1053-35-54 **Evelyn Sander** and **Thomas Wanner*** (twanner@gmu.edu), Dept of Mathematical Sciences, George Mason University, 4400 University Drive, MS 3F2, Fairfax, VA 22030. *The Dynamics of Nucleation in Stochastic Cahn-Morral Systems.*

Stochastic Cahn-Morral systems serve as basic models for several phase separation phenomena in multi-component metal alloys. In this talk, I will discuss dynamical aspects of a certain type of phase separation – known as homogeneous nucleation – in which the material separates into small droplets. Numerical studies will be presented in the context of alloys consisting of three metallic components which give a statistical classification for the distribution of droplet types as the component structure of the alloy is varied. We relate these statistics to the equilibrium structure of the deterministic Cahn-Morral system and show that even highly unstable equilibria can be observed during the nucleation process, and in fact serve as organizing centers for the dynamics. (Received July 29, 2009)