

Dynamics and Statistical Physics Division Fachverband Dynamik und Statistische Physik (DY)

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Overview of Invited Talks and Sessions

(Lecture halls H2 and H6; Poster P)

Invited Talks

DY 2.1	Tue	10:00–10:30	H6	Local Versus Global Two-Photon Interference in Quantum Networks — ●SONJA BARKHOFEN, THOMAS NITSCHKE, SYAMSUNDAR DE, EVAN MEYER-SCOTT, JOHANNES TIEDAU, JAN SPERLING, AURÉL GÁBRIS, IGOR JEX, CHRISTINE SILBERHORN
DY 9.1	Wed	13:30–14:00	H6	Nanofriction in Ion Coulomb Systems — ●TANJA MEHLSTÄUBLER
DY 10.1	Wed	15:00–15:30	H6	Effect of fibrosis on propagation on non-linear waves and onset of arrhythmias in cardiac tissue — ●ALEXANDER PANFILOV, TIMUR NEZLOBINSKY, FARHAD PASHAKHANLOO
DY 10.4	Wed	16:00–16:30	H6	Chaos and nonlinear dynamics in the heart: Experiments and simulations of arrhythmias and defibrillation — ●FLAVIO FENTON
DY 13.1	Thu	13:30–14:00	H2	Multi-scale modeling of dyadic structure-function relation in ventricular cardiac myocytes — ●MARTIN FALCKE, FILIPPO G. COSI, WOLFGANG GIESE, WILHELM NEUBERT, STEFAN LUTHER, NAGAI AH CHMAKURI, ULRICH PARLITZ
DY 13.4	Thu	14:45–15:15	H2	Cardiac repolarization dynamics and arrhythmias in healthy and diseased hearts — ●ESTHER PUEYO
DY 13.7	Thu	15:45–16:15	H2	Dynamics of paroxysmal tachycardias — ●GIL BUB
DY 18.1	Fri	13:30–14:00	ESS	Network-Induced Multistability Through Lossy Coupling — ●JÜRGEN KURTHS
DY 18.2	Fri	14:00–14:30	ESS	Control of synchronization in two-layer power grids — ●SIMONA OLMI, CARL TOTZ, ECKEHARD SCHÖLL
DY 18.3	Fri	15:00–15:30	ESS	Relay and complete synchronization of chimeras and solitary states in heterogeneous networks of chaotic maps — ELENA RYBALOVA, ECKEHARD SCHÖLL, ●GALINA STRELKOVA
DY 18.4	Fri	15:30–16:00	ESS	A bridge between the fractal geometry of the Mandelbrot set and partially synchronized dynamics of chimera states. — ●RALPH G ANDREJZAK

Invited talks of the joint symposium Topological constraints in biological and synthetic soft matter (SYSM)

See SYSM for the full program of the symposium.

SYSM 1.1	Mon	10:00–10:30	Audimax 1	Interphase Chromatin Undergoes a Local Sol-Gel Transition Upon Cell Differentiation — ●ALEXANDRA ZIDOVSKA
SYSM 1.2	Mon	10:30–11:00	Audimax 1	Topological Tuning of DNA Mobility in Entangled Solutions of Supercoiled Plasmids — ●JAN SMREK, JONATHAN GARAMELLA, RAE ROBERTSON-ANDERSON, DAVIDE MICHIELETTO
SYSM 1.3	Mon	11:15–11:45	Audimax 1	Dynamics of macromolecular networks under topological and environmental constraints: some outstanding challenges — ●DIMITRIS VLASSOPOULOS
SYSM 1.4	Mon	11:45–12:15	Audimax 1	Supercoiling in a Protein Increases its Stability — ●JOANNA SULKOWSKA, SZYMON NIEWIECZERZAL
SYSM 1.5	Mon	12:15–12:45	Audimax 1	Topology for soft matter photonics — ●IGOR MUSEVIC

Invited talks of the joint symposium SKM Dissertation Prize 2021 (SYSD)

See SYSD for the full program of the symposium.

SYSD 1.1	Mon	10:00–10:25	Audimax 2	Avoided quasiparticle decay from strong quantum interactions — ●RUBEN VERRESEN, RODERICH MOESSNER, FRANK POLLMANN
SYSD 1.2	Mon	10:25–10:50	Audimax 2	Co-evaporated Hybrid Metal-Halide Perovskite Thin-Films for Optoelectronic Applications — ●JULIANE BORCHERT
SYSD 1.3	Mon	10:55–11:20	Audimax 2	Attosecond-fast electron dynamics in graphene and graphene-based interfaces — ●CHRISTIAN HEIDE
SYSD 1.4	Mon	11:20–11:45	Audimax 2	The thermodynamics of stochastic systems with time delay — ●SARAH A.M. LOOS
SYSD 1.5	Mon	11:50–12:15	Audimax 2	First Results on Atomically Resolved Spin-Wave Spectroscopy by TEM — ●BENJAMIN ZINGSEM

Invited talks of the joint symposium The Physics of CoViD Infections (SYCO)

See SYCO for the full program of the symposium.

