Applied Mathematics Seminar
INSCC 110, 3:30pm Tuesday
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Perturbation Problems In Geometric Evolution

by

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Abstract

This lecture is on the construction of stable, finite dimensional patterns representing key stages in the evolution of an infinite dimensional dynamical system. For gradient systems containing a parameter measuring the interaction, there is enough experience, and a method of construction has emerged. We will describe this method in terms of two extreme examples from the evolution of interfaces. The one involves the evolution of one small, almost geodesic circle on a curved surface. The interaction in this case is with the ambient space. The other example is more directly linked to materials. It concerns the evolution of a large system of components under quasi static Stefan dynamics. The interaction in this case is among the "particles" considered at large distances from each other. We will state a result refining the classical Lifshitz-Slyosov-Wagner theory of coarsening.