

BMS Summer School – Mathematics of Multiscale Phenomena – Schedule 1. – 12 September 2008 :

Sept. 1 – 5	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 – 9:00	Registration				
9:00 – 10:30	Lecture: Computing quantum dynamics in the semi-classical regime C. Lubich			Lecture: Effective Dynamics and Rare Events E. Vanden Eijnden	
10:30 – 11:00	Coffee				
11:00 – 12:30	Lecture: Effective Dynamics and Rare Events C. Schütte		Lecture: Effective Dynamics and Rare Events E. Vanden Eijnden	Lecture: Multiscale Problems for ODEs und SDEs A. Stuart	
12:30 – 13:30	Lunch				
13:30 – 14:40	Tutorial: Computing quantum dynamics in the semi-classical regime V. Rousse		Lecture: Effective Dynamics and Rare Events C. Schütte	Tutorial: Effective Dynamics and Rare Events M. Venturoli	
14:45 – 16:00	Tutorial: Effective Dynamics and Rare Events C. Hartmann	Tutorial: Effective Dynamics and Rare Events P. Metzner	Lecture: Multiscale Problems for ODEs and SDEs A. Stuart	Tutorial: Multiscale Problems for ODEs und SDEs K. Zygalakis	
16:00 – 16:30	Coffee				
16:30 – 17:30	Math. Strategies for Filtering Turbulent signals in Complex Systems A. Majda	New Alg. and Appl. of the Fluctuation–Dissipation Theorem f. Climate Response A. Majda	Domain Decomposition Theory when Sub-domains are Irregular O. Widlund	On the approximation of transport phenomena M. Dellnitz	Inference of effective stochastic dynamics from data D. Crommelin
18:00	Welcome				

Sept. 8 – 12	Monday	Tuesday	Wednesday	Thursday	Friday
09:00 – 10:30	Lecture: Hamiltonian passage from many-particle systems to PDEs A. Mielke			Lecture: Computational Surface PDEs C. Elliott	
10:30 – 11:00	Coffee				
11:00 – 12:30	Lecture: Many-particle systems in quantum mechanics H. Yserentant		Lecture: PDEs on complex domains: Analysis and Numerics R. Kornhuber		
12:30 – 13:30	Lunch				
13:30 – 14:40	Tutorial: Hamiltonian passage from many-particle systems to PDEs C. Patz		Lecture: Many-particle systems in quantum mechanics H. Yserentant	Tutorial: PDEs on complex domains: Analysis and Numerics C. Gräser	
14:45 – 16:00			Lecture: Computational Surface PDEs C. Elliott	Tutorial: Computational Surface PDEs B. Stinner	
16:00 – 16:30	Coffee				
16:30 – 17:30	Minimiz. On Stiefel and Grassmann manifolds f. DFT electr. Str. calc. R. Schneider	Adaptive Discontinuous Galerkin Schemes for Multiscale Problems G. Gassner	(Nonuniform) Sampling in Shift-Invariant Subspaces K. Gröchenig	Multiscale Analy. of Finite Diff. Meth.: Underst. Lattice Boltzmann Schem. M. Junk	
18:00	Party				

1.) Lecture series:

Multiscale Problems for ODEs und SDEs

Lectures: A. Stuart, Warwick

Tutorials: K. Zygalakis, Warwick

Computing quantum dynamics in the semi-classical regime

Lectures: C. Lubich, Tübingen

Tutorials: V. Rousse, Paris

Effective Dynamics and Rare Events

Lectures: E. Vanden Eijnden, New York

C. Schütte, Berlin

Tutorials: C. Hartmann, Berlin

P. Metzner, Berlin/New York

M. Venturoli, New York

Hamiltonian passage from many-particle systems to PDEs

Lectures: A. Mielke, Berlin

Tutorials: C. Patz, Berlin

Many-particle systems in quantum mechanics

Lectures: H. Yserentant, Berlin

Computational Surface PDEs

Lectures: C. Elliott, Warwick

Tutorials: B. Stinner, Warwick

Lectures: R. Kornhuber, Berlin

Tutorials: C. Gräser, Berlin

2.) Guest lectures

A. Majda, New York:

Mathematical Strategies for Filtering Turbulent signals in Complex Systems;
New Algorithms and Applications of the Fluctuation-Dissipation Theorem for
Climate Response

O. Widlund, New York:

Domain Decomposition Theory when Subdomains are Irregular

M. Dellnitz, Paderborn:

On the approximation of transport phenomena

D. Crommelin, Amsterdam:

Inference of effective stochastic dynamics from data

R. Schneider, TU Berlin:

Minimization on Stiefel and Grassmann manifolds for DFT electronic
structure calculation

G. Gassner, Stuttgart:

Adaptive Discontinuous Galerkin Schemes for Multiscale Problems

K. Gröchenig, Wien:

(Nonuniform) Sampling in Shift-Invariant Subspaces

M. Junk, Konstanz:

Multiscale Analysis of Finite Difference Methods: Understanding Lattice Boltzmann
Schemes