

Workshop on Calculus of Variations: Geometric Problems, Superconductivity, and Material Microstructures *August 25-29, 2003*

Organizing Committee:

*S. Alama (McMaster), L. Bronsard (McMaster),
R. Choksi (Simon Fraser), R. Jerrard (Toronto),
R. McCann (Toronto)*



Calculus of Variations is the traditional meeting point of geometry with physics. Several of the most exciting avenues of research today continue this tradition: geometrical ideas are used to understand basic physical phenomena; physical insights motivate fundamental advances in differential geometry; nonlinear partial differential equations pervade both fields. This workshop celebrates and exposes the recent fruits of this interplay, presenting a variety of approaches to variational problems and differential equations arising in physics and geometry. Topics are expected to include: pattern formation in fluids and micromagnetics, geometric problems, morphologies of copolymers, vortices in superconductors, superfluids, and magnetic materials. In addition to invited lectures, time will be set aside for informal discussions and presentations by young researchers.

The conference takes place as part of the 2003-04 Theme Year in Partial Differential Equations hosted by the Fields Institute for Mathematical Sciences in Toronto, Canada.

Invited Speakers Include:

Amandine Aftalion (Paris VI)
Giovanni Alberti (Scuola Normale di Pisa)
Patricia Baumann (Purdue)
*Fabrice Bethuel (Paris VI)
Yann Brenier (Nice)
*Haim Brezis (Paris VI & Rutgers)
Camillo de Lellis (MPI Leipzig)
Georg Dolzmann (Maryland)
Gero Friesecke (Warwick)
David Kinderlehrer (Carnegie-Mellon)

Felix Otto (Bonn)
Tristan Rivière (ETH Zurich)
Etienne Sandier (Paris-12)
Sylvia Serfaty (Courant Institute)
Itai Shafrir (Technion)
Peter Sternberg (Indiana)
Michael Struwe (ETH Zurich)
Gabriella Tarantello (Roma-Tor Vergata)
* = to be confirmed

Postdoctoral and Graduate Level Funding

There are funding opportunities to participate in this Workshop at both the postdoctoral and graduate level, supported by The Fields Institute and the National Science Foundation. Application deadline is **June 1, 2003**. Applications are available at:

www.fields.utoronto.ca/programs/scientific/03-04/pde/variations/