

Effects of White Noise in Multistable Dynamics

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Abstract:

The concept of stable equilibrium plays a key role in the theory of ordinary differential equations. A given initial condition uniquely determines how the system evolves to a particular stable equilibrium point. An important question that one can ask involves introducing white noise into the problem, and how even a perturbation by a very small amount of noise can influence which particular equilibrium point to which the system will evolve. Multiscale dynamics are well-known to describe practical examples such as patterns in physics, chemistry, and biology. This talk will address a prototypical multistep dynamics with multiple equilibrium points where the probabilities of ending up change depending on initial conditions.