Plenary and Prize Talks, Evening Talks, Special Talks, Joint Symposia, Tutorials: Dresden 2017

Plenary Talks, Prize Talks, Evening Talks, Lunch Talks

Sunday		
18:45	PV I	Prize Talk Die STAR TREK Physik: Warum die Enterprise nur 158 Kilo wiegt und andere galaktische Erkenntnisse — •Metin Tolan — TU Dortmund — Träger des Robert-Wichard-Pohl-Preises
Monday		
08:30	PV II	Plenary Talk Operating quantum states in single magnetic molecules — •Wolfgang Wernsdorfer — KIT
13:15	PV III	Prize Talk Random matrix theory and growing interfaces in one dimension — •Herbert Spohn — TU Munich — Laureate of the Max-Planck-Medal
13:15	PV IV	Lunch Talk From the physics lab to production: Organic photovoltaics as a fascinating field for industry scientists — •Karsten Walzer — Heliatek GmbH, Dresden
14:00	PV V	Plenary Talk Electric Field Control of Magnetism — •Ramamoorthy Ramesh — University of California, Berkeley
14:00	PV VI	Plenary Talk The Emergence and Evolution of Life Beyond Physics — •Stuart Kauffman — University of Pennsylvania; The Institute for Systems Biology, Seattle
20:00	PV VII	Evening Talk Magnetresonanz-Tomografie in Echtzeit — •Jens Frahm — MPI für biophysikalische Chemie, Göttingen
Tuesday		
08:30	PV VIII	Plenary Talk Surface and tip-Enhanced Raman spectroscopy: From single molecule spectroscopy to angstrom-scale spatial resolution and femtosecond time resolution — •Richard Van Duyne — Northwestern University, Evanston, Illinois, USA
13:15	PV IX	Prize Talk Topological Insulators: a New State of Matter — •Laurens W. Molenkamp — Universität Würzburg — Laureate of the Stern-Gerlach-Medal
13:15	PV X	Lunch Talk Als Physiker in einem Maschinenbau-Unternehmen — •Monika Mattern-Klosson — Leybold, Köln
13:15	PV XI	Prize Talk Mikroelektronische Systeme zur Erzeugung und Charakterisierung eines Hochvakuums — •Moritz Kopetzki — HAW München — KETEK GmbH, München — Träger des Georg-Simon-Ohm Preises
17:30	PV XII	Plenary Talk Molecular semiconductors for LEDs and solar cells: designing around the Coulomb interaction — •Richard Friend — University of Cambridge, UK
Wednesday		
08:30	PV XIII	Plenary Talk Characterization of Biological Photoreceptors in Space and Time — •Peter Hegemann — Humboldt-Universität zu Berlin
13:15	PV XIV	Prize Talk Functional domain walls in multiferroic oxides — •Dennis Meier — NTNU, Trondheim, Norway — Laureate of the Gustav-Hertz-Prize
13:15	PV XV	Lunch Talk Physics Crossing Boundaries: From Nanoscience to Bio and IT Spin-Off Companies and a

		New Open-Access Journal — •Richard Palmer — Adv. Phys. X, Taylor & Francis, Oxford, UK
13:15	PV XVI	Plenary Talk Networks powered by quantum entanglement: from the first loophole-free Bell test to a quantum Internet — •Ronald Hanson — Delft University of Technology
14:00	PV XVII	Plenary Talk The Statistical Mechanics of Active Matter — •Michael Cates — University of Cambridge, UK
15:00	PV XVIII	Prize Talk Magnon transport in spin textures — •Helmut Schultheiß — Helmholtz-Zentrum Dresden-Rossendorf — Laureate of the Walter-Schottky-Prize
Thursday		
08:30	PV XIX	Plenary Talk Model systems in heterogeneous catalysis at the atomic level — •Hans-Joachim Freund — Fritz-Haber-Institut der MPG, Berlin
13:15	PV XX	Prize Talk Exotic Spin-Orbital Order in Transition Metal Oxides — •Andrzej M. Oles — Jagiellonian University, Krakow, Poland — MPI for Solid State Research, Stuttgart — Laureate of the Smoluchowski-Warburg-Prize
13:15	PV XXI	Lunch Talk Berufsbild Physiker(in) ausserhalb universitärer und industrieller Forschung — •Udo Weigelt — Grünecker Patent- und Rechtsanwälte PartG mbB, München
13:15	PV XXII	Prize Talk Controlling Light Fields with Mie-Resonant Dielectric Metasurfaces — •Isabelle Staude — Friedrich Schiller University, Jena — Laureate of the Hertha-Sponer-Prize
14:00	PV XXIII	Plenary Talk Bottom-up fabrication of graphene nanoribbons: From molecules to devices — •Roman Fasel — Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, CH
14:00	PV XXIV	Plenary Talk Novel Phase Change Materials by Design: The Mystery of Resonance Bonding — •Matthias Wuttig — RWTH Aachen — JARA-FIT Institute Green IT
Friday		
08:30	PV XXV	Plenary Talk The European XFEL - Status and first commissioning results — •Hans Weise — DESY, Hamburg

