MONDAY, 12th September 2011

08:45 (W03 1-161) Opening

09:00 (W03 1-161) *'Bifurcation-ability' from Itinerant Motion Provides Biological Plasticity: Differentiation from Stem Cells and Neural Memory of Input/Output Relationships*, **Kunihiko Kaneko, Tokyo**

09:45 (W03 1-161) *Characterizing Dynamics with Covariant Lyapunov Vectors*, **Francesco Ginelli, Rome**

10:30 Coffee-break

Minisymposia in parallel sessions:

(W01 0-015) **Lyapunov exponents in high-dimensional systems** *Antonio Politi, Florence*	(W03 1-161) **Systems Biology: A dynamics and statistical physics approach** *M. Carmen Romano, Aberdeen*	(W02 1-148) **Coherent structures in plasmas** *Jens D.M. Rademacher, Amsterdam*	(W03 1-156) **Intertial particles in flows** *Tamás Tél, Budapest*
11:00 *Lyapunov exponents fluctuations as a tool for studying high-dimensional chaos,* Pavel Kuptsov, Saratov	**11:00** *Replication domains are self-interacting structural chromatin units of human chromosomes,* Alain Arneodo, Lyon	**11:00** *Stability analysis of the confinement of a tokamak plasma,* Daniel Han-Kwan, Paris	**11:00** *Full motion measurement of finite-size neutrally buoyant particles together with the turbulent flow field carrying them,* M. Gibert, Göttingen
11:30 *Hyperbolicity and effective degrees of freedom of extended dynamical systems,* Hongliu Yang, Chemnitz	**11:30** *Robustness of circadian clocks to daylight fluctuations,* Marc Lefranc, Lille	**11:30** *Self-organization and dynamics of plasma filaments under microwave or low frequency excitation,* J.-P. Boeuf, Toulouse	**11:30** *Ergodic and non-ergodic clustering of inertial particles,* Bernhard Mehlig, Gothenburg
12:00 *Collective chaos in pulse-coupled neural networks,* Alessandro Torcini, Florence	**12:00** *Stochastic walking along a network of molecular highways,* Andrea Parmeggiani, Montpellier	**12:00** *Spots on electrodes of DC discharges: self-organization theory and its applications,* Mikhail S. Benilov, Funchal	**12:00** *Aggregation and fragmentation of fractal-like particles in random flows,* Ulrike Feudel, Oldenburg
12:30 *Chaos in the Hamiltonian mean field model,* Antonio Politi, Florence	**12:30** *The role of limited resources in protein synthesis,* Carmen Romano, Aberdeen	**12:30** *Modelling of microwave discharges in asymmetric barrier discharges in argon,* Markus M. Becker, Greifswald	**12:30** *Tumbling of spheroidal particles in noisy channel flows,* Jonas Einarsson, Gothenburg

13:00 Lunch

14:00 (W03 1-161) *Burning invariant manifolds and reaction fronts in laminar flows*, **Tom Solomon, Lewisburg**

14:45 Coffee-break

Contributed Talks in parallel sessions:

