

APPLIED DYNAMICAL SYSTEMS SEMINAR

**Stability and Existence Results for Elastic Rods Models with  
Self Contact**

**Kathleen Hoffman**  
UMBC

March 13, 2009  
Korman 245

In the classic theory of elastic rods, two non-adjacent points along the rod may upon contact occupy the same physical space. In this talk, I will develop an elastic rod model with a pairwise repulsive potential such that if two non-adjacent points along the rod are close in physical space, there is an energy barrier that prevents contact. For adjacent pairs, the repulsive potential is negligible and the elastic rod is described by a classical elastic rod model. The framework for this model is developed to prove the existence and stability of minimizers.

This is joint work with Rob Manning (Haverford College) and Tom Seidman (UMBC).