

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

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Overview of Invited Talks and Sessions

(Lecture halls HÜL 186, ZEU 118, ZEU 160, and ZEU 147; Poster P1A and P1C)

Plenary and Prize talks

PLV II	Mon	8:30– 9:15	HSZ 01	Bicontinuous Structures in Charged Polymer Blends — ●TIMOTHY LODGE
PRV I	Mon	13:15–13:45	HSZ 01	Quantum Dots for Quantum Technologies — ●DIETER BIMBERG
PRV III	Tue	13:15–13:45	HSZ 01	Quantum spin dynamics of a spin-1/2 antiferromagnetic Heisenberg-Ising chain — ●ZHE WANG
PLV VII	Wed	8:30– 9:15	HSZ 01	Physics of Morphogenesis — ●STEPHAN GRILL
PLV IX	Wed	14:00–14:45	HSZ 02	Stochastic thermodynamics: Concepts and applications — ●UDO SEIFERT
PLV XIV	Fri	8:30– 9:15	HSZ 01	Machine Learning meets Quantum Physics — ●KLAUS-ROBERT MÜLLER

Invited Talks

DY 3.1	Mon	9:30–10:00	ZEU 118	Disentangling Lagrangian Turbulence — LUKAS BENTKAMP, CRISTIAN LALESCU, ●MICHAEL WILCZEK
DY 5.1	Mon	10:00–10:30	HÜL 186	Dynamically probing winding numbers of Floquet topological insulators in optical lattices — ●ANDRÉ ECKARDT
DY 11.1	Mon	15:00–15:30	HÜL 186	A hydrodynamic view on the diffusion in membranes and dense solutions of proteins — ●GERHARD HUMMER, SÖREN VON BÜLOW, MARTIN VÖGELE, LISA PIETREK, MARC SIGGEL, MAX LINKE, JÜRGEN KÖFINGER, LUKAS STELZL
DY 13.1	Mon	15:00–15:30	ZEU 118	Shearing of glasses: new insight from studying model glasses of different system sizes — ●ANDREAS HEUER, MARKUS BLANK-BURIAN, LAWRENCE SMITH, MOUMITA MAITI
DY 14.1	Mon	15:00–15:30	ZEU 160	Microswimmers in (semi-)dilute suspensions: binary mixtures, trapping, orientational ordering, collective motion, and imposed shear flows — CHRISTIAN HOELL, GIORGIO PESSOT, HARTMUT LÖWEN, ●ANDREAS M. MENZEL
DY 21.1	Tue	9:30–10:00	HÜL 186	From Non-normalizable Boltzmann-Gibbs statistics to infinite-ergodic theory — ●ELI BARKAI
DY 23.1	Tue	9:30–10:00	ZEU 118	Collective dynamics of cell-fate decision in the early embryo — ●JORDI GARCIA-OJALVO
DY 33.1	Wed	9:30–10:00	ZEU 118	Statistical Mechanics of Granular Clogging — ●DOUGLAS DURIAN
DY 34.1	Wed	9:30–10:00	ZEU 160	Brownian systems with time-delay: non-equilibrium thermodynamics and connection to active systems — ●SABINE H.L. KLAPP, SARAH A.M. LOOS
DY 39.1	Wed	15:00–15:30	HÜL 186	Supersymmetric Polarization Anomaly in Photonic Discrete-Time Quantum Walks — ●SONJA BARKHOFEN, LENNART LORZ, THOMAS NITSCHKE, CHRISTINE SILBERHORN, HENNING SCHOMERUS
DY 40.1	Wed	15:00–15:30	ZEU 118	I want it all and I want it now! — ●ALEXANDER K. HARTMANN