(W01 0-015) Dynamics in flows Chair: Tom Solomon, Lewisburg	(W03 1-161) Synchronization Chair: Stefano Boccaletti, Madrid	(W03 1-156) Patterns Chair: Kenneth Showalter, Morgantown	(W02 1-148) Dynamics in conservative systems Chair: Barbara Niethammer, Oxford
15:15 *Interacting particles in open chaotic flows,* Alessandro Moura, Aberdeen	**15:15** *Pinning Synchronization Control Performance,* Elbert E.N. Macau, Sao Jose dos Campos	**15:15** *Scaling laws for double diffusive fingers,* Andreas Tilgner, Göttingen	**15:15** *Self-Organization Concepts in Modular Robotics,* Jens Starke, Lyngby
15:35 *Interplay between chemical and hydrodynamical leaking in chaotic systems,* Izabella Benczik, Göttingen	**15:35** *Occurrence of mixed- synchronization in counter- rotating nonlinear coupled oscillators,* Awadhesh Prasad, Delhi	**15:35** *Convection patterns in a central forced spherical fluid shell under microgravity conditions,* Fred Feudel, Potsdam	**15:35** *Nonlocal Generalized Models,* Christian Kuehn, Dresden
15:55 *Control of Inertial Microfluidics,* Christopher Prohm, Berlin	**15:55** *Synchronization of forced coupled van der Pol oscillators,* Ludmila Turukina, Saratov	**15:55** *Nonlocally coupled networks: Spatial chaos and chimera states,* Iryna Omelchenko, Berlin	**15:55** *A dissipative system with Hamiltonian critical behaviour,* D.V. Savin, Saratov
16:15 *Chaotic saddles in a gravitational field: The case of inertial particles in finite domains,* Gábor Drótos, Budapest	**16:15** *On the role of intrinsic neuronal dynamics for relay synchronization,* Christian Finke, Oldenburg	**16:15** *Destabilization of localized structures in reaction-diffusion systems induced by delayed feedback,* Svetlana Gurevich, Münster	**16:15** *Theoretical Analysis and Phase Correction of Super-Bloch Oscillations,* Kazue Kudo, Tokyo
16:35 *Non-monotonic effects of noise in chaotic scattering,* Eduardo G. Altmann, Dresden	**16:35** *Avalanche transmission and failure rates in branching hierarchical networks,* Neelima Gupte, Madras Chennai	**16:35** *Pattern formation in active microemulsions: BZ-AOT system,* Jorge Carballido, Santiago de Compostela	**16:35** *Dynamics of a driven Bose-Einstein condensate,* Holger Hauptmann, Dresden
16:55 *Investigation and modeling of human driver behavior based on Langevin analysis,* Michael Langner, Oldenburg	**16:55** *Complex networks of interacting stochastic dynamical systems: Discerning connectivity from dynamics,* Milan Palus, Prague	**16:55** *Spiral wave selection in excitable media with a phase wave at the wave back,* Vladimir Zykov, Göttingen	**16:55** *Quasi-conservative Henon: sequence of coexisting sinks, as* $b \to 1$, Laura Tedeschini Lalli, Rome

18:00 (Audi Max, Hörsaalzentrum, see map „Uhlhornsweg") *The Many Facets of Chaos,* **James A. Yorke, College Park**

19:00 (Audi Max, Hörsaalzentrum, see map „Uhlhornsweg") Reception

TUESDAY, 13th September 2011

09:00 (W03 1-161) *Synchronization in Real Networks: Control and Optimization,* **Rajarshi Roy, College Park**

09:45 (W03 1-161) *Nonlinear waves in periodic media,* **Guido Schneider, Stuttgart**

10:30 Coffee-break

Minisymposia in parallel sessions:

(W02 1-148) **Phase Transitions and Long Transients in Spatio-Temporal Dynamics** *Jürgen Vollmer, Göttingen*	(W01 0-015) **Collective dynamics of coupled systems** *S. Yanchuk, O. Popovych and P. Tass, Berlin and Jülich*	(W03 1-156) **Pattern Formation in Environmental Systems** *Jost von Hardenberg and Ehud Meron, Torino and Beer-Sheva*	(W03 1-161) **Complex-Network Dynamics and Biological Applications** *Celso Grebogi and Ying-Cheng Lai, Aberdeen and Tempe*
11:00 *Super-Long Transients in Spatio-Temporal Dynamics,* Jürgen Vollmer, Göttingen	**11:00** *Dynamical properties of delay-coupled networks: on spectra, correlations and network topology;* O. D'Huys and I. Fischer, Brussels	**11:00** *Large-scale structures in fingering convection,* Jost von Hardenberg; Torino	**11:00** *A Mechanism Of Birhytmicity In Ensembles of Coupled Oscillators,* Michael Zaks, Berlin
11:30 *The transition from decaying to spreading turbulence in pipe flow,* Kerstin Avila, Göttingen	**11.30** *Routing of digital-like information through analog rate oscillations,* Demian Battaglia, Göttingen	**11:30** *Gradual regime shifts in spatially extended ecosystems,* Ehud Meron, Beer-Sheva	**11:30** *Uncovering complex-network topologies and dynamical systems using time series,* Ying-Cheng Lai, Tempe
12:00 *Decaying transient chaos: the dynamics of undriven dissipative systems,* Tamás Tél, Budapest	**12:00** *Phase lead synchronization in unidirectionally coupled chaotic systems,* Kestutis Pyragas, Vilnius	**12:00** *Pattern Formation in the Aerosol-Cloud-Precipitation System,* Graham Feingold, Boulder	**12:00** *Marine bioinvasion in the network of global shipping connections,* Bernd Blasius, Oldenburg
12:30 *Unexpected properties of a universal attractor for granular gases in long channels: quasi-stationarity and scaling,* Itzhak Fouxon, Tel Aviv	**12:30** *Delay-induced spiking patterns emerging in a ring of coupled neurons,* Serhiy Yanchuk, Berlin	**12:30** *The dynamics of patterned ground in permafrost,* Lucas Goehring, Göttingen	**12:30** *Is the Origin of Intelligence Rooted in a Higher Language Class? A Nonlinear Dynamics approach,* Ruedi Stoop, Zürich