SYCO 1.1	Mon	13:30–14:00	Audimax 1	A Tethered Ligand Assay to Probe SARS-CoV-2:ACE2 Interactions — MAGNUS BAUER, SOPHIA GRUBER, ADINA HAUSCH, LUKAS MILLES, THOMAS NICOLAUS, LEONARD SCHENDEL, PILAR LOPEZ NAVAJAS, ERIK PROCKO, DANIEL LIETHA, RAFAEL BERNADI, HERMANN GAUB, ●JAN LIPFERT
SYCO 1.2	Mon	14:00–14:30	Audimax 1	From molecular simulations towards antiviral therapeutics against COVID-19 — ●REBECCA WADE
SYCO 1.3	Mon	14:45–15:15	Audimax 1	The physical phenotype of blood cells is altered in COVID-19 — MARKĚTA KUBÁNKOVÁ, MARTIN KRÄTER, BETTINA HOHBERGER, ●JOCHEN GUCK
SYCO 1.4	Mon	15:15–15:45	Audimax 1	Extended lifetime of respiratory droplets in a turbulent vapor puff and its implications on airborne disease transmission — ●DETLEF LOHSE, KAI LEONG CHONG, CHONG SHEN NG, NAOKI HORI, MORGAN LI, RUI YANG, ROBERTO VERZICCO
SYCO 1.5	Mon	15:45–16:15	Audimax 1	Beyond the demographic vaccine distribution: Where, when and to whom should vaccines be provided first? — ●BENNO LIEBCHEN, JENS GRAUER, FABIAN SCHWARZENDAHL, HARTMUT LÖWEN

Invited talks of the joint symposium Amorphous materials: structure, dynamics, properties (SYAM)

See SYAM for the full program of the symposium.

SYAM 1.1	Tue	13:30–14:00	Audimax 1	Glassy dynamics of vitrimers — ●LIESBETH JANSSEN
SYAM 1.2	Tue	14:00–14:30	Audimax 1	Liquid-Liquid Phase Transition in Thin Vapor-Deposited Glass Films — ●ZAHRA FAKHRAAI
SYAM 1.3	Tue	14:30–15:00	Audimax 1	Connection between structural properties and atomic motion in ultraviscous metallic liquids close to the dynamical arrest — ●BEATRICE RUTA, NICO NEUBER, ISABELLA GALLINO, RALF BUSCH
SYAM 1.4	Tue	15:15–15:45	Audimax 1	Signatures of the spatial extent of plastic events in the yielding transition in amorphous solids — ●CELINE RUSCHER, DANIEL KORCHINSKI, JOERG ROTTLER
SYAM 1.5	Tue	15:45–16:15	Audimax 1	Constitutive law for dense agitated granular flows: from theoretical description to rheology experiment — ●OLFA D'ANGELO, W. TILL KRANZ

Invited talks of the joint symposium Facets of many-body quantum chaos (SYQC)

See SYQC for the full program of the symposium.

SYQC 1.1	Tue	13:30–14:00	Audimax 2	Holographic interpretation of SYK quantum chaos — ●ALEXANDER ALTLAND
SYQC 1.2	Tue	14:00–14:30	Audimax 2	Non-Fermi liquids and the lattice — ●SEAN HARTNOLL

SYQC 1.3	Tue	14:30–15:00	Audimax 2	Dual-unitary circuits: non-equilibrium dynamics and spectral statistics — ●BRUNO BERTINI
SYQC 1.4	Tue	15:15–15:45	Audimax 2	Post-Ehrenfest many-body quantum interferences in ultracold atoms — ●STEVEN TOMSOVIC
SYQC 1.5	Tue	15:45–16:15	Audimax 2	Dynamics in unitary and non-unitary quantum circuits — ●VEDIKA KHEMANI

Invited talks of the joint symposium **Advanced neuromorphic computing hardware: Towards efficient machine learning (SYNC)**

See SYNC for the full program of the symposium.

