

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

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The Dynamics and Statistical Physics Division covers theoretical and experimental activities in all areas of statistical physics, quantum dynamics and many-body systems, nonlinear dynamics and pattern formation, data analysis and machine learning as well as active matter, fluid physics, soft matter, and complex fluids. The DY section has strong links and joint sessions with the sections of Biological Physics (BP), Chemical Physics and Polymers (CPP), Socio- and Econophysics (SOE), and Low Temperatures (TT).

Overview of Invited Talks and Sessions

(Lecture halls A 151, BH-N 128, BH-N 243, and BH-N 334; Posters C and D)

Invited Talks

DY 3.1	Mon	9:30–10:00	A 151	Quantum information phases in space-time: measurement-induced entanglement and teleportation on a noisy quantum processor — •VEDIKA KHEMANI
DY 3.2	Mon	10:00–10:30	A 151	Measurement phase transitions and universality — •ADAM NAHUM
DY 3.3	Mon	10:30–11:00	A 151	Dual-unitary circuit dynamics — •PIETER CLAEYS
DY 4.1	Mon	9:30–10:00	BH-N 128	Towards the ultimate regime in Rayleigh-Benard turbulence — •OLGA SHISHKINA
DY 6.1	Mon	9:30–10:00	BH-N 334	Barrier crossing with non-Gaussian noise: Exponential transition rate gains and effects of active motion — •PETER SOLLICH, ADRIAN BAULE, DIEGO TAPIAS
DY 7.1	Mon	11:30–12:00	BH-N 128	Critical transitions in non-autonomous complex dynamical systems: theory and applications to ecosystems and climate — •ULRIKE FEUDEL
DY 9.1	Mon	15:00–15:30	A 151	Quantum Mechanics and Many Body Games — •SHIVAJI SONDHI
DY 9.2	Mon	15:30–16:00	A 151	Measurement induced phase transitions of fermions: from theory to observability — •SEBASTIAN DIEHL
DY 9.3	Mon	16:00–16:30	A 151	Novel quantum dynamics with superconducting qubits — •PEDRAM ROUSHAN
DY 11.1	Mon	15:00–15:30	BH-N 243	Control of active turbulence — •HOLGER STARK
DY 18.1	Tue	9:30–10:00	BH-N 128	Phase field method to model single cell locomotion and collective cell interactions — •SERGIO ALONSO
DY 20.1	Tue	9:30–10:00	BH-N 334	Dynamics of genome replication — •SIMONE PIGOLOTTI
DY 22.1	Wed	9:30–10:00	A 151	Boundary behavior at classical and quantum phase transitions — •MAX METLITSKI
DY 22.6	Wed	11:15–11:45	A 151	Criticality senses topology — OLEG VASILYEV, •ANNA MACIOLEK, SIEGFRIED DIETRICH
DY 24.1	Wed	9:30–10:00	BH-N 243	The nonreciprocal Cahn-Hilliard model - properties and significance — •UWE THIELE, TOBIAS FROHOFF-HÜLSMANN, DANIEL GREVE
DY 25.1	Wed	9:30–10:00	BH-N 334	Emergent chemotaxis in synthetic active matter — •ABHINAV SHARMA, HIDDE VUIJK, PIERLUIGI MUZZEDDU, HOLGER MERLITZ, JENS-UWE SOMMER
DY 29.1	Wed	15:00–15:30	A 151	Conformal boundary conditions of symmetric quantum critical states — •LONG ZHANG

DY 30.1	Wed	15:00–15:30	BH-N 243	Continuum Approach for Studying Morphological Deformations of Multiple-Phase Renewable Energy Devices — ●ARIK YOCHELIS
DY 42.1	Thu	9:30–10:00	BH-N 243	Is predicting chaos and extreme dynamics possible? An overview of (some) scientific machine learning approaches — ●LUCA MAGRI
DY 43.1	Thu	9:30–10:00	BH-N 334	Flocking by turning away — ●RICARD ALERT
DY 43.7	Thu	11:30–12:00	BH-N 334	Growth and division as drivers of complex dynamics in dense cellular matter — ●PHILIP BITTIHN
DY 49.1	Thu	15:00–15:30	BH-N 243	Using reservoir computing to create surrogate models — ●LINA JAURIGUE
DY 49.7	Thu	17:00–17:30	BH-N 243	Opportunities in Quantum Reservoir Computing — ●ROBERTA ZAMBRINI
DY 57.1	Fri	9:30–10:00	BH-N 128	A simulation approach for the emerging mechanical properties of multi-network systems — ●KIRSTEN MARTENS

Invited Talks of the joint Symposium SKM Dissertation Prize 2024 (SYSD)

See SYSD for the full program of the symposium.