13:00 Lunch

14:00 Poster-session and coffee

Contributed Talks in parallel sessions:

(W03 1-161) Networks Chair: Jürgen Kurths, Potsdam	(W03 1-156) Dynamics geoscience and climate Chair: Andreas Tilgner, Göttingen	(W02 1-148) Nonlinear dynamics Chair: Alain Arneodo, Lyon	(W01 0-015) Dynamics in biological applications Chair: Ruedi Stoop, Zürich
15:30 *Emergence of modularity and heterogeneity out of synchronization of adaptive networks,* Stefano Boccaletti, Madrid	**15:30** *Rayleigh-Bénard convection in nanofluids or in spatially modulated containers,* W. Zimmermann, Bayreuth	**15:30** *Entanglement dynamics through local squeezing of initial separable states,* Lock Yue Chew, Singapore	**15:30** *Speed of Evolution in Spatially Extended Populations,* Erik A. Martens, Göttingen
15:50 *Phase-flip transition in the absence of time delays in coupled oscillators,* Manish Dev Shrimali, Jaipur	**15:50** *Collective non-stationary flow in two-dimensional fluid,* Hidetoshi Morita, Kyoto	**15:50** *Amplitude Death induced by Environment,* G. Ambika, Pune	**15:50** *Signal analysis and classification using ordinal patterns,* Ulrich Parlitz, Göttingen
16:10 *Integration vs. Segregation in Functional Brain Networks,* Irene Sendina-Nadal, Madrid	**16:10** *Nonlinear dynamics of ice growth and charge production in thunderstorms,* Julyan Cartwright, Granada	**16:10** *Dynamical collapse of trajectories,* J. J. Benjamin Biemond, Eindhoven	**16:10** *Early warning signals: a generalised modelling approach* Steven Lade, Dresden
16:30 *Time-dependent directed influences in noisy multivariate systems,* Linda Sommerlade, Freiburg	**16:30** *The effect of localized geothermal heating on deep water formation,* Miklós Vincze, Budapest	**16:30** *Extensivity and sub-extensivity of chaos in globally-coupled systems,* Kazumasa A. Takeuchi, Tokyo	**16:30** *Geometric Mixing, Peristalsis, and the Geometric Phase of the Stomach,* Oreste Piro, Palma de Mallorca
16:50 *Do chaotic internal degrees of freedom trigger or destroy long jumps in molecular diffusion?,* Astrid S. de Wijn, Nijmwegen	**16:50** *Finite data-size scaling of clustering in complex network of earthquake,* Norikazu Suzuki, Chiba	**16:50** *Theory and applications of optimal entrainment for energy-efficient injection-locking oscillators,* Hisa-Aki Tanaka, Tokyo	**16:50** *Up-Down state stimulation of a cortical model for slow waves in sleep: Switching and phase diagram,* Jens Christian Claussen, Lübeck
17:10 *Role of unstable symmetric solutions in symmetry restoring processes,* Tsuyoshi Mizuguchi, Osaka	**17:10** *A chaotically driven model climate: Extreme events and snapshot attractors,* Tamás Bódai, Budapest		**17:10** *Intermittency as a universal characteristic of the complete chromosome DNA sequences of eukaryotes,* Sergei Larionov, Moscow

WEDNESDAY, 14th September 2011

09:00 (W03 1-161) *Network of Networks and the Climate System,* **Jürgen Kurths, Potsdam**
09:45 (W03 1-161) *Rayleigh-Bénard turbulent convection: some recent results,* **Francesca Chilla, Lyon**

10:30 Coffee-break

Minisymposia in parallel sessions:

