

Mathematics of Subgrid-Scale Phenomena in Atmospheric and Oceanic Flow

Monday January 28, 2002

- 8:30–12:00 *Introductory Talks*
- 8:30–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:30 *Welcome and Opening Remarks*
- 9:30–9:50 *Break*
- 9:50–10:50 **David Randall** (Colorado State University)
Sub-grid scale effects on Climate and Weather
- 10:50–11:00 *Break*
- 11:00–12:00 **Bjorn Stevens** (UCLA)
Parameterization Concepts
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Andrew Majda** (New York University)
Applied Math Perspectives on Convective Coupling
- 3:00–4:00 **Alan Kerstein** (Sandia National Laboratory)
Stochastic Simulation of Turbulence-Microscale Interactions
- 4:00–4:30 *Break*
- 4:30–5:30 **Charles Doering** (University of Michigan)
Bounds on Turbulent Transport

Tuesday January 29, 2002

- 8:30–12:00 *Mixing/Homogenization/Transport (Day 1)*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **James McWilliams** (UCLA)
Stochastic Mixing in Oceans, Kinetic Problems in 2D Turbulence
- 10:00–10:30 *Break*

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- 10:30–11:45 **Markos Katsoulakis** (University of Massachusetts)
Introduction to Particle Models
- 11:45–1:30 *Lunch (on your own)*
- 1:30–2:30 **Alan Plumb** (Massachusetts Institute of Technology)
Eddy transport in balanced flows: preparing the problem for parameterization
- 2:30–3:30 *Break*
- 3:30–4:30 **Yannis Kevrekidis** (Princeton University)
Solving Equations Without the Equations: Coarse Integration/Bifurcation Analysis of Microscopic and Stochastic Timesteppers
- 4:30–5:30 *Panel Discussion*

Wednesday January 30, 2002

- 8:30–12:00 *Mixing/Homogenization/Transport (Day 2)*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **George Carnevale** (University of California at San Diego)
Internal Waves, Transport Theories, Statistical Closures
- 10:00–10:30 *Break*
- 10:30–11:30 **David Cai** (New York University/Courant Institute of Mathematical Sciences)
Dispersive Wave Turbulence
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:30 **Richard McLaughlin** (University of North Carolina)
Homogenization Theory Survey, Effects of Stratification
- 2:30–3:30 *Break*
- 3:30–4:30 **Pavel Berloff** (UCLA)
Material Transport in Oceanic Gyres
- 4:30–5:30 *Panel Discussion*
- 5:30–12:00 *Wine/Cheese Reception (Hosted by IPAM)*

Thursday January 31, 2002

- 8:30–12:00 *Mixing/Homogenization/Transport (Day 3)*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **Peter Kramer** (Rensselaer Polytechnic Institute)
Simulation and Simplified Models of Turbulent Diffusion
- 10:00–10:30 *Break*
- 10:30–11:30 **Anne Bourlioux** (University of Montreal)
Scalar Intermittency
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:30 *Summary Discussion*

Friday February 1, 2002

- 8:30–12:00 *Convection*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **Kerry Emanuel** (Massachusetts Institute of Technology)
Overview of Moist Atmospheric Convection
- 10:00–10:30 *Break*
- 10:30–11:30 **Andrew Majda** (New York University)
Applied Math Perspectives on Convective Coupling
- 11:30–12:30 **A. Pier Siebesma** (Royal Netherlands Meteorological Institute)
Theories of Mixing in Cumulus Convection
- 12:30–2:00 *Lunch (on your own)*
- 2:00–3:00 **Markos Katsoulakis** (University of Massachusetts)
Particle Models and Relaxation
- 3:00–3:30 *Break*
- 3:30–4:30 **J. Neelin** (UCLA)
Stochastic Convective Parameterization
- 4:30–5:30 *Summary Discussion*

Monday February 4, 2002

- 8:30–12:00 *Stochastic Climate Modeling (Day 1)*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **Michael Ghil** (UCLA)
Stochastic Parameterization and Sequential Parameter Estimation
- 10:00–10:30 *Break*
- 10:30–11:30 **Richard Kleeman** (New York University)
Strategies for predictability
- 11:30–1:30 *Lunch (on your own)*
- 1:30–2:30 **Chris Snyder** (National Center for Atmospheric Research)
Ensemble Prediction and Parameterization
- 2:30–3:30 *Break*
- 3:30–4:30 **Eric Vanden-Eijnden** (New York University)
Math Strategies for Stochastic Climate Models
- 4:30–5:30 *Summary Discussion*
- 5:30–12:00 *Wine/Cheese Reception (Hosted by IPAM)*

Tuesday February 5, 2002

- 8:30–12:00 *Stochastic Climate Modeling (Day 2)*
- 8:30–9:00 *Continental Breakfast*
- 9:00–10:00 **Edriss Titi** (University of California at Irvine)
Math Perspectives on Dynamical Mode Analysis
- 10:00–10:30 *Break*

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10:30–11:30 **Tapio Schneider** (New York University)
Baroclinic Eddy Fluxes

11:30–1:30 *Lunch (on your own)*

1:30–2:30 **R. Saravanan** (National Center for Atmospheric Research)
Stochastic models of atmosphere-ocean interaction

2:30–3:30 **Bruce Turkington** (University of Massachusetts)
Equilibrium Statistical Models and Parametrization for Jupiter's Jets and Spots

3:30–5:30 *Summary*

5:30–12:00 *Conclusion*

