McMaster University   University of Toronto   University of Waterloo

THE FIELDS INSTITUTE
FOR RESEARCH IN MATHEMATICAL SCIENCES

SEMINAR SERIES ON CONTROL THEORY

SPEAKER:

> **Marek Kossowski**
> **University of South Carolina**

The First of two Talks:

"Local Existence and Stability of Multivalued Solutions to determined Nonlinear PDE on the Plane"

Multivalued solutions to PDE can be used to construct special weak single-valued solutions. As applications we show that: there exist non-immersed analytic surfaces of constant Mean or Gauss curvature in Euclidean and Minkowski 3-space whose Gauss map have a prescribed analytic singularity; there exist local steady irrotational isentropic Lip^1- flows in the plane with well defined 3-jet at the point of supersonic transition; there exist local single-valued functions $f : U \subset R^2_d \to R$ (analytic on the complement of a smooth curve where they are C^0 but not C^1) which are solutions to second order elliptic PDE; there exist constant length optical correspondences (multivalued symplectomorphisms) with controlled caustics; there exist moderately regular fracturing solutions to the elastic wire PDE.

Wednesday, April 8, 1992 at 3:30pm, room 3018

at

The Fields Institute

(Uni-Park 3, 185 Columbia Street West, Waterloo)