SYNC 1.1	Wed	10:00–10:30	Audimax 1	Equilibrium Propagation: a Road for Physics-Based Learning — ●DAMIEN QUERLIOZ
SYNC 1.2	Wed	10:30–11:00	Audimax 1	Machine Learning and Neuromorphic Computing: Why Physics and Complex Systems are Indispensable — ●INGO FISCHER
SYNC 1.3	Wed	11:00–11:30	Audimax 1	Photonic Tensor Core Processor and Photonic Memristor for Machine Intelligence — ●VOLKER SORGER
SYNC 1.4	Wed	11:45–12:15	Audimax 1	Material learning with disordered dopant networks — ●WILFRED VAN DER WIEL
SYNC 1.5	Wed	12:15–12:45	Audimax 1	In-memory computing with non-volatile analog devices for machine learning applications — ●JOHN PAUL STRACHAN

Prize talks of the joint **Awards Symposium (SYAW)**

See SYAW for the full program of the symposium.

SYAW 1.1	Wed	13:30–14:00	Audimax 1	Organic semiconductors - materials for today and tomorrow — ●ANNA KÖHLER
SYAW 1.2	Wed	14:00–14:30	Audimax 1	PbTe/CdTe nanocomposite as an attractive candidate for room-temperature infrared detectors — ●GRZEGORZ KARCZEWSKI
SYAW 1.3	Wed	14:40–15:10	Audimax 1	Fingerprints of correlation in electronic spectra of materials — ●LUCIA REINING
SYAW 1.4	Wed	15:10–15:40	Audimax 1	Artificial Spin Ice: From Correlations to Computation — ●NAËMI LEO
SYAW 1.5	Wed	15:40–16:10	Audimax 1	From microwave optomechanics to quantum transport – carbon nanotubes as highly versatile hybrid devices — ●ANDREAS K. HÜTTEL
SYAW 1.6	Wed	16:20–16:50	Audimax 1	Quantum spin dynamics of a spin-1/2 antiferromagnetic Heisenberg-Ising chain — ●ZHE WANG
SYAW 1.7	Wed	16:50–17:20	Audimax 1	Imaging the effect of electron transfer at the atomic scale — ●LAERTE PATERA

Invited talks of the joint symposium **Spain as Guest of Honor (SYES)**

See SYES for the full program of the symposium.

SYES 1.1	Wed	13:30–13:40	Audimax 2	DFMC-GEFES — ●JULIA HERRERO-ALBILLOS
SYES 1.2	Wed	13:40–14:10	Audimax 2	Towards Phononic Circuits based on Optomechanics — ●CLIVIA M. SOTOMAYOR TORRES
SYES 1.3	Wed	14:10–14:40	Audimax 2	Adding magnetic functionalities to epitaxial graphene — ●RODOLFO MIRANDA
SYES 1.4	Wed	14:45–15:15	Audimax 2	Bringing nanophotonics to the atomic scale — ●JAVIER AIZPURUA
SYES 1.5	Wed	15:15–15:45	Audimax 2	Hydrodynamics of collective cell migration in epithelial tissues — ●JAUME CASADEMUNT
SYES 1.6	Wed	15:45–16:15	Audimax 2	Understanding the physical variables driving mechanosensing — ●PERE ROCA-CUSACHS

Invited talks of the joint symposium **Diversity on the Device Scale (SYHN)**

See SYHN for the full program of the symposium.

SYHN 1.1	Thu	10:00–10:30	Audimax 1	Scaling behavior of stiffness and strength of hierarchical network nanomaterials — ●SHAN SHI
SYHN 1.2	Thu	10:30–11:00	Audimax 1	Functional and programmable DNA nanotechnology — ●LAURA NA LIU
SYHN 1.3	Thu	11:15–11:45	Audimax 1	Multivalent nanoparticles for targeted binding — ●STEFANO ANGIOLETTI-UBERTI
SYHN 1.4	Thu	11:45–12:15	Audimax 1	Programming Nanoscale Self-Assembly — ●OLEG GANG
SYHN 1.5	Thu	12:15–12:45	Audimax 1	Achieving Global Tunability via Local Programming of a Structure's Composition — ●JOCHEN MUELLER

Invited talks of the joint symposium **Climate and energy: Challenges and options from a physics perspective (SYCE)**

See SYCE for the full program of the symposium.

SYCE 1.1	Thu	13:30–14:00	Audimax 1	The challenge of anthropogenic climate change - Earth system analysis can guide climate mitigation policy — ●MATTHIAS HOFMANN
SYCE 1.2	Thu	14:00–14:30	Audimax 1	Towards a carbon-free energy system: Expectations from R&D in renewable energy technologies — ●BERND RECH, RUTGER SCHLATMANN
SYCE 1.3	Thu	14:30–15:00	Audimax 1	Decarbonizing the Heating Sector - Challenges and Solutions — ●FLORIAN WEISER
SYCE 1.4	Thu	15:15–15:45	Audimax 1	A carbon-free Energy System in 2050: Modelling the Energy Transition — ●CHRISTOPH KOST, PHILIP STERCHELE, HANS-MARTIN HENNING
SYCE 1.5	Thu	15:45–16:15	Audimax 1	The transition of the electricity system to 100% renewable energy: agent-based modeling of investment decisions under climate policies — ●KRISTIAN LINDGREN

Invited talks of the joint symposium **Active nematics: From 2D to 3D (SYAN)**

See SYAN for the full program of the symposium.

