laboratory to underscore the role physics can play in understanding the brain function as well as its pathologies.