PDE seminar
University of Minnesota
Wednesday, November 14, 2012

Speaker: **Arnd Scheel, University of Minnesota**
Title: **Spinodal decomposition and coarsening fronts in the Cahn-Hilliard equation.**

Abstract: We study spinodal decomposition and coarsening when initiated by localized disturbances in the Cahn-Hilliard equation. Spatio-temporal dynamics are governed by multi-stage invasion fronts. The first front invades a spinodal unstable equilibrium and creates a spatially periodic unstable pattern. Secondary fronts invade this unstable pattern and create a coarser pattern in the wake. We give linear predictions for speeds and wavenumbers in this process and show existence of corresponding nonlinear fronts. The existence proof is based on Conley index theory, a priori estimates, and Galerkin approximations.