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,
From wave patterns to cellular functions
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 fluctuiation-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