UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

COLLOQUIUM

Dr. Changfeng Gui

(University of Connecticut)

"Symmetries of Solutions to Nonlinear PDEs"

Abstract:

In this talk, I will discuss various symmetries associated with solutions of nonlinear partial differential equations in the entire space. Such entire solutions usually arise in the blow-up of singularities, and are important in understanding solutions in general. The symmetries of solutions, such as radial symmetry, transitional symmetry, axial symmetry or symmetries with respect to discrete group actions, are characteristic to the type of singularities, and are useful in classifying all entire solutions or singularities.

Symmetries of solutions to certain nonlinear PDEs are closely related to the symmetries of geometric objects such as minimal surfaces or mean curvature solitons. A typical example is the De Giorgi conjecture which relates solutions of nonlinear Allen-Cahn equation to minimal surfaces. I will present a survey of results on the De Giorgi conjecture and some recent results on symmetries of traveling wave solutions, saddle solutions and their relations to geometry.

Tuesday, April 3rd, 2012

Surge 284

4:10-5:00pm

Tea Time at 3:40pm