SYAN 1.1	Fri	10:00–10:30	Audimax 1	Corrugated patterns made from an active nematic sheet — ●ANIS SENOUSI, SHUNICHI KASHIDA, RAPHAËL VOITURIEZ, JEAN-CHRISTOPHE GALAS, ANANYO MAITRA, ESTEVEZ-TORRES ANDRÉ
SYAN 1.2	Fri	10:30–11:00	Audimax 1	Wrinkling instability in 3D active nematics — ●ISABELLA GUIDO
SYAN 1.3	Fri	11:15–11:45	Audimax 1	Three-dimensional active nematic defects and their energetics — ●MIHA RAVNIK
SYAN 1.4	Fri	11:45–12:15	Audimax 1	Liquid-crystal organization of liver tissue — ●BENJAMIN M FRIEDRICH, HERNAN MORALES-NAVARRETE, ANDRE SCHOLICH, HIDE-NORI NONAKA, FABIAN SEGOVIA MIRANDA, STEFFEN LANGE, JENS KARSCHAU, YANNIS KALAIIDZIDIS, FRANK JÜLICHER, MARINO ZERIAL
SYAN 1.5	Fri	12:15–12:45	Audimax 1	Machine learning active nematic hydrodynamics — ●VINCENZO VITELLI

Sessions

DY 1.1–1.4	Mon	10:00–11:15	H1	Statistical physics of biological systems (joint session BP/DY)
DY 2.1–2.7	Tue	10:00–12:15	H6	Quantum Chaos
DY 3.1–3.11	Tue	17:30–19:30	P	Poster Session I: Quantum Chaos and Many-Body Quantum Dynamics
DY 4.1–4.10	Tue	17:30–19:30	P	Poster Session II: Nonlinear Dynamics, Simulations and Machine Learning
DY 5.1–5.15	Tue	17:30–19:30	P	Poster Session III: Statistical Physics, Complex Fluids and Soft Matter
DY 6.1–6.8	Wed	10:00–12:45	H3	Soft Matter (joint session CPP/DY)
DY 7.1–7.11	Wed	10:00–13:00	H6	Focus Session: Facets of Many-Body Quantum Chaos (organised by Markus Heyl and Klaus Richter) (joint session DY/TT)

DY 8.1–8.7	Wed	11:15–13:00	H7	Quantum Computing (joint session TT/DY)
DY 9.1–9.4	Wed	13:30–14:45	H6	Many-Body Quantum Dynamics I (joint session DY/TT)
DY 10.1–10.4	Wed	15:00–16:30	H6	Focus session: Nonlinear Dynamics of the Heart I (organized by Markus Bär, Stefan Luther and Ulrich Parlitz)
DY 11.1–11.6	Thu	10:00–11:30	H2	Many-Body Quantum Dynamics II (joint session DY/TT)
DY 12.1–12.5	Thu	11:45–13:00	H2	Active Matter (joint session DY/BP/PPP)
DY 13.1–13.7	Thu	13:30–16:15	H2	Focus session: Nonlinear Dynamics of the Heart II (organized by Markus Bär, Stefan Luther and Ulrich Parlitz)
DY 14	Thu	18:00–19:00	MVDY	Mitgliederversammlung Fachverband DY
DY 15.1–15.4	Fri	10:00–11:00	H2	Condensed-Matter Simulations augmented by Advanced Statistical Methodologies (joint session DY/PPP)
DY 16.1–16.5	Fri	11:15–12:30	H2	Machine Learning in Dynamical Systems and Statistical Physics (joint session DY/BP)
DY 17.1–17.5	Fri	13:30–15:00	H3	Theory and Simulation (joint session PPP/DY)
DY 18.1–18.4	Fri	13:30–16:00	ESS	Symposium: Synchronization Patterns in Complex Dynamical Networks (organized by Jakub Sawicki, Sabine Klapp, Markus Bär and Jens Christian Claussen) (joint session DY/SOE)
DY 19.1–19.6	Fri	13:30–15:00	H6	Transport (joint session TT/DY)

Annual General Meeting of the Dynamics and Statistical Physics Division

Donnerstag, 30. September 2021 18:00–19:00 MVDY

- Bericht DY Aktivitäten und Entwicklung 2020 - 21
- Planung Frühjahrstagung Regensburg 2022
- Verschiedenes