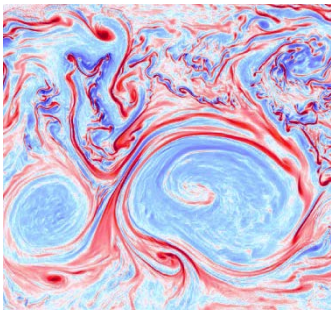
INSTITUTE FOR PURE AND APPLIED MATHEMATICS

Los Angeles, California



Turbulent Transport and Mixing

October 13 – 17, 2014

ORGANIZING COMMITTEE: Annalisa Bracco (Georgia Inst. of Technology); **Colm Caulfield** (Cambridge); **Charlie Doering** (Michigan); **Alexander Kiselev** (Madison); **Jean-Luc Thiffeault** (Madison)

Scientific Overview

Turbulent Transport and Mixing is concerned with the fundamental physics, mathematical modeling, analysis, and computation of the enhanced advection and diffusion of heat, mass, and momentum that often characterizes turbulence. Turbulent mixing is a familiar phenomenon but one which still presents many interesting open questions. For example, how can turbulent mixing of, say, passive scalars be quantitatively characterized? What aspects of turbulent diffusion can be rigorously deduced from the fundamental equations of motion? What are the most effective approaches to reduced and/or closed models of turbulent mixing? What are the primary computational challenges for fluid transport and mixing and, and how can insights from rigorous mathematical studies and experimental investigations aid numerical analysis and simulations? These are questions that will be addressed in this workshop. This workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop.

Confirmed Speakers

Alexandros Alexakis (École Normale Supérieure); **Francisco Beron-Vera** (University of Miami); **Guido Boffetta** (INFN); **Annalisa Bracco** (Georgia Inst. of Technology); **Colm Caulfield** (Cambridge);**Charlie Doering** (Michigan); **Thomas Haine** (Johns Hopkins); **George Haller** (ETH Zürich); **Peter Haynes** (Cambridge); **Gautam Iyer** (Carnegie-Mellon); **Shane Keating** (NYU); **Alexander Kiselev** (Madison); **Evelyn Lunasin** (U.S. Naval Academy); **Richard McLaughlin** (North Carolina); **James McWilliams** (UCLA); **Igor Mezic** (UCSB); **Alexei Novikov** (Penn State); **Grigorios Pavliotis** (Rensselaer Polytechnic Inst.); **Joerg Schumacher** (Technishche Univ. Ilmenau); **Christian Seis** (Univ. of Toronto); **Wenbo Tang** (Arizona State); **Jean-Luc Thiffeault** (Madison); **Alexandra Tzella** (Univ. of Birmingham); **Jacques Vanneste** (Univ. of Edinburgh); **Xiaoming Wang** (Florida St. Univ.); and **Jeffrey Weiss** (Univ. of Colorado Boulder)

Long Program Schedule

This workshop is part of the long program "Mathematics of Turbulence."

- Mathematics of Turbulence Tutorials. September 9 - 12, 2014.
- Workshop I: Mathematical Analysis of Turbulence. September 29 - October 3, 2014.
- **Workshop II: Turbulent Transport and Mixing. October 13 - 17, 2014.**
- Workshop III: Geophysical and Astrophysical Turbulence. October 27 - 31, 2014.
- Workshop IV: Turbulence in Engineering Applications. November 17 - 21, 2014.
- Culminating Workshop at Lake Arrowhead Conference Center (by invitation only), December 7 – 12, 2014.

Participation

Additional information about this workshop including links to register and to apply for funding can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

www.ipam.ucla.edu/programs/mtws2