XXXVII Dynamics Days Europe

June 5–9, 2017

Szeged, Hungary

Program
### Schedule

**Monday (June 5)**
- **8:45−10:00**
  - Registration

**Tuesday (June 6)**
- **10:00−11:00**
  - **Nigel Goldenfeld**
    - Plenary talk

**Wednesday (June 7)**
- **11:00−11:30**
  - Coffee break

**Thursday (June 8)**
- **12:30−14:00**
  - **Namiko Mitarai**
    - Plenary talk

**Friday (June 9)**
- **14:00−15:00**
  - **Joachim Peinke**
    - Plenary talk

### Conference Venue
- Albert Szent–Gyorgyi Educational Center
- Bolyai Institute
- Town Hall

### Sights
- **Sightseeing**
- **Excursion**

### Parallel Sessions
- **1a 7a 10 11a 14a 15 8b 9 13 14b**
- **2 8a 4a 12a 5a 6 7b 11b 5b 18 19 20 16 17**

### Coffee Breaks
- **Coffee break**
- **Lunch break**
- **Coffee break**
- **Coffee break**

### Plenary Talks
- **Nigel Goldenfeld**
- **Namiko Mitarai**
- **Simona Olmi**
- **Antonio Politi**
- **Tomaz Prosen**
- **Odo Diekmann**
- **Tamas Vicsek**
- **Oliver Steinbock**
- **Joachim Peinke**

### Round Table Discussion
- **Round table discussion**

### Conference Dinner
- **Conference dinner**
MONDAY 5TH JUNE

18:00-18:40 ELI ATTOSECOND: INFORMATIVE LECTURE — Csaba Janáky
ELI-ALPS Research Institute: Research Technology and Scientific Mission

TUESDAY 6TH JUNE

9:00-9:45 REGISTRATION

9:45-10:00 OPENING
Opening by Gábor Szabó, Rector of the University of Szeged

10:00 -11:00 PLENARY 1 — Nigel Goldenfeld
Statistical Mechanics of the Phase Transition to Turbulence: Zonal Flows, Ecological Collapse and Extreme Value Statistics
Discussion leader: Valerio Lucarini

11:00-11:30 COFFEE BREAK

11:30-12:30 PLENARY 2 — Namiko Mitarai
Invasion and Extinction Dynamics in Competitive Environments
Discussion leader: Julyan Cartwright

12:30-14:00 LUNCH BREAK AND POSTER SESSION

14:00-15:00 PLENARY 3 — Odo Diekmann
Renewal Equations in Population Biology: A Dynamical Systems Perspective
Discussion leader: Ulrike Feudel

15:15-17:20 PARALLEL SESSIONS

MS2 CHEMOBRIONICS: FLUID DYNAMICS AND COMPLEXITY (Room 107)
Organizers: Silvana Cardoso, Julyan Cartwright, Gábor Schuszter

15:15-15:40 Silvana Cardoso
Self-mixing in the Earth’s Atmosphere, Oceans, and Subsurface

15:40-16:05 Julyan Cartwright
The Spark of Life: The Physics of How the Earth Went from Geology and Chemistry to Biology

16:05-16:30 Gábor Schuszter
Comparison of Flow-controlled Calcium and Barium Carbonate Precipitation Patterns for Underground Carbon Dioxide Sequestration

16:30-16:55 Oliver Steinbock
Chemobrionics Meets Microfluidics: Control of Growth Dynamics and Prebiotic Processes

16:55-17:20 Nicola Mingotti
Experimental Investigation of Turbulent Plumes with a Precipitation Reaction

MS4a COMPLEX PATTERNS ON NETWORKS (Room 211)
Organizers: Jan F. Totz, Erik Martens, Ralph G. Andrzejak

15:15-15:40 Eckehard Schöll
Chimeras in Networks with Complex Topologies
15:40-16:05 Anna Zakharova  
**Time-delayed Feedback Control of Noise-induced Chimera States**

16:05-16:30 Ralph G. Andrzejak  
**Driver Response Couplings Between Networks in Chimera States**

16:30-16:55 Giulia Ruzzene  
**Control of Chimera States Via Pacemakers**

16:55-17:20 Bogdan Penkovsky  
**Chimera States in Nonlinear Systems with Delayed Feedback**

**MS8a Dynamics of Reaction Systems in Chemistry, Physical Chemistry and Biochemistry (Room 215)**  
Organizers: Ljiljana Kolar-Anić, Željko Ćupić