SYSD 1.1	Mon	9:30–10:00	H 1012	Nonequilibrium dynamics in constrained quantum many-body systems — ●JOHANNES FELDMEIERS
SYSD 1.2	Mon	10:00–10:30	H 1012	Controlled Manipulation of Magnetic Skyrmions: Generation, Motion and Dynamics — ●LISA-MARIE KERN
SYSD 1.3	Mon	10:30–11:00	H 1012	Interactions within and between cytoskeletal filaments — ●CHARLOTTA LORENZ
SYSD 1.4	Mon	11:00–11:30	H 1012	Field theories in nonequilibrium statistical mechanics: from molecules to galaxies — ●MICHAEL TE VRUGT
SYSD 1.5	Mon	11:30–12:00	H 1012	Lightwave control of electrons in graphene — ●TOBIAS WEITZ

Invited Talks of the joint Symposium Advances in Ab-Initio Electronic Structure Theory of Time-Dependent and Non-Equilibrium Phenomena (SYES)

See SYES for the full program of the symposium.

SYES 1.1	Tue	9:30–10:00	H 0105	Light control of charge transport and phase transitions — ●SHENG MENG
SYES 1.2	Tue	10:00–10:30	H 0105	Probing the transport of the interacting electron-phonon system self-consistently and <i>ab initio</i> — ●NAKIB PROTIK
SYES 1.3	Tue	10:30–11:00	H 0105	In- and out-of-equilibrium ab initio theory of electrons and phonons — ●GIANLUCA STEFANUCCI
SYES 1.4	Tue	11:15–11:45	H 0105	Phonon screening of excitons in semiconductors and insulators from first principles — ●MARINA RUCSANDRA FILIP
SYES 1.5	Tue	11:45–12:15	H 0105	Light-matter control of quantum materials: from Floquet to cavity engineering — ●MICHAEL SENTEF

Invited Talks of the joint Symposium Statistical Physics of Economic and Financial Systems (SYEF)

See SYEF for the full program of the symposium.

SYEF 1.1	Thu	9:30–10:00	H 0105	Economic Complexity Theory and the General Economic Theory: Applying Synergetics — ●WEI-BIN ZHANG
SYEF 1.2	Thu	10:00–10:30	H 0105	Opinion Formation in the World Trade Network — ●DIMA SHEPELYANSKY
SYEF 1.3	Thu	10:30–11:00	H 0105	Transfer Entropy in financial stock markets — ●LEONIDAS SANDOVAL
SYEF 1.4	Thu	11:15–11:45	H 0105	Statistical-Physics Theory of the Long Memory in Market-Order Flows and its Empirical Validation in the Tokyo Stock Exchange — ●KIYOSHI KANAZAWA
SYEF 1.5	Thu	11:45–12:15	H 0105	Ergodicity Economics and the Insurance Problem — ●BENJAMIN SKJOLD, OLE PETERS, COLM CONNAUGHTON

Invited Talks of the joint Symposium New Trends in Nonequilibrium Physics: Conservation Laws and Nonreciprocal Interactions (SYNP)

See SYNP for the full program of the symposium.

SYNP 1.1	Thu	15:00–15:30	H 0105	Universality classes of nonequilibrium phase transitions with conservation constraints — •WALTER ZIMMERMANN
SYNP 1.2	Thu	15:30–16:00	H 0105	The many faces of living chiral crystals — •NIKITA FAKHRI
SYNP 1.3	Thu	16:00–16:30	H 0105	Non-reciprocal pattern formation of conserved fields — •FRIDTJOF BRAUNS, M CRISTINA MARCHETTI
SYNP 1.4	Thu	16:45–17:15	H 0105	Phase transitions and fluctuations of nonreciprocal systems — •SARAH A.M. LOOS
SYNP 1.5	Thu	17:15–17:45	H 0105	Chiral matters — •WILLIAM IRVINE

