1107-34-87 **Carey Caginalp***, Brown University, Applied Mathematics, 182 George St, Providence, RI 02912. *Effects of White Noise in Multistable Dynamics in Differential Equations.*

The concept of stable equilibrium plays a key role in the theory of ordinary and partial 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 equilibirum point to which the system will evolve. Multiscale dynamics are well-known to describe practical examples such as patterns in physics, chemistry, and biology. Mathematically, a prototypical multistep dynamics can be described by $u' = 4(u-\alpha)(1-u^2)$, where $\alpha \in [0,1)$, and $u = \pm 1$ are stable equilibria. In particular, for $0 < \alpha < 1$, the equilibrium $u = -1$ is regarded as more stable than $u = 1$, since the probability of ending up at -1 is greater. This is joint work with Xinfu Chen, Jianghao Hao, and Yajing Zhang. (Received January 02, 2015)