THREE SERIES OF TALKS ON NEW DEVELOPMENTS IN PARTIAL DIFFERENTIAL EQUATIONS

PIMS / AMI / PDE Seminar

Talk 3

Tuesday, November 26, 2013
3:30 p.m.
CAB 365

"On De Giorgi Conjecture and Beyond"

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Abstract

Many physical (phase transition) and mathematical biological (layers, animal spots) problems have solutions whose profile are governed by nonlinear scalar equations like Allen-Cahn equation and Nonlinear Schrodinger Equations. Understanding the entire solutions of nonlinear scalar equations is a basic problem in PDE research. This is the context of various classical results in the literature like the Gidas-Ni-Nirenberg theorems on radial symmetry, Liouville type theorems, or the achievements around De Giorgi's conjecture. In this talk, I will describe our recent progress on classification and construction of monotonic or stable/unstable solutions. In particular we shall establish an intricate correspondence between the study of entire solutions of some scalar equations and the theories of minimal surfaces and constant mean curvature surfaces (CMC).

Refreshments will be served in CAB 649 at 3:00 p.m.