Sessions

DY 1.1–1.8	Mon	9:30–13:15	H 0104	Focus Session: Artificial Intelligence in Condensed Matter Physics I (joint session TT/DY)
DY 2.1–2.12	Mon	9:30–12:45	H 1028	Active Matter I (joint session BP/ CPP/DY)
DY 3.1–3.10	Mon	9:30–12:45	A 151	Focus Session: Quantum Interactive Dynamics I (joint session DY/TT)
DY 4.1–4.5	Mon	9:30–11:00	BH-N 128	Fluid Physics and Turbulence
DY 5.1–5.13	Mon	9:30–13:00	BH-N 243	Machine Learning in Dynamics and Statistical Physics I
DY 6.1–6.12	Mon	9:30–13:00	BH-N 334	Statistical Physics far from Thermal Equilibrium I
DY 7.1–7.5	Mon	11:30–13:00	BH-N 128	Critical Phenomena and Phase Transitions
DY 8.1–8.4	Mon	15:00–16:00	H 3025	Artificial Intelligence in Condensed Matter Physics II (joint session TT/DY)
DY 9.1–9.9	Mon	15:00–18:00	A 151	Focus Session: Quantum Interactive Dynamics II (joint session DY/TT)
DY 10.1–10.13	Mon	15:00–18:30	BH-N 128	Nonlinear Dynamics, Synchronization and Chaos
DY 11.1–11.12	Mon	15:00–18:30	BH-N 243	Active Fluids and Microswimmers (joint session DY/BP/ CPP)
DY 12.1–12.8	Mon	15:00–17:00	BH-N 334	Statistical Physics far from Thermal Equilibrium II
DY 13.1–13.5	Mon	16:15–17:45	H 0107	Glasses and Glass Transition (joint session CPP/DY)
DY 14.1–14.6	Mon	16:15–18:00	H 3025	Quantum Coherence (joint session TT/DY)
DY 15.1–15.13	Tue	9:30–13:00	H 1028	Active Matter II (joint session BP/ CPP/DY)
DY 16.1–16.13	Tue	9:30–13:00	H 3005	Nonequilibrium Quantum Systems 1 (joint session TT/DY)
DY 17.1–17.13	Tue	9:30–13:00	A 151	Many-body Systems: Equilibration, Chaos, and Localization (joint session DY/TT)
DY 18.1–18.12	Tue	9:30–13:00	BH-N 128	Pattern Formation, Delay and Nonlinear Stochastic Systems
DY 19.1–19.13	Tue	9:30–13:00	BH-N 243	Machine Learning in Dynamics and Statistical Physics II (joint session DY/SOE)
DY 20.1–20.12	Tue	9:30–13:00	BH-N 334	Statistical Physics of Biological Systems I (joint session DY/BP)
DY 21.1–21.5	Tue	11:45–13:00	H 3007	Focus Session: Nanomechanical Systems for Classical and Quantum Sensing I (joint session TT/DY/HL/QI)
DY 22.1–22.9	Wed	9:30–12:30	A 151	Focus Session: Recent Progresses in Criticality in the Presence of Boundaries and Defects I (joint session DY/TT)
DY 23.1–23.13	Wed	9:30–13:00	BH-N 128	Stochastic Thermodynamics
DY 24.1–24.12	Wed	9:30–13:00	BH-N 243	Focus Session: New Trends in Nonequilibrium Physics – Conservation Laws and Nonreciprocal Interactions I
DY 25.1–25.12	Wed	9:30–13:00	BH-N 334	Active Matter III (joint session DY/BP/ CPP)
DY 26.1–26.8	Wed	15:00–17:45	H 2032	Focus Session: Inference Methods and Biological Data (German-French Focus Session) (joint session BP/DY)
DY 27.1–27.10	Wed	15:00–17:45	EW 202	Focus Session: Nanomechanical Systems for Classical and Quantum Sensing II (joint session HL/DY/TT/QI)
DY 28.1–28.13	Wed	15:00–18:30	TC 006	Networks: From Topology to Dynamics I (joint session SOE/DY)
DY 29.1–29.4	Wed	15:00–16:15	A 151	Focus Session: Recent Progresses in Criticality in the Presence of Boundaries and Defects II (joint session DY/TT)