DY 42.1	Wed	15:00–15:30	ZEU 160	Light-regulated microbial dynamics and self-organization in complex geometries — ●OLIVER BÄUMCHEN
DY 46.1	Thu	9:30–10:00	HÜL 186	Nanofriction in Ion Coulomb Systems — ●TANJA MEHLSTÄUBLER
DY 47.1	Thu	9:30–10:00	ZEU 118	Nonlinear dynamics of cardiac arrhythmias in the long QT syndrome — ●ALAIN KARMA
DY 47.6	Thu	11:15–11:45	ZEU 118	Wave-particle duality of dissipative vortices and implications for cardiology — ●IRINA V. BIKTASHEVA
DY 51.1	Thu	14:00–14:30	ZEU 118	Dyadic structure-function relationships in ventricular cardiac myocytes: from sparks to action potentials — ●MARTIN FALCKE, FILIPPO G. COSI, WOLFGANG GIESE, WILHELM NEUBERT, STEFAN LUTHER, ULRICH PARLITZ
DY 61.1	Fri	9:30–10:00	HÜL 186	Characterizing quantum chaos through adiabatic transformations — ●ANATOLI POLKOVNIKOV, ANUSHYA CHANDRAN, PIETER CLAEYS, ANATOLY DYMARSKY, MOHIT PANDEY, TAMIRO RENZO, DRIES SELS, SHO SUGIURA, JONATHAN WURTZ
DY 63.1	Fri	9:30–10:00	ZEU 160	Coarse-grained descriptions of models of cell monolayers — ●ERIC BERTIN

Invited talks of the joint symposium SYSD (SKM Dissertation-Prize 2020)

See SYSD for the full program of the symposium.

SYSD 1.1	Mon	9:30–9:55	HSZ 02	Disentangling transport in topological insulator thin films down to the nanoscale — ●FELIX LÜPKE
SYSD 1.2	Mon	9:55–10:20	HSZ 02	Spintronics with Terahertz Radiation: Probing and driving spins at highest frequencies — ●TOM SEBASTIAN SEIFERT, TOBIAS KAMPFRATH
SYSD 1.3	Mon	10:20–10:45	HSZ 02	Non-radiative voltage losses in organic solar cells — ●JOHANNES BENDUHN
SYSD 1.4	Mon	10:45–11:10	HSZ 02	Multivalent ions for tuning the phase behaviour of protein solutions — ●OLGA MATSARSKAIA
SYSD 1.5	Mon	11:10–11:35	HSZ 02	Network Dynamics under Constraints — ●MALTE SCHRÖDER
SYSD 1.6	Mon	11:35–12:00	HSZ 02	Exciton spectroscopy of van der Waals heterostructures — ●PHILIPP NAGLER

Invited talks of the joint symposium SYBD (Big data driven materials science)

See SYBD for the full program of the symposium.

SYBD 1.1	Tue	9:30–10:00	HSZ 02	Materials innovation driven by data and knowledge systems — ●SURYA KALIDINDI
SYBD 1.2	Tue	10:00–10:30	HSZ 02	Network Theory Meets Materials Science — ●CHRIS WOLVERTON, MURAT AYKOL, VINAY HEGDE
SYBD 1.3	Tue	10:30–11:00	HSZ 02	Verification and error estimates for ab initio data — ●CLAUDIA DRAXL
SYBD 1.4	Tue	11:15–11:45	HSZ 02	Identifying Domains of Applicability of Machine Learning Models for Materials Science — ●MARIO BOLEY, CHRISTOPHER SUTTON, LUCA M. GHIRINGHELLI, MATTHIAS RUPP, JILLES VREEKEN, MATTHIAS SCHEFFLER
SYBD 1.5	Tue	11:45–12:15	HSZ 02	Deep learning of low-dimensional latent space molecular simulators — ●ANDREW FERGUSON

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

See SYCE for the full program of the symposium.

SYCE 1.1	Wed	9:30–10:00	HSZ 02	Towards a carbon-free energy system: Expectations from R&D in renewable energy technologies — ●BERND RECH, RUTGER SCHLATTMANN
SYCE 1.2	Wed	10:00–10:30	HSZ 02	Decarbonizing the Heating Sector - Challenges and Solutions — ●FLORIAN WEISER

SYCE 1.3	Wed	10:30–11:00	HSZ 02	The challenge of anthropogenic climate change - Earth system analysis can guide climate mitigation policy — ●MATTHIAS HOFMANN
SYCE 1.4	Wed	11:15–11:45	HSZ 02	A carbon-free Energy System in 2050: Modelling the Energy Transition — ●CHRISTOPH KOST, PHILIP STERCHELE, HANS-MARTIN HENNING
SYCE 1.5	Wed	11:45–12:15	HSZ 02	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 SYES (Spain as Guest of Honor)

See SYES for the full program of the symposium.