15:15-15:40 Ljiljana Kolar-Anić  
**Modelling of a Complex Biochemical System for Various Applications**

15:40-16:05 Željko Ćupić  
**Influence of Circadian Function on the Dynamical States and Bifurcation Diagrams of the Hypothalamic Pituitary-adrenal Axis**

16:05-16:30 Vladimir M. Marković  
**Modeling Hypothalamic-pituitary-adrenal Axis Dynamics under Various Forms of Externally and Internally Induced Cholesterol Perturbations**

16:30-16:55 Katarina Novakovic  
**From Phenyl Acetylene to Mono- and Di-alkyne-terminated Poly(Ethylene Glycol) as Substrates in Oscillatory Carbonylation Reactions**

16:55-17:20 Marek Orlik  
**Pattern Formation in the H₂O₂-based Chemical Oscillators, Caused by Inhomogeneous Temperature Field**

**MS12a Snapshot and Pullback Attractors, a Framework for Understanding Nonautonomous Dissipative Dynamics (Room 216)**  
Organizers: Michael Ghil, Tamás Tél

15:15-15:40 Michael Ghil  
**A Mathematical Theory of Climate Sensitivity and What We Learn About It From Pullback Attractors**

15:40-16:05 Miklos Vincze  
**Temperature Fluctuations in a Changing Climate: an Ensemble-based Experimental Approach**

16:05-16:30 Ulrike Feudel  
**Death and Revival of Chaos**

16:30-16:55 Mátyás Herein  
**The Theory of Parallel Climate Realizations as a New Framework for Teleconnection Analysis**

16:55-17:20 Mickael Chekroun  
**Crisis of Pullback Strange Attractors in a Delay Differential Model of El Nino-Southern Oscillation**
17:40-19:45 PARALLEL SESSIONS

**MS4b** COMPLEX PATTERNS ON NETWORKS (Room 211)
*Organizers: Jan F. Totz, Erik Martens, Ralph G. Andrzejak*

17:40-18:05 Shashi Thutupalli
**Patterns on a Starvation Network: Aggregation and Fruiting Body Formation in Soil Bacteria**

18:05-18:30 Justus A. Kromer
**Noise-induced Patterns in Networks of Adaptive Excitable Elements**

18:30-18:55 Douglas R. Brumley
**Long-range Interactions, Wobbles, and Phase Defects in Biological Oscillator Networks**

18:55-19:20 Iryna Omelchenko
**Tweezer Control for Chimera States**

19:20-19:45 Chittaranjan Hens
**Spatio-temporal Propagation of Perturbation in Complex Networks**

**MS12b** SNAPSHOT AND PULLBACK ATTRAJECTORS, A FRAMEWORK FOR UNDERSTANDING NONAUTONOMOUS DISSIPATIVE DYNAMICS (Room 216)
*Organizers: Michael Ghil, Tamás Tél*

17:40-18:05 Valerio Lucarini
**Predicting Climate Change Using Response Theory: Global Averages and Spatial Patterns**

18:05-18:30 Tamás Bódai
**Linear Response Theory Applied to Geoengineering**

18:30-18:55 Stefano Pierini
**Pullback Attractors of a Low-order Ocean Model Subject to Periodic and Aperiodic Forcing**

18:55-19:20 György Károlyi
**Plankton-climate Interaction in Climate Change**

19:20-19:45 James A. Yorke
**Generalized Lorentz Equations**

**CT16** MATHEMATICAL ASPECTS (Room 107)
*Discussion leader: Tibor Krisztin*

17:40-18:00 Ilia Kashchenko
**Asymptotic of Solution of Nonlinear Equation with Two Large Delays**

18:00-18:20 Michael McCullough
**Ordinal Network Based Time Series Analysis Using Geodesic Measures**

18:20-18:40 Rene O. Medrano-T
**Cubic Homoclinic Tangency and Complex Structures of Periodicity in Planar Parameter Space**

18:40-19:00 Ulrich Parlitz
**Exploiting Delay Coordinates for Data Assimilation and Parameter Estimation**
19:00-19:20 Maxim V. Shamolin  
Variety of Integrable Cases in Dynamics of Nonconservative Variable Dissipation Systems

19:20-19:40 Filippo Terragni  
Collocated POD and Simulation of Nonlinear Dynamics

