

Special Colloquium



DR. AMIR MORADIFAM
UNIVERSITY OF TORONTO

"CONDUCTIVITY IMAGING FROM MINIMAL INTERIOR MEASUREMENTS AND WEIGHTED LEAST GRADIENT PROBLEMS"

I WILL DISCUSS THE PROBLEM OF RECOVERING AN ISOTROPIC CONDUCTIVITY OUTSIDE OF SOME PERFECTLY CONDUCTING OR INSULATING INCLUSIONS FROM KNOWLEDGE OF THE MAGNITUDE OF ONE CURRENT DENSITY VECTOR FIELD. THIS PROBLEM IS CLOSELY RELATED TO UNIQUENESS OF MINIMIZERS OF CERTAIN WEIGHTED LEAST GRADIENT PROBLEMS AND THEORY OF MINIMAL SURFACES. WE PROVE THAT THE CONDUCTIVITY OUTSIDE OF THE INCLUSIONS AS WELL AS THE SHAPE AND POSITION OF THE INCLUSIONS ARE UNIQUELY DETERMINED BY THE MAGNITUDE OF THE CURRENT GENERATED BY IMPOSING A GIVEN BOUNDARY VOLTAGE. I WILL ALSO DISCUSS A CONVERGENT ALGORITHM FOR THE PROBLEM AND SHOW SOME NUMERICAL SIMULATIONS.

Friday, March 7th, 2014

Room 284, the 2nd Floor of the Surge Building

Tea Time @ 3:40 p.m.

Talk Begins @ 4:10 p.m.

Ends @ 5:00 p.m.

UCR

Mathematics

Department

**900 University
Avenue
Surge Building 2nd
Floor
Riverside, CA
92521
951-827-3113**



**Department of
Mathematics**