Joint Symposia

Monday	SYLI: Symposium Interfacial Challenges in Solid-State Li Ion Batteries 09:30 SYLI 1.1: Interfacial challenges in solid- state Li ion: some perspectives from theory — •Alan Luntz, Saskia Stegmaier, Johannes Voss, and Karsten Reuter 10:00 SYLI 1.2: Will solid electrolytes enable lithium metal anodes in solid state batteries? — •Jürgen Janek, Dominik Weber, and Wolfgang Zeier 10:30 SYLI 1.3: Hybrid Electrolytes for Solid-State Batteries — •Hans-Dieter Wiemhöfer 11:00 15 min. break 11:15 SYLI 1.4: Neutron diffraction on solid-state battery materials — •Helmut Ehrenberg, Anatoliy Senyshyn, Mykhailo Monchak, Sylvio Indris, and Joachim Binder 11:45 SYLI 1.5: Sulfate-based Solid-State Batteries — •Yuki Katoh SYSD: SKM Dissertation-Prize 2017 10:30 SYSD 1.1: Coherent Backscattering and Many-Body Spin Echo in Fock Space: Genuine Many-Body Interference vs. Equilibration — •Thomas Engl 10:55 SYSD 1.2: Magnetization Dynamics of Itinerant and Localized Electrons in Lanthanide Metals — •Björn Frietsch, Robert Carley, Martin Teichmann, Kristian Döbrich, John Bowlan, and Martin Weinelt 11:20 SYSD 1.3: Dynamics of Thin Smectic Films: From Viscous Fluid to Quasi Elastic Behaviour — •Kirsten Harth 11:45 SYSD 1.4: Group IV Epitaxy for Advanced Nano- and Optoelectronic Applications — •Stephan Wirths SYCE: Novel Functionality and Topology-Driven Phenomena in Ferroics and Correlated Electron Systems (DF with MA, KR, MI, TT and DS) 15:00 SYCE 1.1: Ferroelectric domain walls: from conductors to insulators and back again — •Petro Maksymovych 15:30 SYCE 1.2: Zoology of skyrmions and the role of magnetic anisotropy in the stability of skyrmions — •Istvan Kezsmarki, Sandor Bordacs, Jonathan White, Vladimir Tsurkan, Alois Loidl, Peter Milde, Hiroyuki Nakamura, and Andrey Leonov 16:00 SYCE 1.3: Magnetic imaging of topological phenomena in ferroic materials — •Weida Wu 16:30 30 min. break 17:00 SYCE 1.4: Topological skyrmion textures in chiral magnets — •Markus Garst 17:30 SYCE 1.5: Learning through ferroelectric domain dynamics in solidstate synapses — Sören Boyn, Gwendal Lecerf, Stéphane Fusil, Sylvain Saïghi, Agnès Barthélémy, Julie Grollier, Vincent Garcia, and •Manuel Bibes
Tuesday	SYBM: Bioinspired Functional Materials: From Nature's Nanoarchitectures to Nanofabricated Designs 09:30 SYBM 1.1: New twists in biological photonics: circular polarisation and beyond — •Pete Vukusic, Luke McDonald, and Ewan Finlayson 10:00 SYBM 1.2: Bio-inspired materials and structures for technology and architecture — •Thomas Speck 10:30 SYBM 1.3: Cellulose bio-inspired hierarchical structures — •Silvia Vignolini 11:00 15 min break 11:15 SYBM 1.4: Strong Flexible Bioenabled Nanocomposites for Sustainable Sensing — •Vladimir Tsukuruk 11:45 SYBM 1.5: 3D laser nano-printing of rationally designed materials — •Martin Wegener