19:40-20:00 Gergely Röst  
Population Dynamics of Epidemic and Endemic States of Drug-resistance Emergence in Infectious Diseases with Delayed Treatment Initiation

CT17 NETWORKS (Room 215)  
Discussion leader: István Z. Kiss

17:40-18:00 Chiranjit Mitra  
Multi-node Basin Stability in Complex Dynamical Networks

18:00-18:20 Vladimir Klinshov  
Bistability, Rate Oscillations and Slow Rate Fluctuations in a Neural Network with Noise and Coupling Delays

18:20-18:40 František Muzika  
Symmetry Breaking in a Ring of Coupled Cells with Glycolytic Oscillatory Reaction

18:40-19:00 Viktor Novičenko  
Control of Synchronization in Complex Oscillator Networks Via Time-delayed Feedback

19:00-19:20 Márton Pósfai  
Fluctuations and Stability of Emergent Hierarchies in Social Systems

19:20-19:40 Alberto Saa  
Network Asymmetries Favor Synchronization

WEDNESDAY 7TH JUNE

8:45-10:50 PARALLEL SESSIONS

MS1a CHEMO-HYDRODYNAMICS (Room 107)  
Organizer: Marcello A. Budroni

8:45- 9:10 Fabian Brau  
Flow Control of $A + B \rightarrow C$ Fronts by Radial Injection

9:10- 9:35 Uwe Tiele  
Sliding Drops – from Bifurcations for Single Drops to Ensemble Dynamics

9:35-10:00 Karin Schwarzenberger  
Relaxation Oscillations of Solutal Marangoni Convection at Droplets and Chains of Droplet

10:00-10:25 Reda Tiani  
Effects of Marangoni Flows on $A + B \rightarrow C$ Reaction-diffusion Fronts

10:25-10:50 Kay Huang  
Pattern Formation in Wet Granular Matter
MS7a Dynamic Network Control and Applications to Power Grids (Room 216)
Organizers: Simona Olmi, Eckehard Schöll, Anna Zakharova

8:45-9:10 Jobst Heitzig
A State Space Topology of Sustainable Management and its Implications for Power Grids

9:10-9:35 Oliver Kamps
Power Grids and Turbulence – On the Stability and Quality of Power Grids Subjected to Intermittent Feed-in

9:35-10:00 Mario Mureddu
A Statistical Approach for Resilience Analysis of ESS Deployment in Power Systems with high RES penetration

10:00-10:25 Dirk Witthaut
Network Robustness and the Impact of Transmission Line Failures

10:25-10:50 Pedro G. Lind
From Conventional to Renewable Power: Insights on the Role of Grid Heterogeneities and Long-range Connectivity

MS10 Nonlinear Delay Equations (Room 211)
Organizer: Gergely Röst

8:45-9:10 Tibor Krisztin
Smoothness Problems for Differential Equations with State-dependent Delay

9:10-9:35 Alfonos Ruiz-Herrera
Geometric Methods for Global Attraction in Systems of Delay Differential Equations

9:35-10:00 Stefan Ruschel
A Discrete Delay Epidemic Model for Isolation

10:00-10:25 Bálint Garab
Morse Decomposition for Scalar Delay Difference Equations

10:25-10:50 Mónika Polner
A Space-time Finite Element Method for Neural Field Equations with Transmission Delays

MS11a Self-Organization, Self-propulsion, Compartmentalization and Their Applications (Room 215)
Organizer: István L. Lagzi

8:45-9:10 Satoshi Nakata
Characteristic Motion of a Self-organized Object Based on Nonlinearity

9:10-9:35 Ádám Kun
Compartmentalization as a Prerequisite for the Origin of Life

9:35-10:00 Suematsu J. Nobuhiko
Nonlinear Behavior of a Self-propelled Droplet Coupling with the Belousov-Zhabotinsky Reaction

10:00-10:25 Taisuke Banno
Phototactic Behavior of Micrometer-sized Oil Droplets in Surfactant Solution

10:25-10:50 Veronique Pimienta
Patterns Formation in a Pulsating Drop
11:00-11:30 Coffee break

11:30-12:30 Plenary 4 — Simona Olmi
The Influence of Topology and Heterogeneity in Shaping the Dynamics of Neural Networks
Discussion leader: Edgar Knobloch

12:30-14:00 Lunch break and poster session

14:00-15:00 Plenary 5 — Tamás Vicsek
Collective Motion: from Bacteria to Drones
Discussion leader: Kenneth Showalter

