

Energetic Variational Approaches for General Diffusion

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February 15, 2013

For the last several years, we had been working on projects related to charge transport in solutions and proteins (ion channels). One of the key ingredients in these studies is the understanding of diffusion and its relations to other effects, such as hydrodynamics, electrostatics and other particle-particle interactions. Due to the non-ideal situations in almost all biological environments, such as the high concentration of charge densities, those conventional theories have to be modified or re-derived.

In the talk, I will employ the general framework of energetic variational approaches, especially Onsager's Maximum Dissipation Principles to the problems of generalized diffusion. We will discuss the roles of different stochastic integrations, and the procedures of optimal transport in the context of general linear response theory in statistical physics.

The lecture will take place in Thackeray 704 at 4:00pm.
Refreshments will start at 3:30pm.