

Colloquium Announcement

Allosteric signal transduction: a general physical model and reduced representation

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ABSTRACT:

We extend the treatment of allosteric signaling networks to include the non-equilibrium condition. Allosteric signaling networks---complexes of allosteric signaling proteins---encode the concentration of diffusable ligand then transduce the information across the network. The network is a multi-dimensional Brownian ratchet exhibiting Markov chain dynamics. Admitting only nearest-neighbor interactions among the component proteins introduced degeneracy in the energy-phase landscape of the network. Degeneracy constrains the dominant non-equilibrium dynamics to two pathways: activation and deactivation. Each path is a reduced space involving simplified kinetics with information propagation from left to right. The path taken by the network over a complete signaling cycle is self-avoiding.

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Thursday, October 19, 2006

12:30 p.m. – 1:45 p.m.

Campbell Hall 274

Refreshments served at 12:00 p.m. in CH 361

1300 University Boulevard

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