15:15-17:20 Parallel sessions

**MS5a Complicated Dynamics and Chaos in Cell Systems (Room 211)**
Organizer: Marek Kimmel
15:15-15:40 Albert Goldbeter
Coupling the Mammalian Cell Cycle to the Circadian Clock: From Entrainment to Complex Oscillations and Chaos
15:40-16:05 Marek Kimmel
Games with Resources in Modeling of Cancer Cell Interactions
16:05-16:30 Franck Delaunay
Experimental and Theoretical Analysis of the Coupling Between the Mammalian Cell Cycle and Circadian Clock Oscillators
16:30-16:55 François Fages
Model-based Investigation of the Circadian Clock and Cell Cycle Coupling in Mouse Embryonic Fibroblasts: Prediction of RevErb-α Up-regulation During Mitosis
16:55-17:20 Marzena Dolbniak
Mathematical Modelling Reveals Unexpected Inheritance and Variability Pattern of Cell Cycle Parameters in Mammalian Cells

**MS6 Covariant Lyapunov Vectors and Applications (Room 107)**
Organizers: Juan M. López and Valerio Lucarini
15:15-15:40 Valerio Lucarini
Statistical and Dynamical Properties of Covariant Lyapunov Vectors in a Coupled Atmosphere-ocean Model
15:40-16:05 Sebastian Schubert
Characterising Blocking-like Events in a Quasi-geostrophic Model with Covariant Lyapunov Vectors
16:05-16:30 Nahal Sharafi
Critical Transitions and Perturbation Growth Directions
16:30-16:55 Marcus W. Beims
Alignment of Lyapunov Vectors: A Quantitative Criterion to Predict Large Events?
16:55-17:20 Juan M. López
Fluctuations of Lyapunov Exponents in Extended Chaotic Systems
MS7b  DYNAMICAL NETWORK CONTROL AND APPLICATIONS TO POWER GRIDS (Room 216)
Organizers: Simona Olmi, Eckehard Schöll, Anna Zakharova

15:15-15:40 Giovanni Filatrella
Josephson Junctions as a Prototype for Synchronization of Nonlinear Oscillators: from Huygens Clocks to the Utility Power Grid

15:40-16:05 Benjamin Schäfer
Dynamics of Decent rally Controlled Power Grids

16:05-16:30 Rosaria Volpe
A Mathematical Model for Energy Distribution in Urban Areas

16:30-16:55 Jan Philipp Pade
Towards the Impact of Structural Perturbations in Power-grids: the Role of Algebraic Constraints

16:55-17:20 Yuri Maistrenko
Solitary States in the Kuramoto Model with Inertia

MS11b  SELF-ORGANIZATION, SELF-PROPULSION, COMPARTMENTALIZATION AND THEIR APPLICATIONS (Room 215)
Organizer: István L. Lagzi

15:15-15:40 Federico Rossi
Giant Vesicles as Host Reactors for Nonlinear Chemical Reactions

15:40-16:05 Annette Taylor
Directing the Motion of Aspirin Tablets on Curved Air-water Interfaces

16:05-16:30 Takashi Isoshima
Wavefront Propagation in Two-dimensional Optical Bistable Device for Maze Exploration

16:30-16:55 István L. Lagzi
Maze Solving Using Self-propelled and Passive Particles at the Liquid-air Interface

16:55-17:20 Jitka Čejková
Artificial Chemotaxis of Decanol Droplet Groups

17:20-17:40 COFFEE BREAK

17:40-19:20 PARALLEL SESSIONS

MS5b  COMPLICATED DYNAMICS AND CHAOS IN CELL SYSTEMS (Room 211)
Organizer: Marek Kimmel

17:40-18:05 Milan Stehlik
Extracting Fractal and Extreme Aspects from Series of Random Dynamical Systems

18:05-18:30 Monika Kurpas
Thick Distribution Tails and Super-exponential Growth in Models of Cancer Secondary Tumors

CT18  APPLICATIONS (Room 215)
Discussion leader: Marcus J. B. Hauser

17:40-18:00 Sándor Bulcsú
The Role of Attractors in the Closed-loop Scheme of Robotic Locomotion

18:00-18:20 Ferenc Hegedűs
Topological Description of Periodic Structures of an Asymmetric Nonlinear Oscillator
18:20-18:40 Masanobu Inubushi
   Reservoir Computing Beyond Memory-Nonlinearity Trade-off

