

Program

Monday, 20 June

- 07:30 - 12:30 registration at the registration desk (guest house 4, library) & informal discussions
- 12:30 - 13:30 lunch break
- 13:30 - 13:45 **Holger Kantz (MPIPKS) & Scientific Coordinators**
opening
- 13:45 - 14:25 **Norbert Hoffmann**
(Hamburg University of Technology)
Dynamical Systems in Mechanical Engineering Paradigm Changes Ahead?
- 14:25 - 15:15 informal discussions (**talk by Sebastian Oberst shifted to Thursday morning**)
- 15:15 - 15:55 **Philipp Rothemund** (Max Planck Institute for Intelligent Systems Stuttgart)
Quasistatic and dynamic behavior of electrohydraulic HASEL actuators
- 16:00 - 16:30 coffee break
- 16:30 - 17:10 **Merten Stender**
(Hamburg University of Technology)
Complex Machine Dynamics

Program

17:15 - 17:55	Lucas Wetzel (Max Planck Institute for the Physics of Complex Systems) Ising Machines composed of mutually coupled electronic oscillators
18:00 - 19:00	welcome dinner
19:00 - 20:00	informal discussions

Tuesday, 21 June

- 09:00 - 09:40 **Christian Bettstetter** (Universität Klagenfurt)
Swarmalatorbots: Robots that sync and swarm
- 09:45 - 10:25 **Johannes Klinglmayr**
(Linz Center for Mechatronics)
Value sensitive recommendations towards
Sustainable Development Goals
- 10:30 - 11:00 coffee break
- 11:00 - 11:40 **Auke Jan Ijspeert** (EPFL Lausanne)
Investigating animal locomotion using biorobots
and neuromechanical simulations (virtual)
- 11:45 - 12:25 **Oleg Gendelman**
(Technion - Israel Institute of Technology)
Modal synchronization of coupled bistable van
der Pol oscillators (virtual)
- 12:30 - 13:45 lunch break & informal discussions
- 13:45 - 14:25 **Alexander F. Vakakis**
(University of Illinois at Urbana-Champaign)
Passive Nonlinear Targeted Energy Transfers
(virtual)
- 14:30 - 15:10 **Poramate Manoonpong**
(The University of Southern Denmark)
Neural Control, Plasticity, and Memory for
Robust Self-organized Locomotion and
Continuous Online Adaptation of Complex
Machines
- 15:15 - 15:45 coffee break

Program

- 15:45 - 16:25 **Maziar Sharbafi** (Technische Universität Darmstadt)
Hybrid actuation with EPA can inject mechanical intelligence in robots
- 16:30 - 17:30 **intema22 colloquium: Metin Sitti**
(Max Planck Institute for Intelligent Systems Stuttgart)
Self-organizing Reconfigurable Robot Collectives at the Micron-Scale (virtual)
- 17:30 - 18:00 discussions
- 18:00 - 19:00 dinner
- 19:00 - 20:00 informal discussions

Wednesday, 22 June

- 09:00 - 09:40 **Claudius Gros** (Goethe Universität Frankfurt)
Self-organizing principles in locomotion
- 09:45 - 10:25 **Thomas Wallmersperger**
(Technische Universität Dresden)
Smart materials for adaptive structures -
fundamentals, modeling and simulation
- 10:30 - 11:00 coffee break
- 11:00 - 11:40 **Xiaozhu Zhang** (Tongji University Shanghai)
Self-organized collective dynamics of power grids
(virtual)
- 11:45 - 12:25 **Florian Mueller** (University of Stuttgart)
Explaining the self-adaptive dynamics of a non-
linear beam-slider system (virtual)
- 12:30 - 13:30 lunch break
- 13:30 - 14:30 informal discussions (seminar rooms 1+2 and 3)
- 14:30 departure for the intema22 social program
(meeting point: main building, reception)
- 15:30 - 17:30 visit to the 'Deutsches Hygiene-Museum'
Lingnerplatz 1, 01069 Dresden (tel.: +49 351 4846400)
incl. one hour English speaking guided tour through
the special exhibition 'Artificial Intelligence.
Machine Learning Human Dreams'
- 18:30 - 20:30 workshop dinner at the restaurant 'Försters',
Weisse Gasse 5, 01067 Dresden
(tel.: +49 351 4848701)

Program

20:30

individual return to the institute/hotel

Thursday, 23 June

- 08:15 - 08:55 **Sebastian Oberst**
(University of Technology Sydney)
Biogenic dynamics and insect-built structures
considering vibrational communication and
stigmergy
- 09:00 - 09:40 **Andreas Richter** (Technische Universität Dresden)
Integrated circuit systems processing multimodal
information
- 09:45 - 10:25 **George Haller** (ETH Zurich)
Dynamics-Based Machine Learning for
Nonlinearizable Phenomena (virtual)
- 10:30 - 11:00 coffee break
- 11:00 - 11:40 **Charlotte Geier**
(Hamburg University of Technology)
A network perspective on nonlinear machine
dynamics
- 11:45 - 12:25 **Sebastian Risi** (University of Copenhagen)
Combining Self-Organization and Deep Learning
for More Robust Machines (virtual)
- 12:30 - 13:45 lunch break & informal discussions
- 13:45 - 14:25 **Yulia Sandamirskaya** (Intel Labs, Munich)
Dynamic neural fields: from neural population
dynamics to robot control (virtual)
- 14:30 - 15:10 **Wei Lu** (The University of Michigan)
Intelligent computing based on device and
material dynamics (virtual)

Program

15:15 - 15:45	coffee break
15:45 - 16:25	Holger Stark (Technische Universität Berlin) Harnessing random active motion on the microscale and smart active particles (virtual)
16:30 - 17:10	Zhenwu Wang (Karlsruhe Institute of Technology) 3D-Printable, Tough and Self-Healing Elastomer for Soft Machines (virtual)
17:15 - 17:55	Bulcsu Sandor (Babes-Bolyai University Cluj-Napoca) Phase-locked neural oscillators generate self-organized locomotion for hexapods (virtual)
18:00 - 19:00	dinner
19:00 - 20:30	informal discussions

Friday, 24 June

- 09:00 - 09:40 **Jemin Hwangbo** (Korea Advanced Institute of Science and Technology)
Learning locomotion (virtual)
- 09:45 - 10:25 **Thies Büscher** (Universität Kiel)
Animal adhesive systems: constraints for walking dynamics (virtual)
- 10:30 - 11:00 coffee break
- 11:00 - 11:40 **Xiaofeng Xiong**
(The University of Southern Denmark)
Machines for intelligence and vice versa: neuromechanical ways toward both
- 11:45 - 12:00 closing
- 12:00 - 13:00 lunch break
- 13:00 - 15:30 informal discussions & departure