



THEMATIC PROGRAM ON INVERSE PROBLEMS AND IMAGING

JANUARY – AUGUST 2012

The *Thematic Program on Inverse Problems and Imaging* is being organized in conjunction with the *Mitacs International Focus Period on the Mathematics of Medical Imaging* (June 2011 – August 2012).

For the *Thematic Program* at the Fields Institute, we have chosen to focus in depth on a few selected active areas in inverse problems and image analysis, to establish connections between these fields and identify important new directions of investigation. The emphasis will be on longer events that foster research, learning, and collaboration in situ, rather than on workshops with many talks.

ORGANIZERS

Tony Chan (Hong Kong U. of Science and Technology)
Charles Epstein (University of Pennsylvania)
Allan Greenleaf (University of Rochester)
Yaroslav Kurylev (University College London)
Jan Modersitzki (University of Lübeck)
Adrian Nachman (University of Toronto)
Gunther Uhlmann (University of Washington)
Luminita Vese (UCLA)

LECTURE SERIES

Distinguished Lecture Series
Emmanuel Candès (Stanford University)

GRADUATE COURSES

January 9 – April 6, 2012

I. Inverse Problems in Medical Imaging
Instructor: Adrian Nachman (University of Toronto)

II. Inverse Transport Theory and Tomography
Instructor: Alex Tamaskan (University of Central Florida)

April 30 – May 31, 2012

Recent Advances in Variational Image Analysis
Luminita Vese (UCLA)

WORKSHOPS AND CONFERENCES

March 26 – April 27, 2012

Program on Geometry in Inverse Problems

Organizers: Yaroslav Kurylev (University College London), Adrian Nachman (University of Toronto)

This will be a research-intensive program aimed at close collaboration between the participants. The focus will be on five main topics: The boundary rigidity problem; Anisotropic inverse problems, geometric convergence and spectral geometry; Index theory and inverse problems, and reconstruction of topological or geometric invariants; Inverse problems on Lorentzian manifolds; the geometric Whitney problem.

April 30 – May 31, 2012

Program on Variational Methods and Compressive Sensing in Imaging

Organizers: Tony Chan (Hong Kong U. of Science and Technology), Adrian Nachman (University of Toronto), Luminita Vese (UCLA)

This program is intended to foster research, learning and collaboration between top people in the various areas of Image Analysis. There will be a month-long graduate course and five short courses devoted to imaging analysis and compressed sensing. These courses are aimed at attracting graduate students and postdoctoral fellows and at helping define the research questions to be investigated during the program.

July – August 2012

Summer Thematic Program on the Mathematics of Medical Imaging

Organizers: Charles Epstein (University of Pennsylvania), Allan Greenleaf (University of Rochester), Jan Modersitzki (University of Lübeck), Adrian Nachman (University of Toronto), Gunther Uhlmann (University of Washington), Hongmei Zhu (York University)

Photo: Matteo Lena

For more information please visit
www.fields.utoronto.ca/programs/scientific/11-12/inverseprob