SYES 1.1	Thu	9:30–10:00	HSZ 02	Understanding the physical variables driving mechanosensing — ●PERE ROCA-CUSACHS
SYES 1.2	Thu	10:00–10:30	HSZ 02	Mechanics of life: Cellular forces and mechanics far from thermodynamic equilibrium — ●TIMO BETZ
SYES 1.3	Thu	10:30–11:00	HSZ 02	A hydrodynamic approach to collective cell migration in epithelial tissues — ●JAUME CASADEMUNT
SYES 1.4	Thu	11:15–11:45	HSZ 02	The spindle is a composite of two permeating polar gels — DAVID ORIOLA, BENJAMIN DALTON, FRANZISKA DECKER, FRANK JULICHER, ●JAN BRUGUES
SYES 1.5	Thu	11:45–12:15	HSZ 02	Adding magnetic properties to epitaxial graphene — ●RODOLFO MIRANDA
SYES 2.1	Thu	15:00–15:30	HSZ 01	Interactions in assemblies of surface-mounted magnetic molecules — ●WOLFGANG KUCH
SYES 2.2	Thu	15:30–16:00	HSZ 01	Towards phononic circuits based on optomechanics — ●CLIVIA M. SOTOMAYOR-TORRES
SYES 2.3	Thu	16:00–16:30	HSZ 01	Optical properties of 2D materials and heterostructures — ●JANINA MAULTZSCH
SYES 2.4	Thu	16:45–17:15	HSZ 01	Bringing nanophotonics to the atomic scale — ●JAVIER AIZPURUA
SYES 2.5	Thu	17:15–17:45	HSZ 01	Infrared signatures of the coupling between vibrational and plasmonic excitations — ●ANNEMARIE PUCCI

Invited talks of the joint symposium SYDW (Dynamical wetting of flexible, adaptive and switchable surfaces)

See SYDW for the full program of the symposium.

SYDW 1.1	Thu	15:00–15:30	HSZ 02	Statics and Dynamics of Soft Wetting — ●BRUNO ANDREOTTI
SYDW 1.2	Thu	15:30–16:00	HSZ 02	Modelling imbibition, dynamic wetting and evaporation on structured surfaces and porous coatings — ●TATIANA GAMBARYAN-ROISMAN, NOEMI GHILLANI
SYDW 1.3	Thu	16:00–16:30	HSZ 02	Droplets on shaped liquid and electrically switchable surfaces — ●GLEN MCHALE
SYDW 1.4	Thu	16:45–17:15	HSZ 02	Liquid-liquid Dewetting: From Spinodal Breakup to Dewetting Morphologies and Rates — ●RALF SEEMANN, STEFAN BOMMER, ROGHAYEH SHIRI, SEBASTIAN JACHALSKI, DIRK PESCHKA, BARBARA WAGNER
SYDW 1.5	Thu	17:15–17:45	HSZ 02	Droplet durotaxis and engulfment on yielding viscoelastic gels — ●ANNE JUEL

Sessions

DY 1.1–1.3	Sun	16:00–18:30	HSZ 03	Tutorials: Stochastic Processes from Financial Risk to Dynamics in Biology and Physics (joint session SOE/DY/TUT)
DY 2.1–2.11	Mon	9:30–13:00	HÜL 386	Active Matter I (joint session BP/DY/ CPP)
DY 3.1–3.10	Mon	9:30–12:30	ZEU 118	Fluid Physics of Turbulence
DY 4.1–4.6	Mon	9:30–11:15	ZEU 255	Glasses and Glass Transition (joint session CPP/DY)
DY 5.1–5.13	Mon	10:00–13:30	HÜL 186	Many-body Systems: Equilibration, Chaos and Localization I (joint session DY/TT)