18:40-19:00 Jürgen Vollmer
   Characterizing Rare Fluctuations in Soft Particulate Flows

19:00-19:20 Hiromichi Suetani
   Lyapunov Analysis of Chaotic Itinerancy in FORCE-based Neural Network Learning

CT19  CHAOTIC SYSTEMS (Room 216)
   Discussion leader: Vilmos Gáspár

17:40-18:00 Itzhack Dana
   Quantum Dynamical and Topological Manifestations of Superweak Chaos

18:00-18:20 Ezequiel del Rio
   Noise Effect on the New Theory of Intermittency

18:20-18:40 Hildegard Meyer-Ortmanns
   Physical Aging and Emerging Long-period Orbits in Deterministic Classical Oscillators

18:40-19:00 Jordi Tiana-Alsina
   Optimal Entrainment of the Spikes Emitted by a Semiconductor Laser with Feedback

19:00-19:20 Fumiyoshi Kuwashima
   High Efficient THz Wave Detections Using Metal V-grooved Waveguide(MVG) and Generations Using Laser Chaos

CT20  ENVIRONMENTAL SYSTEMS (Room 107)
   Discussion leader: Annette Taylor

17:40-18:00 Tímea Haszpra
   The Effect of Climate Change on the Topological Entropy of Atmospheric Pollutant Clouds

18:00-18:20 Evgeniy Khain
   Noise-induced Rare Events in Granular Media: a Volcanic-like Explosion

18:20-18:40 Tamás Kovács
   Recurrence Time Analysis in Exoplanetary Dynamics

18:40-19:00 Constantinos I. Siettos
   A Biophysical Network Model for Antisaccade Eye Movements

19:00-19:20 Cristina G. B. Martínez
   The Interplay of Synchronization in Epilepsy and Sleep: A Data-driven Approach

19:30-20:30 ROUND TABLE DISCUSSION
   Ulrike Feudel, Michael Ghil, Albert Goldbeter, Marek Kimmel, Kenneth Showalter, James A. Yorke
   What is the Future of Dynamics?
   Discussion leader: Eckehard Schöll
THURSDAY 8TH JUNE

8:45-10:50 PARALLEL SESSIONS

**MS1b CHEMO-HYDRODYNAMICS (Room 107)**

*Organizer: Marcello A. Budroni*

8:45-9:10 Pier Luigi Gentili
   **Hydrodynamic Photochemical Oscillators Useful for Chaos Computing**

9:10-9:35 Izabella Benczik
   **Transient Chaos in Chemically Leaked Open Flows**

9:35-10:00 Dario M. Escala
   **Hydrodynamic Instabilities Driven by Complex Chemical Reactions**

10:00-10:25 Marcus J. B. Hauser
   **Laminar Mixing in Tubular Networks of Plasmodial Slime Moulds**

10:25-10:50 Yves Méheust
   **The Interplay Between Solute Mixing and Chemical Reaction in 2D Porous Media**

**MS3 COMPLEX NETWORKS: DELAYS AND COLLECTIVE DYNAMICS (Room 215)**

*Organizers: Yuliya Kyrychko and Konstantin Blyuss*

8:45-9:10 Eckehard Schöll
   **Control of Chimeras by Time Delay in Dynamical Networks**

9:10-9:35 Jan Sieber
   **Local Bifurcations in Delay Equations with State-dependent Delays**

9:35-10:00 Arindam Saha
   **Generation and Propagation of Delay-induced Extreme Events in Spatially Extended Systems**

10:00-10:25 Oleh Omel’chenko
   **Bifurcations Mediating Appearance of Chimera States**

10:25-10:50 Konstantin Blyuss
   **Time-delayed Model of RNA Interference**

**MS14a SYNCHRONIZATION PATTERNS IN NETWORKS: THEORY AND APPLICATIONS (Room 216)**

*Organizers: István Z. Kiss and Oleh Omel’chenko*

8:45-9:10 Ralf Toenjes
   **The Effects of Noise on an Oscillator Ensemble Coupled in a Star-graph Configuration**

9:10-9:35 Hiroshi Kori
   **Optimal Network Motif for Synchronization in Coupled Noisy Oscillators**

9:35-10:00 Kenneth Showalter
   **Echo Behavior in Large Populations of Chemical Oscillators**

