

Physical Chemistry Seminar

Tuesday,
April 2, 2013

11:00 am

Room 1315
Chemistry Building

The dynamics of fluctuating systems and the principle of Maximum Caliber



Professor Ken Dill

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Host: Professor Qiang Cui

A key component of how we understand equilibrium thermodynamics is a principle called Maximum Entropy. A companion principle, called Maximum Caliber, provides a corresponding basis for understanding nonequilibrium systems. In particular, dynamical experiments on single molecules or on few-particle systems often lead to measurements of fluctuations in rate quantities. Maximum caliber provides a theoretical framework for understanding a broad spectrum of rate distributions. We compare theory with experiments on microfluidic diffusion, double-well particle hopping, and genetic toggle switches. Max-ent-like approaches also appear to be useful for modeling fat-tailed distributions.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315

Graduate Students may meet with the speaker at 1:00 p.m. in Room 8335