

## ***Nonlinear Science: Achievements and Perspectives***

*All talks take place in Building 25 (Chemistry), Room F0.01*

### **Monday, 26.09**

9:10 – 9:45 Registration

9:45 – Welcoming words by Institute's director Prof. Dr. Markus Gühr

10:00 – 10:35 U. Feudel,  
Transient chaos in complex networked systems

10:35 – 11:10 J. Kurths,  
Stability in power grids and influences of climate extremes

11:10 – 11:40 break

11:40 – 12:15 C. Beta,  
Synchronous oscillations in the actin cortex of motile cells

12:15 – 12:50 R. Metzler,  
Beyond Brownian motion: from data to models

12:50 – 14:15 lunch

14:15 – 14:50 U. Parlitz,  
Attractor selection in periodically forced nonlinear oscillators  
using temporary dual-frequency driving

14:50 – 15:25 O. Burylko,  
Symmetry breaking yields chimeras in two small populations of  
Kuramoto-type oscillators

15:25 – 16:00 break

16:00 – 16:35 Yu. Maistrenko,  
Chimera complexity

16:35 – 17:10 R. Cestnik,  
Low-dimensional dynamics of oscillatory ensembles

### **Tuesday, 27.09**

09:30 – 10:05 R. Livi,  
An overview about negative absolute temperatures

10:05 – 10:40 I. Sokolov,  
Linear response and fluctuation-dissipation relations for  
random processes under resetting

10:40 – 11:10 break

11:10 – 11:45 I. Aronson,  
Self-organization of signaling active matter

11:45 – 12:20 V. Ahlers,  
Stochastic models for chaotic dynamics and anomaly detection

12:20 – 13:45 lunch

13:45 – 14:20 A. Politi,  
A long journey across longitudinal laser instabilities

14:20 – 14:55 K. Wiesner,  
From chaos to the foundations of quantum mechanics

14:55 – 15:30 N. Brilliantov (online),  
Puzzles and surprises in aggregation-fragmentation kinetics

15:30 – 16:00 break

16:00 – 16:35 L. Bunimovich (online),  
Wild rose, narcissus and other elliptic flowers

16:35 – 17:10 D. Shepelyansky (online)  
Dynamical thermalization in generic nonlinear systems

17:10 Laudatio

18:00 reception (physics building, ground floor)

### **Wednesday, 28.09**

09:30 – 10:05 O. Popovych,  
Simulation of neuroimaging data by whole-brain dynamical models

10:05 – 10:40 S. Yanchuk,  
Deep neural networks using a single neuron and delayed feedback

10:40 – 11:10 break

11:10 – 11:45 M. Wolfrum,  
Dynamics of excitable units with noise and coupling

11:45 – 12:20 M. Zaks,  
Continua of equilibrium states in globally coupled ensembles

12:20 – 13:45 lunch

13:45 – 14:20 R. Toenjes,  
Characterization of stationary distributions for phase oscillators  
subject to Cauchy noise

14:20 – 14:55 A. Straube,  
pH oscillations in the urea-urease reaction confined to lipid vesicles

14:55 – 15:30 O. Omel'chenko,  
Moving patterns in discrete oscillatory and excitable media

15:30 Concluding remarks