10:00-10:25 Oleksandr V. Popovych
   **Pulsatile Delayed Feedback for Closed-loop Deep Brain Stimulation**

10:25-10:50 Inmaculada Leyva
   **Inter-layer Relay Synchronization in Multiplex Networks**
**MS15** THz Wave and Laser Dynamics (Room 211)

*Organizers: Fumiyoshi Kuwashima and Takashi Isoshima*

8:45- 9:10 Hiroaki Minamide

**Efficient Terahertz-wave Generation and Detection Based on Dynamic Nonlinear Effect**

9:10- 9:35 Masahiko Tani

**Terahertz Time-domain Coherent Raman Spectroscopy Using Picosecond Frequency-chirped Optical Pulses**

9:35-10:00 Alexandre Locquet

**Time-resolved Terahertz Spectroscopy and Laser Dynamics**

10:00-10:25 Satoshi Sunada

**Mode Competition Dynamics in Micro Cavity Lasers**

10:25-10:50 Satoshi Ebisawa

**Chaotic Oscillation of Laser Diode with Optical Injection and Pseudorandom Signal**

11:00-11:30 Coffee Break

11:30-12:30 Plenary 6 — Antonio Politi

**Quantifying the Dynamical Complexity of a Time-series from Ordinal Patterns**

*Discussion leader: James A. Yorke*

12:30-14:00 Lunch Break and Poster session

14:00-15:00 Plenary 7 — Oliver Steinbock

**Vortex Dynamics: A Journey Through Chemistry and Cardiology**

*Discussion leader: Patrick De Kepper*

15:00-19:00 Sightseeing — Excursion

19:30-21:30 Conference Dinner

**Friday 9th June**

8:45-10:50 Parallel Sessions

**MS8b** Dynamics of Reaction Systems in Chemistry, Physical Chemistry and Biochemistry (Room 215)

*Organizers: Ljiljana Kolar-Anić, Željko Ćupić*

8:45- 9:10 Stevan Maćešić

**Method for Determination of Mechanisms Responsible for Complex Dynamics in the Model of Bray-Liehbašky Reaction**

9:10- 9:35 Kristina Stevanović

**The Application of Stopped-flow Technique for Investigation of Reaction Dynamics of Iodine Oxidation with Hydrogen Peroxide**

9:35-10:00 Attila K. Horváth

**Robust and Detailed Kinetic Model of the Chlorite-thiosulfate Reaction**

10:00-10:25 Cédric Barroo

**Emergence of Chemical Oscillations from Nanosized Target Patterns**
10:25–10:50 Teresa Kowalska
Assessment of Dynamics of the Oscillating Reactions with Chiral Compounds

**MS9 FLUID DYNAMICS SIMULATION TOOLS THROUGH THE EYE OF THE PHYSICIST** (Room 107)
*Organizer: Izabella Benczik*
8:45–9:10 Máté Herein
A User Friendly Climate Model: The Planet Simulator
9:10–9:35 Gábor Drótos
The Dynamics and Its Parameter Dependence of Radiative–Convective Equilibrium in ECHAM6.3
9:35–10:00 Markus Knodel
Dynamics of Hepatitis C Virus Replication in Single Liver Cells: Full 3D (surface) PDE Modeling with UG4

**MS13 STABILITY IN NON-AUTONOMOUS COMPLEX DYNAMICS** (Room 211)
*Organizer: Aneta Stefanovska*
8:45–9:10 Spase Petkoski
Time-varying Kuramoto Model
9:10–9:35 Maxime Lucas
Nonautonomous Perturbation Stabilises Dynamics of Complex System
9:35–10:00 Michael Ghil
Non-autonomous Delay-differential Models of the El Niño–Southern Oscillation and Their Pullback Attractors
10:00–10:25 Paul Ritchie
Early-warning Indicators for Rate-induced Tipping
10:25–10:50 Gemma Lancaster
Dynamics of Cellular Energy Metabolism

**MS14b SYNCHRONIZATION PATTERNS IN NETWORKS: THEORY AND APPLICATIONS** (Room 216)
*Organizers: István Z. Kiss and Oleh Omel’chenko*
8:45–9:10 Oleh Omel’chenko
Noninvasive Model Reconstruction from a Partially Synchronized State
9:10–9:35 Edgar Knobloch
Chimera States in Nonlocally Coupled Oscillators
9:35–10:00 Jan F. Totz
Experimental Observation of Spiral Wave Chimeras in Coupled Chemical Oscillators
10:00–10:25 Viktor Horváth
Pulse-coupled Chemical Oscillators: Experiments, Models, Theory
10:25-10:50 István Z. Kiss  
**Partially Synchronized States in Small Networks of Electrochemical Oscillators: Effect of Heterogeneities and Network Topology**

