



WORKSHOP ON
CONTROL OF SELF-ORGANIZING
NONLINEAR SYSTEMS 2020

2nd - 3rd September, 2020

Berlin, Germany

Wednesday, September 2nd

09:45 Welcome (Sabine Klapp)

Session I (Control of Quantum Systems)

- 10:00 **Felix von Oppen** (*Freie Universität Berlin, Germany*) (A11)
Hilbert space geometry of random-matrix eigenstates
- 10:30 **Regina Finsterhölzl** (*Technische Universität Berlin, Germany*) (B1)
Non-equilibrium non-Markovian steady-states in open quantum many-body systems: Feedback-induced oscillations in Heisenberg quantum spin chains
- 11:00 **Felix Köster** (*Technische Universität Berlin, Germany*) (B9)
Delay Based Reservoir Computing Optimization via Eigenvalue Analysis
- 11:30 **Lindsay Orr** (*Freie Universität Berlin, Germany*) (B12)
Ground State Cooling via Hamiltonian Filtering

12:00 Break

Session II (Mathematical Approaches)

- 13:30 **Alejandro Lopez Nieto** (*Technische Universität Berlin, Germany*) (A4)
The simplest delay equations: an invitation
- 14:00 **Alexander Mielke** (*Weierstraß-Institut, Berlin, Germany*) (A5)
Similarity solutions for Kolmogorov's two-equation model for turbulence
- 14:30 **Alexander Vogler** (*Technische Universität Berlin, Germany*) (A10)
Optimal control of stochastic FitzHugh-Nagumo networks: analysis and numerical approximation of the adjoint equation
- 15:00 **Benjamin Unger** (*Technische Universität Berlin, Germany*) (A2)
Analysis of delay differential-algebraic equations in hybrid numerical-experimental testing

16:00 PI-Meeting

Thursday, September 3rd

Session III (Analysis and Control of Soft Matter Systems)

- 9:30 **Lukas Geuter** (*Technische Universität Berlin, Germany*) (A8)
Analysis of a model for dynamics of microswimmer suspensions
- 10:00 **Sabine Klapp / Marcel Huelsberg** (*Technische Universität Berlin, Germany*) (B2)
Control of colloidal systems: Time-delayed feedback and time-dependent perturbations
- 10:30 **Reinier van Buel** (*Technische Universität Berlin, Germany*) (B4)
Active open-loop control of elastic turbulence
- 11:00 **Markus Bär / Albert von Kenne** (*Physikalisch-Technische Bundesanstalt, Berlin, Germany*) (B5)
Dynamics and control of active matter: From bacterial patterns to synchronization and metachronal waves in cilia

11:30 Break

Session IV: (Control of Networks)

- 13:00 **Everton S. Medeiros** (*Technische Universität Berlin, Germany*) (A1)
Asymmetry-induced stability in multilayer networks
- 13:30 **Matthias Wolfrum** (*Weierstraß-Institut, Berlin, Germany*) (A3)
Dynamics of a stochastic excitable system with slowly adapting feedback
- 14:00 **Lena Salfenmoser** (*Technische Universität Berlin, Germany*) (B8)
Optimal control of brain networks: Multi-node FitzHugh Nagumo system and a biophysically grounded mean-field model
- 14:30 **Moritz Gerster** (*Technische Universität Berlin, Germany*) (Z)
FitzHugh-Nagumo oscillators on complex networks mimic epileptic-seizure-related synchronization phenomena