(W03 1-161) Lagrangian coherent structures in fluids — *Emilio Hernández-García, Palma de Mallorca*	(W02 1-148) Strings, Solitons and Black Holes — *Jutta Kunz, Oldenburg*	(W03 1-156) Nonlinear Dynamics of the Heart — *Ulrich Parlitz, Göttigen*	(W01 0-015) Systems with delay — *Natalia Janson, Loughborough*
11:00 *Lyapunov exponents and barrier effects in geophysical fluid dynamics,* Bernard Legras, Paris	**11:00** *Topology in the sky: cosmic strings and other "defects",* Ana Achucarro, Leiden	**11:00** *Dynamical response of cardiac tissue to electric field stimulation,* Philip Bittihn, Göttingen	**11:00** *Dynamics of delay-coupled complex networks,* Judith Lehnert, Berlin
11:30 *The Lagrangian description of aperiodic flows: applications in the Ocean and the Atmosphere,* Ana M. Mancho, Madrid	**11:30** *Monopoles and the Weyl Equation,* Theodora Ioannidou, Thessaloniki	**11:30** *Low-energy Control of Cardiac Fibrillation,* Stefan Luther, Göttingen	**11:30** *Pyragas-Schöll-Fiedler control: on the experimental relevance of bifurcation analysis in time delay systems,* Wolfram Just, London
12:00 *Lagrangian transport phenomena in 3D laminar flows,* Michel Speetjens, Eindhoven	**12:00** *Black holes & solitons: Applications to Condensed Matter,* Betti Hartmann, Bremen	**12:00** *In real-time simulations of 2D and 3D cardiac dynamics using GPUs,* Flavio H. Fenton, Ithaca, NY	**12:00** *Tracing delay-induced synchronization in stochastic networks,* Andrey Pototsky, Cape Town
12:30 *Three-dimensional Oceanic Coherent Structures,* Cristóbal López, Palma de Mallorca	**12:30** *Boson Stars: Non-Topological Solitons Coupled to Gravity,* Meike List, Bremen	**12:30** *Cardiovascular Regulation During Sleep Quantified By Symbolic Coupling Traces,* Niels Wessel, Berlin	**12:30** *Delayed feedback effects in deterministic and stochastic systems,* Natalia B. Janson, Loughborough

13:00 Lunch
14:15 Excursion and Conference Dinner

THURSDAY, 15th September 2011

09:00 (W03 1-161) *Regular and chaotic subharmonic cluster patterns in globally coupled oscillatory media,* **Katharina Krischer, München**
09:45 (W03 1-161) *Stochastic Nonlinear Dynamics in the Inverse Cascade of Twodimensional Turbulence,* **Rudolf Friedrich, Münster**

10:30 Coffee-break

Minisymposia in parallel sessions:

(W03 1-161) **Stochastic Dynamics in Biological Systems** *Benjamin Lindner and Alexander Neiman, Berlin and Athens*	(W03 1-156) **Stability of Nonlinear Waves** *Tomáš Dohnal, Karlsruhe*	(W01 0-015) **Feedback Control of Nonlinear Soft Matter Systems** *Eckehard Schöll, Berlin*	(W02 1-148) **Non-smooth Dynamical systems** *Paul Glendinning, Manchester*
11:00 *Ecological communities structured by fluctuations,* Jan Freund, Oldenburg	**11:00** *On Global Attraction to Quantum Stationary States,* Alexander Komech, Vienna	**11:00** *Feedback control of driven colloidal systems,* Sabine Klapp, Berlin	**11:00** *Non-determinism in the limit of nonsmooth dynamics,* Mike R. Jeffrey, Bristol
11:30 *Sources of interval correlations in neural spike trains,* Benjamin Lindner, Berlin	**11:30** *Interaction of atomic dark-bright solitons with localized impurities,* Vassilis Rothos, Thessaloniki	**11:30** *Synchronization in Populations of Excitable and Oscillatory Particles,* Kenneth Showalter, Morgantown	**11:30** *Dynamics of Discontinuous Difference Equations,* Karin Mora, Bath
12:00 *Active Brownian particles with internal fluctuations - from individual to collective dynamics,* Pawel Romanczuk, Berlin	**12:00** *A simple connection of the Evans Function and the Krein Signature,* Richard Kollar, Bratislava	**12:00** *Controlling neuronal wave dynamics by nonlocal and time-delayed feedback,* Eckehard Schöll, Berlin	**12:00** *Bifurcations in Nonsmooth Maps with Singularity,* Partha Dutta, Oldenburg
12:30 *Speed-dependent decision making in genetic networks,* Alexey Zaikin, London	**12:30** *Numerical Evans Function Method for Stability of Solitons in the periodic NLS,* Tomáš Dohnal, Karlsruhe	**12:30** *TBA,* TBA	**12:30** *Multistability near grazing-sliding bifurcations,* Paul Glendinning, Manchester

13:00 Lunch
14:00 **Poster-session and coffee**

Minisymposia in parallel sessions:

(W03 1-156) **New approaches for stochastic differential equations** *Matthias Waechter, Oldenburg*	(W02 1-148) **Singularities in turbulent flows** *Bernhard Mehlig, Gothenburg*	(W01 0-015) **Dynamics of Critical Transitions and Extreme Events** *Sarah Hallerberg, Holger Kantz and Christian Kuehn, Chemnitz and Dresden*	(W03 1-161) **Networks: Theory and Application to the Life Sciences** *Marco Thiel and Bjoern Schelter, Aberdeen and Freiburg*
15:30 *Principal axes for stochastic dynamics,* Pedro Lind, Lisbon	**15:30** *Burgers turbulence: singularities, geometry, and statistics,* Jérémie Bec, Nice	**15:30** *Bifurcation, noise and rate-dependent tipping in open systems,* Peter Ashwin, Exeter	**15:30** *Graphical Models for Time Series: Direct Directed Interactions in Networks,* Bjoern Schelter, Freiburg
16:00 *Nonstationary stochastic processes with application to the fluctuations in the oil price,* M. Reza Rahimi Tabar, Oldenburg	**16:00** *Caustics and intermittency in turbulent suspensions of heavy particles,* Massimo Cencini, Rome	**16:00** *Expecting the Unexpected: Indicators of Resilience as Early-Warnings for Critical Transitions,* Vasilis Dakos, Wageningen	**16:00** *Adaptive Multiple-Time-Scale Networks: Theory and Application,* Marco Thiel, Aberdeen
16:30 *Stochastic perturbations to dynamical systems: a response theory approach,* Valerio Lucarini, Reading	**16:30** *Caustics and relative velocities in turbulent aerosols,* Kristian Gustavsson, Gothenborg	**16:30** *Mesoscale weather extremes and probabilistic forecast approaches,* Petra Friederichs, Bonn	**16:30** *Graph-Theoretical Approaches to Functional Epileptic Brain Networks,* Marie-Therese Kuhnert, Bonn
17:00 *Stochastic point vortex dynamics,* G. Strickmann, Münster	**17:00** *Segregation of particles in incompressible random flows: singularities, intermittency, random uncorrelated motion,* Mike Reeks, Newcastle-upon-Tyne	**17:00** *Extreme value statistics in the solar wind,* Nicholas Moloney, Dresden	**17:00** *Natural Interaction Networks: Small-World or Not?,* Stephan Bialonski, Bonn

FRIDAY, 16th September 2011

Minisymposia in parallel sessions:

(W01 0-015) **Complex flows in microfluidic geometries** *Anke Lindner, Paris*	(W03 1-161) **Stochastic Process in Experiments** *Pedro Lind and Maria Haase, Lisbon and Stuttgart*	(W02 1-148) **Systems Nonlinear water waves** *Mats Ehrnström and Erik Wahlén, Hanover and Lund*	(W03 1-156) **Multistability in Dynamical Systems and Applications** *Alexander N. Pisarchik, Leon*
09:00 *Purely-elastic instabilities in serpentine channels,* Anke Lindner, Paris	**09:00** *Direct and iterative estimation of drift and diffusion coefficients of stochastic processes,* David Kleinhans, Gothenburg	**09:00** *A variational approach to a class of nonlocal evolution equations and existence of solitary waves of the Whitham equation,* Erik Wahlén, Lund	**09:00** *Design of coupling for multiattractor dynamics,* Syamal K. Dana, Kolkata
09:30 *Flow at low Reynolds numbers: from single filaments to unicellular parasites,* Thomas Pfohl, Basel	**09:30** *Analysis of stochastic time series spoilt by strong, exponentially correlated measurement noise,* Bernd Lehle, Stuttgart	**09.30** *Balance laws for Boussinesq equations and applications,* Henrik Kalisch, Bergen	**09:30** *Dynamical behavior of semiconductor ring lasers: Multistability and excitability,* Lendert Gelens, Brussels
10:00 *Surface nanobubbles,* James R. T. Seddon, Enschede	**10:00** *Extracting model equations from noisy spatio-temporal data,* Oliver Kamps, Münster	**10:00** *Some existence and regularity results for stratified water waves,* Bogdan-Vasile Matioc, Hanover	**10:00** *Switching between oscillation states in coupled stochastic repressillators,* Ram Ramaswamy, Hyderabad
10:30 *Microfluides engineering: double emulsions, capsules, crystalline goams and nano droplets,* Elise Lorenceau, Paris	**10:30** *Wind energy conversion - a stochastic response problem,* Partick Milan and Philip Rinn, Oldenburg	**10:30** *A free boundary approach to two-dimensional steady capillary gravity water waves,* Georg Weiss, Düsseldorf	**10:30** *Rogue waves and multistability,* Alexander N. Pisarchik, Leon

11:00 Coffee-break
11:30 **(W03 1-161)** *Synchronization phenomena in the human epileptic brain,* **Klaus Lehnertz, Bonn**
12:15 **(W03 1-161)** *Rogue and extreme Waves, Nail Akhmediev, Canberra*
13:00 **(W03 1-161)** Closing and outlook