11:00-11:30 Coffee break

11:30-12:30 Plenary 8 — Tomaz Prosen  
**Quantum Chaos in Clean Many-Body Systems**  
*Discussion leader: Eckehard Schöll*

12:30-13:30 Plenary 9 — Joachim Peinke  
**Wind Energy with Regard to Nonlinear and Stochastic Dynamics**  
*Discussion leader: Tamás Tél*

13:30-13:40 Closing
LIST OF POSTERS

1. Karin Alfaro-Bittner, "Front Propagation into Unstable States in Discrete Media"
2. Juan Almendral, "Explosive Synchronization in Dynamically Frustrated Systems"
3. Péter Bába, "Marangoni Instability in a Propagating Autocatalytic Reaction Front Under Microgravity"
4. Cédric Barroo, "Recurrence Plot Analysis of Experimental Nonlinear Behaviors at the Nanoscale"
5. Thomas Bartsch, "Transition State Theory for Solvated Reactions: The LiCN Isomerization Reaction"
6. Itana Nuša Bubanja, "Intermittent Chaos in Bray-Liebhafsky Reaction as a Function of Specific Flow Rate"
7. Hongxing Cao, "Nonlinear Mapping in Simple Climate Model with Memory"
8. Jitka Čejková, "Towards the Understanding of Evaporation Induced Pattern Formation of Decanol Droplets"
9. Nirmali Prabha Das, "Interaction of Scroll Waves in an Excitable Medium: Reconnection and Repulsion"
10. Florian Denis-le Coarer, "Reservoir Computing on an Active Silicon Photonics Chip Using Nonlinear Microrings Resonators"
11. Gábor Drótos, "Non-inertial Mechanisms for Clustering of Settling Particles"
12. Brigitta Dúzs, "Reaction-Diffusion Patterns in Initially Separated Landolt-type pH Oscillators"
13. Valery Gaiko, "Global Bifurcations of Limit Cycles and Strange Attractors"
14. Sandip George, "Detecting Dynamical States of Real World Time Series"
15. Richard Janis Goldschmidt, "The Blinking Chimera in the Globally Coupled Kuramoto Model with Inertia"
16. Lukas Halekotte, "The Easiest Way to Destabilize Mutualistic Networks"
17. Gábor Holló, "Voronoi Diagram from Charged Nanoparticles"
18. Ana Ivanović-Šašić, "Higher Order Return Maps for the Analysis of Period Doubling in the Model of Bray Liebhafsky Oscillatory Reaction"
19. Martin James, "Statistical Features of Bacterial Turbulence"
20. Patrycja Jaros, "Low-dimensional Chimera States: Regular, Chaotic and Heteroclinic"
21. Feras Karakit, "Pattern Formation at the Border Between Marine and Terrestrial Ecosystems"
22. Garsk Kashyap, "Link Deletion in Directed Complex Networks"
23. Ondrej Kollert, "New Results in Counting Process Theory"
24. Thomas Kreuz, "Data Analysis in Neuroscience: Using Spike Train Distances to Address Neuronal Population Coding"
25. Krisztina Kurin-Csörgei, "Chemical Oscillations with Sodium Perborate as Oxidant"
26. Marc Grau Leguia, "Network Inferring Using Rank Based Connectivity Measures"
27. Dhriti Mahanta, "Pinning of 3D-Chemical Waves to Highly Branched Heterogeneities"
28. Debsankha Manik, "Criticality in Collective Mobility: Temporal Percolation and Spatial Variation"
29. Juan F. Martín, "Generation of Soliton Bubbles in a Sine-Gordon System with Localised Inhomogeneities"
31. Ylenia Miele, "pH Clock Reactions Inside Giant Lipid Vesicles"
32. István Molnár, "Spatial Self-Organization in Inorganic Bromate Oscillators"
33. Aritra Mukhopadhyay, "Freezing, Accelerating and Slowing Directed Currents in Real Time with Superimposed Driven Lattices"
34. Pierre Nazé, "From Weakly Chaotic Dynamics to Deterministic Subdiffusion Via Copula Modeling"
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