Chez Pierre

Presents ...

Wednesday, February 20, 2013
10:00am
MIT Room 4-331

SPECIAL CHEZ PIERRE SEMINAR

David A. Sivak
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"Nonequilibrium thermodynamics: free energy, optimal control, and optimal response"

Molecular machines are protein complexes that convert between different forms of energy, and they feature prominently in essentially any major cell biological process. A plausible hypothesis holds that evolution has sculpted these machines to efficiently transmit energy and information in their natural contexts, where energetic fluctuations are large and nonequilibrium forces are strong. Toward a systematic picture of efficient, stochastic, nonequilibrium energy and information transmission, I present theoretical developments in three distinct yet related areas of nonequilibrium statistical mechanics: How can we measure how far from equilibrium a driven system is? How do we find efficient methods to push a system rapidly from one state to another? And finally, what are the properties of systems that efficiently harness the energy and information present in environmental fluctuations?

For further details: http://davidsivak.com/