Turbulent Dissipation, Mixing and Predictability

Monday January 9, 2017

8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*

9:00–9:10 *Welcome and Opening Remarks*

9:10–9:50 **László Székelyhidi** (Universität Leipzig)

10:00–10:40 **Katepalli Sreenivasan** (New York University)
TBA

10:50–11:00 *Break*

11:00–11:40 **Olivier Raimond** (Université de Paris X (Paris-Nanterre))
Averaging principle for stochastic flows

11:50–12:00 *Break*

12:00–12:40 **Edriss Titi** (Weizmann Institute of Science)
Determining the Global Dynamics of the 2D Navier-Stokes Equations by 1D ODE

12:50–2:15 *Lunch (on your own)*

2:15–2:55 **Vlad Vicol** (Princeton University)
Non-uniqueness of weak solutions to hydrodynamic equations

3:05–3:15 *Break*

3:15–3:55 **Philip Isett** (Massachusetts Institute of Technology)
A Proof of Onsager's Conjecture for the Incompressible Euler Equations

4:05–4:15 *Break*

4:15–4:55 **Tristan Buckmaster** (New York University)
TBA

5:15–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday January 10, 2017

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:40 **Roman Shvydkoy** (University of Chicago)
TBA

9:50–10:30 **Guido Boffetta** (Università di Torino)

10:40–10:50 *Break*

10:50–11:30 **Alexey Cheskidov** (University of Illinois at Chicago)
TBA

11:40–11:50 *Break*

11:50–12:30 **Susan Friedlander** (University of Southern California (USC))
Asymptotics for magnetostrophic turbulence in the Earth's fluid core

12:40–2:15 *Lunch (on your own)*

2:15–2:55 **Yves Le Jan** (Université d'Orsay)
Markov loops and random fields

3:05–3:15 *Break*

3:15–3:55 **Terence Tao** (University of California, Los Angeles (UCLA))
Finite time blowup constructions for modifications of the Navier-Stokes and Euler equations

4:05–4:15 *Break*

4:15–4:55 **Oliver Bühler** (New York University)
The wave-turbulence jigsaw puzzle in atmosphere and ocean fluid dynamics

Wednesday January 11, 2017

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:40 **Jonathan Mattingly** (Duke University)
TBA

9:50–10:30 **Gregory Falkovich** (Weizmann Institute of Science)
Interaction between mean flow and turbulence in two dimensions

10:40–10:50 *Break*

10:50–11:30 **Tobias Grafke** (Courant Institute of Mathematical Sciences)
Extreme Events and Metastability in Fluids via Computation of Large Deviation Minimizers

11:40–11:50 *Break*

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11:50–12:30 **Peter Constantin** (Princeton University)
TBA

12:40–2:15 *Lunch (on your own)*

2:15–2:55 **Krzysztof Gawedzki** (École Normale Supérieure de Lyon)
A tale of spontaneous stochasticity

3:05–3:15 *Break*

3:15–3:55 **Andrew Majda** (New York University)
New strategies for reduced-order models for predicting the statistical responses and uncertainty quantification in complex turbulent dynamical systems

4:05–4:15 *Break*

4:15–4:55 **Eric Vanden-Eijnden** (Courant Institute of Mathematical Sciences)
Rogue Waves and Large Deviations in the Nonlinear Schroedinger Equation with Random Initial Data

Thursday January 12, 2017

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:40 **Kai Schneider** (Université d'Aix-Marseille)
Are adaptive wavelet discretizations dissipative? Application to inviscid Burgers and incompressible Euler equations

9:50–10:30 **Uriel Frisch** (Observatoire de la Côte d'Azur)
Variations on a theme by Cauchy

10:40–10:50 *Break*

10:50–11:30 **Denis Bernard** (École Normale Supérieure)
Stochastic Spikes and Strong Noise Limits of Stochastic Differential Equations

11:40–11:50 *Break*

11:50–12:30 **Alexei Mailybaev** (Institute of Pure and Applied Mathematics (IMPA))
Uniqueness and nonuniqueness of turbulent solutions from singular initial data

12:40–2:15 *Lunch (on your own)*

2:15–2:55 **Theodore Drivas** (Johns Hopkins University)
Anomalous Dissipation, Spontaneous Stochasticity and Onsager's Conjecture — Two Tales

3:05–3:15 *Break*

3:15–3:55 **Luca Biferale** (Università degli Studi di Roma "Tor Vergata")
Turbulent energy cascades in hydrodynamics and magnetohydrodynamics

4:05–4:15 *Break*

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4:15–4:55 **Jacob Bedrossian** (University of Maryland)
Dynamics near the subcritical transition of the 3D Couette flow

Friday January 13, 2017

8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*

9:00–9:40 **Massimo Vergassola** (University of California, San Diego (UCSD))
Navigating turbulent environments

9:50–10:30 **Marie Farge** (CNRS/École Normale Supérieure, Paris)
A wavelet-based definition of turbulent dissipation

10:40–10:50 *Break*

10:50–11:30 **Gregory Eyink** (Johns Hopkins University)
Real-World Turbulence as Dissipative Euler Solutions: A Physics Perspective

11:40–11:50 *Break*

11:50–12:30 **Helena Nussenzveig Lopes** (Federal University of Rio de Janeiro)
Weak vorticity formulation for incompressible 2D Euler in domains with boundary

12:40 *Conclusion*