Wednesday	SYCM: Physics of Collective Mobility 09:30 SYCM 1.1: Mobility in shareability networks — •Michael Szell 10:00 SYCM 1.2: Trail-following bacteria: from single particle dynamics to collective behaviour — Anatolij Gelimson, Kun Zhao, Calvin K. Lee, W. Till Kranz, Gerard C. L. Wong, and •Ramin Golestanian 10:30 SYCM 1.3: Mobility and Self-Organization in Multi-Layer Networks: A Meta-Foodweb example — •Thilo Gross, Andreas Brechtel, Philipp Gramlich, Daniel Ritterskamp, and Barbara Drossel 11:00 15 min. break 11:15 SYCM 1.4: Temporal Percolation in Critical Collective Mobility Systems — •Andreas Sorge, Debsankha Manik, Jan Nagler, and Marc Timme 11:45 SYCM 1.5: Modeling the evolution of cities — •Marc Barthelemy SYNS: Symposium Nanostructuring Beyond Conventional Lithography 15:00 SYNS 1.1: The Limits to Lithography: How Electron-Beams Interact with Materials at the Smallest Length Scales — •Karl K. Berggren 15:30 SYNS 1.2: High precision fabrication for light management at nanoscale — •Saulius Juodkazis and Armandas Balcytis 16:00 SYNS 1.3: Directed self-assembly of performance materials — •Paul Nealey 16:30 15 min. break 16:45 SYNS 1.4: Nanometer accurate topography patterning using thermal Scanning Probe Lithography — •Armin W. Knoll 17:15 SYNS 1.5: High resolution 3D nanoimprint lithography — •Hartmut Hillmer
Thursday	SYLM: Optics and Light-Matter Interaction with Excitons in 2D Materials 15:00 SYLM 1.1: Light matter interaction in TMDs and their heterostructures — •Ursula Wurstbauer 15:30 SYLM 1.2: Quantum optics with deterministically positioned quantum emitters in a two-dimensional semiconductor — •Brian Gerardot 16:00 SYLM 1.3: Light-matter coupling with atomic monolayers in microcavities — •Christian Schneider 16:30 Coffee Break 17:00 SYLM 1.4: Properties of Synthetic 2D Materials and Heterostructures — •Joshua Robinson 17:30 SYLM 1.5: Exciton spectroscopy in transition metal dichalcogenide monolayers and van der Waals heterostructures — •Bernhard Urbaszek 18:00 SYLM 1.6: Strain-induced single-photon emitters in layered semiconductors — •Rudolf Bratschitsch SYQO: Quantum Optics on the Nanoscale: From Fundamental Physics to Quantum Technologies 09:30 SYQO 1.1: Quantum dot based quantum technologies — •Pascale Senellart 10:00 SYQO 1.2: Controlled strong coupling of a single quantum dot to a plasmonic nanoresonator at room temperature — Heiko Gross, Joachim M. Hamm, Tommaso Tufarelli, Ortwin Hess, and •Bert Hecht 10:30 SYQO 1.3: High efficiency and directional emission from a nanoscale light source in a planar optical antenna — •Mario Agio 11:00 Coffee Break 11:30 SYQO 1.4: Tailoring quantum states by measurement — •Jörg Wrachtrup 12:00 SYQO 1.5: Quantum optics and quantum control at the nanoscale with surface plasmon polaritons — •Stéphane Guérin

Friday	SYES: Frontiers of Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond 10:30 SYES 1.1: Going Beyond Conventional Functionals with Scaling Corrections and Pairing Fluctuations — •Weitao Yang 11:00 SYES 1.2: Multi-reference density functional theory — •Andreas Savin 11:30 SYES 1.3: Density functionals from machine learning — •Kieron Burke 12:00 SYES 1.4: Taming Memory-Dependence in Time-Dependent Density Functional Theory — •Neepa Maitra 12:30 SYES 1.5: Quantum Embedding Theories — •Fred Manby

Tutorials: Sunday, 19 March 2017

TUT 1: **Ferroics and Skyrmions**

16:00	TUT 1.1	Tutorium: Introduction to ferroic materials — •Claude Ederer
16:50	TUT 1.2	Tutorium: Skyrmions with ferroelectric polarization in multiferroic lacunar spinels — •Alois Loidl
17:40	TUT 1.3	Tutorium: Skyrmions in magnetic materials — •Jonathan White

TUT 2: **Micromagnetic Simulations**

16:00	TUT 2.1	Tutorium: An overview of mumax3 with a spotlight on its newest features — Arne Vansteenkiste, •Jonathan Leliaert, Mykola Dvornik, Mathias Helsen, Felipe Garcia-Sanchez, and Bartel Van Waeyenberge
16:45	TUT 2.2	Tutorium: Micromagnetics simulations with MicroMagnum and OMNeS — •Kai Litzius and Matthias Sitte
17:30		15 min. break
17:45	TUT 2.3	Tutorium: Computational micromagnetics with JOOMMF — •Hans Fangohr and Marijan Beg

TUT 3: **Patterns in Nature and Materials (DY/BP/CPP)**

16:00	TUT 3.1	Tutorium: The fascination of pattern formation: Basic principles, applications, future directions — •Walter Zimmermann
16:50	TUT 3.2	Tutorium: On growth and forms in nature — •Chaouqi Misbah
17:40	TUT 3.3	Tutorium: What can pattern formation theory tell us about ecosystem response to climate change? — •Ehud Meron

TUT 4: **All-Solid State Batteries (HL/O)**

16:00	TUT 4.1	Tutorium: An Introduction to Rechargeable Battery Technology and Current Research Trends — •Bryan McCloskey
16:40	TUT 4.2	Tutorium: Theory and Simulations for All-Solid State Batteries — •Christoph Scheurer
17:20		Coffee Break
17:35	TUT 4.3	Tutorium: Solid State Ionics - Mechanisms and Experimental Methods in Battery Research — •Ruediger-A. Eichel