DY 30.1–30.5	Wed	15:00–16:30	BH-N 243	Focus Session: New Trends in Nonequilibrium Physics – Conservation Laws and Nonreciprocal Interactions II
DY 31.1–31.24	Wed	15:00–18:00	Poster C	Poster: Statistical Physics
DY 32.1–32.29	Wed	15:00–18:00	Poster C	Poster: Active Matter, Soft Matter, Fluids
DY 33.1–33.17	Wed	15:00–18:00	Poster C	Poster: Nonlinear Dynamics, Pattern Formation and Networks
DY 34.1–34.16	Wed	15:00–18:00	Poster C	Poster: Machine Learning, Data Science, and Reservoir Computing
DY 35.1–35.22	Wed	15:00–18:00	Poster D	Poster: Quantum Dynamics and Many-body Systems
DY 36.1–36.5	Thu	9:30–11:00	H 0107	Focus Session: Wetting on Adaptive Substrates I (joint session CPP/DY/O)
DY 37.1–37.9	Thu	9:30–12:00	H 1028	Statistical Physics of Biological Systems II (joint session BP/DY)
DY 38.1–38.13	Thu	9:30–13:00	H 3025	Nonequilibrium Quantum Systems 2 (joint session TT/DY)
DY 39.1–39.8	Thu	9:30–13:00	EW 202	Focus Session: Nanomechanical Systems for Classical and Quantum Sensing III (joint session HL/DY/TT/QI)
DY 40.1–40.13	Thu	9:30–13:00	A 151	Many-body Quantum Dynamics I (joint session DY/TT)
DY 41.1–41.12	Thu	9:30–12:45	BH-N 128	Statistical Physics: General
DY 42.1–42.9	Thu	9:30–12:15	BH-N 243	Focus Session: Computing with Dynamical Systems: New Perspectives on Reservoirs and Applications I – Fundamentals
DY 43.1–43.11	Thu	9:30–13:00	BH-N 334	Active Matter IV (joint session DY/BP/PPP)
DY 44.1–44.5	Thu	11:30–13:00	H 0107	Focus Session: Wetting on Adaptive Substrates II (joint session CPP/DY/O)
DY 45.1–45.8	Thu	15:00–17:30	H 0107	Wetting, Fluidics and Liquids at Interfaces and Surfaces (joint session CPP/DY)
DY 46.1–46.8	Thu	15:00–17:45	H 0110	Complex Fluids, Colloids, Micelles and Vesicles (joint session CPP/DY)
DY 47.1–47.10	Thu	15:00–17:45	A 151	Quantum Chaos and Coherent Dynamics (joint session DY/TT)
DY 48.1–48.8	Thu	15:00–17:00	BH-N 128	Granular Matter and Contact Dynamics
DY 49.1–49.9	Thu	15:00–18:00	BH-N 243	Focus Session: Computing with Dynamical Systems: New Perspectives on Reservoirs and Applications II – Applications and Quantum RC
DY 50.1–50.10	Thu	15:00–17:45	BH-N 334	Wetting, Droplets, and Microfluidics (joint session DY/PPP)
DY 51	Thu	18:00–19:00	BH-N 243	Members' Assembly
DY 52.1–52.10	Fri	9:30–12:45	H 0110	Focus Session: Wetting on Adaptive Substrates III (joint session CPP/DY/O)
DY 53.1–53.12	Fri	9:30–13:00	H 2032	Statistical Physics of Biological Systems III (joint session BP/DY)
DY 54.1–54.12	Fri	9:30–13:00	H 1028	Active Matter V (joint session BP/DY)
DY 55.1–55.1	Fri	9:30–10:00	MA 001	Power Grids (joint session SOE/DY)
DY 56.1–56.4	Fri	9:30–10:30	A 151	Many-body Quantum Dynamics II (joint session DY/TT)
DY 57.1–57.9	Fri	9:30–12:15	BH-N 128	Networks: From Topology to Dynamics II (joint session DY/SOE)
DY 58.1–58.10	Fri	9:30–12:15	BH-N 243	Complex Fluids and Soft Matter (joint session DY/PPP)
DY 59.1–59.13	Fri	9:30–13:00	BH-N 334	Brownian Motion and Anomalous Diffusion
DY 60.1–60.9	Fri	10:45–13:00	A 151	Quantum Dynamics, Decoherence and Quantum Information (joint session DY/TT)
DY 61.1–61.1	Fri	13:15–14:00	H 0104	Closing Talk (joint session BP/PPP/DY)

Members' Assembly of the Dynamics and Statistical Physics Division

Thursday 18:00–19:00 BH-N 243

- Report
- Future activities of DY
- Any other business