DY 6.1–6.5	Mon	10:00–11:15	ZEU 147	Nonlinear Dynamics, Synchronization and Chaos
DY 7.1–7.10	Mon	10:00–12:45	ZEU 160	Statistical Physics (General) I
DY 8.1–8.4	Mon	11:30–12:30	ZEU 147	Physics of Power Grids (joint session DY/SOE)
DY 9.1–9.7	Mon	15:00–18:15	HSZ 03	Focus Session: Simulating Quantum Many-Body Systems on Noisy Intermediate-Scale Quantum Computers (joint session TT/DY)
DY 10.1–10.13	Mon	15:00–18:30	HSZ 201	Graphene (jointly with DY, MA, HL, DS, O) (joint session TT/DY/HL)
DY 11.1–11.1	Mon	15:00–15:30	HÜL 186	Invited Talk
DY 12.1–12.7	Mon	15:00–17:15	SCH A251	Statistical Physics of Biological Systems I (joint session BP/DY)
DY 13.1–13.10	Mon	15:00–18:00	ZEU 118	Glasses and Glass Transition (joint session DY/CPP)
DY 14.1–14.9	Mon	15:00–17:45	ZEU 160	Microswimmers (joint session DY/CPP)
DY 15.1–15.10	Mon	15:30–18:15	HÜL 186	Condensed-matter simulations augmented by advanced statistical methodologies (joint session DY/CPP)
DY 16.1–16.5	Mon	15:30–16:45	ZEU 147	Convection
DY 17.1–17.3	Mon	16:30–17:15	ZEU 260	Interfaces and Thin Films I (joint session CPP/O/DY)
DY 18.1–18.5	Mon	17:00–18:15	ZEU 147	Delay and Feedback Dynamics
DY 19.1–19.13	Tue	9:30–13:00	HSZ 204	Nonequilibrium Quantum Many-Body Systems 1 (joint session TT/DY)
DY 20.1–20.11	Tue	9:30–13:15	GÖR 226	Data analytics for dynamical systems I (Focus Session joint with DY and BP) (joint session SOE/DY/CPP/BP)
DY 21.1–21.1	Tue	9:30–10:00	HÜL 186	Invited Talk
DY 22.1–22.11	Tue	9:30–13:00	HÜL 386	Active Matter II (joint session BP/DY/CPP)
DY 23.1–23.1	Tue	9:30–10:00	ZEU 118	Invited Talk
DY 24.1–24.13	Tue	9:30–13:00	ZEU 160	Complex Fluids and Soft Matter (joint session DY/CPP)
DY 25.1–25.12	Tue	9:30–13:00	ZEU 260	Interfaces and Thin Films II (joint session CPP/O/DY)
DY 26.1–26.12	Tue	10:00–13:15	HÜL 186	Brownian Motion, Transport and Anomalous Diffusion
DY 27.1–27.6	Tue	10:00–11:30	ZEU 118	Statistical Physics II
DY 28.1–28.9	Tue	10:00–12:30	ZEU 147	Pattern Formation and Reaction-Diffusion Systems
DY 29.1–29.8	Tue	14:00–16:00	HSZ 204	Nonequilibrium Quantum Many-Body Systems 2 (joint session TT/DY)
DY 30.1–30.8	Tue	14:00–16:00	ZEU 160	Active Matter III (joint session DY/BP/CPP)
DY 31.1–31.13	Wed	9:30–13:00	HÜL 186	Many-body Systems: Equilibration, Chaos and Localization II (joint session DY/TT)
DY 32.1–32.11	Wed	9:30–12:30	ZEU 114	Complex Fluids and Colloids, Micelles and Vesicles (joint session CPP/DY)
DY 33.1–33.11	Wed	9:30–12:45	ZEU 118	Granular Matter and Granular Dynamics I
DY 34.1–34.1	Wed	9:30–10:00	ZEU 160	Invited Talk
DY 35.1–35.12	Wed	9:30–13:00	ZEU 255	Modelling and Simulation of Soft Matter I (joint session CPP/DY)
DY 36.1–36.6	Wed	10:00–11:30	ZEU 147	Stochastic Thermodynamics
DY 37.1–37.9	Wed	10:00–12:30	ZEU 160	Active Matter IV (joint session DY/CPP/BP)
DY 38.1–38.5	Wed	15:00–17:15	GÖR 226	Partial Synchronization Patterns in Neuronal Networks I (Focus Session joint with DY / SOE / BP) (joint session SOE/DY)
DY 39.1–39.14	Wed	15:00–19:00	HÜL 186	Quantum Chaos (joint session DY/TT)
DY 40.1–40.8	Wed	15:00–17:30	ZEU 118	Data Analytics, Extreme Events, and Nonlinear Stochastic Systems (joint session DY/SOE)
DY 41.1–41.7	Wed	15:00–16:45	ZEU 147	Droplets and Wetting (joint session DY/CPP)
DY 42.1–42.9	Wed	15:00–17:45	ZEU 160	Fluid Physics of Life (joint session DY/BP)
DY 43.1–43.8	Wed	15:00–17:30	ZEU 250	Statistical Physics of Biological Systems II (joint session BP/DY)
DY 44.1–44.7	Wed	15:00–16:45	ZEU 255	Modelling and Simulation of Soft Matter II (joint session CPP/DY)
DY 45.1–45.6	Wed	17:00–18:30	ZEU 147	Microfluidics (joint session DY/CPP)
DY 46.1–46.10	Thu	9:30–12:30	HÜL 186	Many-body Quantum Dynamics I
DY 47.1–47.10	Thu	9:30–12:45	ZEU 118	Focus Session: Nonlinear Dynamics of the Heart I (joint session DY/BP)
DY 48.1–48.10	Thu	9:30–12:15	ZEU 147	Statistical Physics far from Thermal Equilibrium

