

## Workshop I: Mathematical Analysis of Turbulence

### Monday September 29, 2014

- 8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Peter Constantin** (Princeton University)  
*Title not available*
- 10:00–10:15 *Break*
- 10:15–11:05 **Vlad Vicol** (Princeton University)  
*Holder Continuous Solutions of Active Scalar Equations*
- 11:15–11:30 *Break*
- 11:30–12:20 **Jiahong Wu** (Oklahoma State University)  
*The 2D MHD equations with partial dissipation*
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Koji Ohkitani** (University of Sheffield)  
*Extinction and blowup of weak solutions to the Navier-Stokes equations*
- 3:30–3:45 *Break*
- 3:45–4:35 **Bartosz Protas** (McMaster University)  
*Extreme Vortex States and the Hydrodynamic Blow-up Problem*
- 4:45–6:30 *Poster Session & Reception (Hosted by IPAM)*

### Tuesday September 30, 2014

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Thomas Hou** (California Institute of Technology)  
*Potentially singular solutions of the 3D axisymmetric Euler equations*
- 10:00–10:15 *Break*
- 10:15–11:05 **John Bowman** (University of Alberta)  
*How Important is Dealiasing for Turbulence Simulations?*
- 11:15–11:30 *Break*

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- 11:30–12:20 **Natalia Vladimirova** (University of New Mexico)  
*Nonlocal turbulent cascades in 2D Gross-Pitaevskii (nonlinear Schrodinger) equation*
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Aseel Farhat** (Indiana University)  
*A New Data Assimilation Algorithm for the 2D Bénard Convection Model and the 3D  $\alpha$ -Models of Turbulence*
- 3:00–3:15 *Break*
- 3:15–4:05 **Hakima Bessaih** (University of Wyoming)  
*Uniqueness by random perturbation: The Leray-alpha model of Euler equation*
- 4:15–4:30 *Break*
- 4:30–5:20 **Nathan Glatt-Holtz** (Virginia Tech)  
*The Stochastic Boussinesq Equations and Connections with Turbulent Convection*

### Wednesday October 1, 2014

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Edriss Titi** (Weizmann Institute of Science)  
*A Revisit of  $\alpha$ -models of Turbulence*
- 10:00–10:15 *Break*
- 10:15–11:05 **Marie Farge** (CNRS/École Normale Supérieure, Paris)  
*Production of dissipative vortices by solid bodies in incompressible fluid flows: comparison between Prandtl, Navier-Stokes and Euler solutions*
- 11:15–11:30 *Break*
- 11:30–12:20 **Robert Ecke** (Los Alamos National Laboratory)  
*The Geostrophic Regime of Rotating Rayleigh-Bénard Convection: Heat Transport and Local Properties*
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Zoran Grujic** (University of Virginia)  
*Turbulent transport and dissipation of vorticity in the 3D NSE*
- 3:00–3:15 *Break*
- 3:15–4:05 **Radu Dascaliuc** (Oregon State University)  
*Energy cascades and scaling properties of non-homogeneous Navier-Stokes equations*
- 4:15–4:30 *Break*
- 4:30–5:20 **Jinqiao Duan** (Illinois Institute of Technology)  
*Normal Diffusion vs. Anomalous Diffusion — A Tale of Two Laplacians*

## Thursday October 2, 2014

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **David Levermore** (University of Maryland)  
*Incompressible Navier-Stokes and well-posedness explored through special solutions*
- 10:00–10:15 *Break*
- 10:15–11:05 **Hussein Aluie** (University of Rochester)  
*Analyzing Scale-Coupling in Compressible Turbulence*
- 11:15–11:30 *Break*
- 11:30–12:20 **Helena Nussenzveig Lopes** (Federal University of Rio de Janeiro)  
*On the convergence of 2D second-grade fluid equations to Euler equations in bounded domains*
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Igor Kukavica** (University of Southern California (USC))  
*Analyticity properties for the Navier-Stokes and related systems*
- 3:00–3:15 *Break*
- 3:15–4:05 **Animikh Biswas** (University of Maryland Baltimore County)  
*Navier-Stokes equations in a Constantin-Chen class of functional spaces*
- 4:15–4:30 *Break*
- 4:30–5:20 **Vladimir Sverak** (University of Minnesota, Twin Cities)  
*On various model equations*

## Friday October 3, 2014

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Alan Newell** (University of Arizona)  
*Wave turbulence: A story far from over*
- 10:00–10:15 *Break*
- 10:15–11:05 **Ricardo Rosa** (Federal University of Rio de Janeiro)  
*Abstract framework for statistical solutions of evolution equations*
- 11:15–11:30 *Break*

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- 11:30–12:20 **Anna Mazzucato** (Pennsylvania State University)  
*Enstrophy dissipation in 2D incompressible fluids*
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Michael Jolly** (Indiana University)  
*Effect of vorticity coherence on energy-enstrophy bounds for the 3D Navier-Stokes equations*
- 3:00–3:15 *Break*
- 3:15–4:05 **Gregory Eyink** (Johns Hopkins University)  
*Spontaneous Stochasticity and Anomalous Dissipation*

