

Workshop on Numerics in Dynamical Systems

April 23-25, 2009, TKK Helsinki, Finland

Thursday, April 23

10.00 Registration and coffee

10.30 Opening

10.40-12.00 Chair: Olavi Nevanlinna

Christian Lubich, University of Tübingen
Modulated Fourier expansions for weakly nonlinear wave equations

Sebastian Reich, University of Potsdam
Hybrid Monte Carlo and Metropolis adjusted time-stepping methods for classical mechanics subject to fluctuation-dissipation terms.

12.00 [Lunch](#)

13.20-14.40 Chair: Marlis Hochbruck

Willy Govaerts, University of Gent
Basic models for cell cycle controls from a dynamic viewpoint

Erik Van Vleck, University of Kansas
Exponential dichotomy, matrix decompositions, and Newton's method

14.40 Coffee

15.20-16.00 Chair: Chus Sanz-Serna

Gennady Leonov, St Petersburg University
Hidden oscillations

Marianna Khanamiryan, University of Cambridge
Quadrature methods for highly oscillatory dynamical systems

17.00-19.00 Get together

Friday, April 24

9.10-10.30 Chair: Luca Dieci

Ben Leimkuhler, University of Edinburgh
Controlled variable molecular dynamics

Anders Szepessy, KTH Stockholm
Accuracy of molecular dynamics simulations

10.30 Coffee

11.00-12.20 Chair: Bernd Krauskopf

Chus Sanz-Serna, Universidad de Valladolid
Computational experiences with multiscale methods for problems with fast oscillations

Marlis Hochbruck, University of Düsseldorf
Regularization of nonlinear inverse problems by certain time integration schemes

12.20 [Lunch](#)

13.30-14.50 Chair: Christian Lubich

Alexander Ostermann, University of Innsbruck
Convergence analysis of splitting methods

Reinout Quispel, La Trobe University
Geometric numerical integration of differential equations

14.50 Coffee

15.20-16.40 Chair: Gennady Leonov

Etienne Emmrich, Technische Universität Berlin
Stability and convergence of time discretisation methods for nonlinear evolution problems

Philip Aston, University of Surrey
Integration methods using vector norms for computing Lyapunov exponents

17.30 Sauna w. refreshments

19.00-23.00 Dinner (casual, buffet)

Saturday, April 25

9.10-10.30 Chair: Reinout Quispel

Dimitri Breda, Università di Udine
Numerical computation of Lyapunov exponents for delay differential equations

Bernd Krauskopf, University of Bristol
Computing the symbolic dynamics of heteroclinic orbits of the Lorenz system

10.30 Coffee

11.00-12.20 Chair: Anders Szepessy

Sergei Pilyugin, St Petersburg University
Approximate trajectories for set-valued mappings and differential inclusions

Nikolay Kuznetsov, St Petersburg University
Period doubling bifurcation in discrete phase-locked loop

12.20 [Lunch](#) at Dipoli

13.30-14.50 Chair: Ben Leimkuhler

Olavi Nevanlinna, TKK Helsinki
Computing the spectrum and representing the resolvent

Luca Dieci, Georgia Tech
Sliding modes in Filippov systems

14.50 Closing