DY 49.1–49.13	Thu	9:30–13:00	ZEU 255	Wetting and Liquids at Interfaces and Surfaces I (joint session CPP/O/DY)
DY 50.1–50.7	Thu	10:00–11:45	ZEU 160	Granular Matter and Granular Dynamics II
DY 51.1–51.6	Thu	14:00–15:45	ZEU 118	Focus Session: Nonlinear Dynamics of the Heart II (joint session DY/BP)
DY 52.1–52.12	Thu	15:00–18:15	HÜL 186	Quantum Dynamics, Decoherence and Quantum Information
DY 53.1–53.21	Thu	15:00–18:00	P1A	Poster: Quantum Dynamics, Chaos and Information; Many Body Systems
DY 54.1–54.9	Thu	15:00–18:00	P1A	Poster: Active Matter and Microswimmers (joint session DY/TT)
DY 55.1–55.18	Thu	15:00–18:00	P1A	Poster: Turbulence; Complex Fluids; Microfluidics; Droplets and Wetting
DY 56.1–56.14	Thu	15:00–18:00	P1A	Poster: Glasses; Granular Matter; Brownian Motion and Anomalous Diffusion
DY 57.1–57.18	Thu	15:00–18:00	P1C	Poster: Statistical Physics; Critical Phenomena; Stochastic Thermodynamics; Extreme Events; Data Analytics
DY 58.1–58.15	Thu	15:00–18:00	P1C	Poster: Nonlinear Dynamics; Pattern Formation; Networks; Delay Systems; Synchronization
DY 59	Thu	18:15–19:15	ZEU 160	Mitgliederversammlung
DY 60.1–60.2	Fri	9:30–10:00	GÖR 226	Data analytics for dynamical systems II (Focus Session joint with DY and BP) (joint session SOE/ CPP/DY)
DY 61.1–61.1	Fri	9:30–10:00	HÜL 186	Invited Talk
DY 62.1–62.8	Fri	9:30–11:45	ZEU 118	Critical Phenomena and Phase Transitions
DY 63.1–63.1	Fri	9:30–10:00	ZEU 160	Invited Talk
DY 64.1–64.9	Fri	9:30–12:15	ZEU 260	Wetting and Liquids at Interfaces and Surfaces II (joint session CPP/DY/O)
DY 65.1–65.6	Fri	10:00–12:00	GÖR 226	Partial Synchronization Patterns in Neuronal Networks II (Focus Session joint with DY / SOE / BP) (joint session SOE/DY)
DY 66.1–66.8	Fri	10:00–12:00	HÜL 186	Many-body Quantum Dynamics II
DY 67.1–67.6	Fri	10:00–11:30	ZEU 160	Active Matter V (joint session DY/BP/ CPP)
DY 68.1–68.1	Fri	12:30–13:15	HSZ 02	Closing Talk (joint session BP/DY/ CPP)

Annual General Meeting of the Dynamics and Statistical Physics Division

Thursday 18:15–19:15 ZEU 160