

Warwick Mathematics Institute

# Filtering High Dimensional Complex Systems

30 June -2 July 2014

Organisers: Andy Majda, Andrew Stuart

## PROGRAMME

All lectures will take place in Room MS.B3.03, Zeeman Building

### Monday 30 June

09:15-09:55 **Andy Majda** (NYU)

*Data Driven Methods for Complex Turbulent Systems*

10:00-10:40 **Marc Bocquet** (CEREA)

*Parameter Estimation with the Iterative Ensemble Kalman Smoother  
and Application to a Coupled Meteorological/Tracer Low-order Model*

10:45-11:25 Tea/Coffee in the Mathematics Common Room

11:30-12:10 **Michal Branicki** (Edinburgh)

*Quantifying Bayesian Filter Performance Through Information Theory*

12:15-14:40 Lunch in the Mathematics Common Room

14:45-15:25 **Mike Fisher** (ECMWF)

*Time-parallel Algorithms for Variational Data Assimilation*

15:30-16:10 Tea/Coffee in the Mathematics Common Room

16:15-16:55 **Ian Grooms** (NYU)

*Multiscale Filtering with Super-parameterization*

18:00 Dinner in the Mathematics Institute Common Room



The London  
Mathematical  
Society



cont.

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For further information on events at the Mathematics Institute, see: [go.warwick.ac.uk/mathsevents](http://go.warwick.ac.uk/mathsevents)  
or contact: **Mathematics Research Centre, Zeeman Building, University of Warwick, Coventry CV4 7AL, UK**  
E-mail: [mrc@maths.warwick.ac.uk](mailto:mrc@maths.warwick.ac.uk) Phone: +44(0)24 7652 8317 Fax: +44(0)24 7652 3548

## PROGRAMME cont.

### Tuesday 1 July

09:15-09:55 **Ibrahim Hoteit** (KAUST)

*Targeted Sampling for Gaussian-Mixture Filtering High Dimensional Systems with Small Ensembles*

10:00-10:40 **Kayo Ide** (UMD)

*Coping with Multi-scale in Ensemble Data Assimilation*

10:45-11:25 Tea/Coffee in the Mathematics Common Room

11:30-12:10 **Kody Law** (KAUST)

*A Deterministic Approach to Filtering and EnKF for Continuous Stochastic Processes Observed at Discrete Times*

12:15-14:40 Lunch in the Mathematics Common Room

14:45-15:25 **Maelle Nodet** (INRIA)

*Accounting for Correlated Observation Errors in Image Data Assimilation*

15:30-16:10 Tea/Coffee in the Mathematics Common Room

16:15-16:55 **Sebastian Reich** (Potsdam)

*Particle Filter for High-dimensional Problems: Combining Optimal Transportation with Localisation*

### Wednesday 2nd July

09:15-09:55 **Daniel Sanz-Alonso & Abhishek Shukla** (Warwick)

*Controlling Unpredictability with Partial Observations*

10:00-10:40 **Peter Jan Van Leeuwen** (Reading)

*Non-degenerate particle filters for high-dimensional systems*

10:45-11:25 Tea/Coffee in the Mathematics Common Room

11:30-12:10 **Andy Majda** (NYU)

*Algorithms for Multiscale Filtering of Complex Turbulent Systems*

12:15-14:40 Lunch in the Mathematics Common Room

The logo for the Mathematics Institute (WMI) at the University of Warwick, consisting of the letters 'W', 'M', and 'I' in a stylized, bold, black font.The logo for The University of Warwick, featuring the text 'THE UNIVERSITY OF WARWICK' in a serif font, with a stylized arc under the word 'WARWICK'. The background of the entire page is a photograph of a modern university building with a glass facade and greenery in the foreground.

For further information on events at the Mathematics Institute, see: [go.warwick.ac.uk/mathsevents](http://go.warwick.ac.uk/mathsevents)

or contact: **Mathematics Research Centre, Zeeman Building, University of Warwick, Coventry CV4 7AL, UK**

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