

**20th International Winterschool on New Developments in Solid State Physics,
Castle of Mauterndorf, Austria, 25.2. - 2.3.2018**

Monday 26 Feb.		Tuesday 27 Feb.		Wednesday 28 Feb.		Thursday 1 March		Friday 2 March	
08:45-09:15	Opening K. von Klitzing (MPI-Stuttgart)								
	<i>Hybrid Nanosystems</i> Chair:		<i>2D Materials</i> Chair:		<i>Quantum Dots I</i> Chair:		<i>Topological Systems</i> Chair:		<i>Quantum Sensing</i> Chair:
9:15-10:20	TUTORIAL A. Wixforth (Univ. Augsburg)	9:00-10:10	TUTORIAL A. Mischenko (Univ. Manchester)	9:00-10:10	TUTORIAL P. Michler (Univ. Stuttgart)	9:00-10:10	TUTORIAL A. Ernst (Univ. Linz)	9:00-10:10	J. Wrachtrup (MPI Stuttgart)
10:20-10:40	Coffee Break	10:10-10:40	Coffee Break	10:10-10:40	Coffee Break	10:10-10:40	Coffee Break	10:10-10:40	Coffee Break
	<i>Spins and Majoranas</i> Chair:		<i>2D Materials I</i> Chair:		<i>Quantum Dots I</i> Chair:		<i>Topological Systems</i> Chair:		<i>Quantum Dots II</i> Chair:
10:40-11:20	T. Meunier (CNRS Grenoble)	10:40-11:20	V. Fatemi (MIT Boston)	10:40-11:20	D. Gershoni (Technion)	10:40-11:20	L. Molenkamp (Univ. Würzburg)	10:40-11:20	A. Kurzmann (Univ. Duisburg-Essen)
11:20-12:00	D. Loss (Univ. Basel)	11:20-12:00	B. Urbaszek (INSA Toulouse)	11:20-12:00	P. Lohdal (Univ. Kopenhagen)	11:20-12:00	Y. Meir (Ben Gurion Univ.)	11:20-12:00	K. Müller (WSI/TU München)
12:00-17:15	Afternoon Break	12:00-17:15	Afternoon Break	12:00-17:00	Afternoon Break	12:00-17:15	Afternoon Break	13:00-16:00	Afternoon Break / Ski Race
	<i>Topological Systems</i> Chair:		<i>2D Materials II</i> Chair:		POSTER SESSION		<i>Nanowires</i> Chair:		<i>Devices</i> Chair:
17:15-17:55	N. Samarth (Penn State Univ.)	17:15-17:55	A. V. Stier (Los Alamos National Lab.)	17:00-20:30	POSTER SESSION at "Gemeindesaal" (Mauterndorf city center)	17:15-17:55	J.C. Harmand (C2N Marcoussis)	17:15-17:45	B. Schwarz (TU Wien)
17:55-18:35	M. Karalic (ETH Zürich)	17:55-18:35	F. Langer (Univ. Regensburg)			17:55-18:35	A. Fontcuberta i Morral (EPFL Lausanne)	17:45-18:15	A. Matkovic (MU Leoben)
18:35-18:55	Coffee Break	18:35-18:55	Coffee Break			18:35-18:55	Coffee Break	18:15-18:45	M. Kaltenbrunner (Univ. Linz)
	<i>Josephson Junctions & Nanolithography</i> Chair:		<i>Photonics</i> Chair:				<i>Quantum Transport</i> Chair:	18:45-18:55	Closing
18:55-19:35	A. Brinkman (Univ. Twente)	18:55-19:35	M. Bayer (Univ. Dortmund)			18:55-19:35	C. Schönenberger (Univ. Basel)	19:15-22:00	Farewell Party
19:35-20:15	U. Dürig (Swiss Litho, Zürich)	19:35-20:15	A. Szameit (Univ. Rostock)			19:35-20:15	B. Frieß (MPI Stuttgart)		
						20:15-22:00	Program Committee Meeting (Schlossschänke)		

Benedikt Frieß MPI-FKF Stuttgart	<i>Spin and Charge Ordering in the Quantum Hall Regime</i>
Daniel Loss University of Basel	<i>Majorana and Parafermions in Interacting Rashba Nanowires</i>
List of Speakers	
Monday	
Morning - Transport, Qubits & Majoranas	
Klaus von Klitzing MPI-FKF Stuttgart	<i>Opening: 40 years Mauterndorf Winterschool</i>
Achim Wixforth University of Augsburg	<i>The Perfect Wave</i>
Tristan Meunier Institut NÉEL, CNRS Grenoble	<i>Coherent Long-range Displacement of Individual Electron Spins</i>
Daniel Loss University of Basel	<i>Majorana and Parafermions in Interacting Rashba Nanowires</i>
Afternoon - Topological Systems & Nanofabrication	
Nitin Samarth Penn State University	<i>The quantum anomalous Hall effect in magnetically-doped topological insulators</i>
Matija Karalic ETH Zürich	<i>Lateral p-n Junctions in Inverted InAs/GaSb Double Quantum Wells</i>
Alexander Brinkman University of Twente	<i>Observation of 4π-periodic supercurrent in Bi1-xSbx Dirac semimetal based Josephson junctions</i>
Urs Dürig Swiss Litho AG, Zürich	<i>Thermal Scanning Probe Lithography: Expanding the fabrication horizon in nano science</i>
Tuesday	
Morning - 2D Materials	

Artem Mishchenko University of Manchester	<i>Minimalistic approach to van der Waals heterostructures</i>
Valla Fatemi, MIT, Boston	<i>The Many Phases of Two-Dimensional WTe₂</i>
Andreas Stier National High Magnetic Field Laboratory, Los Alamos	<i>Excitons in monolayer semiconductors: Mass, size, and dielectric screening from high magnetic field spectroscopy</i>

Afternoon - 2D Materials & Photonics

Bernhard Urbaszek INSA Toulouse	<i>Optical properties and Spin-Valley Physics in 2D semiconductors</i>
Fabian Langer University of Regensburg	<i>Lightwave-driven electron-hole collisions in layered materials</i>
Alexander Szameit University of Rostock	<i>Topological Photonics</i>
Manfred Bayer TU Dortmund	<i>Interacting Rydberg Excitons in Cuprous Oxide</i>

Wednesday

Morning - Quantum Dots

Peter Michler University of Stuttgart	<i>Quantum dots for photonic quantum technologies</i>
David Gershoni Technion, Israel	<i>The quantum knitting machine: a quantum dot as device for deterministic production of cluster states of many</i>
Peter Lodahl University of Copenhagen	<i>Single-Photon Quantum Technology with Quantum Dots</i>

Thursday

Morning - Topological

Arthur Ernst University of Linz	<i>Exchange interaction in magnetic topological insulators and related materials</i>
Laurens Molenkamp University of Würzburg	<i>(Title to be announced)</i>
Yigal Meir Ben-Gurion University Beersheba, Israel	<i>Spontaneous breakdown of topological protection in two dimensions</i>

Afternoon - Nanowires & Transport

Jean-Christophe Harmand C2N Marcoussis	<i>Growth of GaAs nanowires observed by in situ TEM</i>
Anna Fontcuberta i Morral EPFL Lausanne	<i>Semiconductor nanowires for applications in future technologies?</i>
Christian Schönenberger University of Basel	<i>Conductance Oscillations along PN-Junctions in Graphene due to Isospin, Snake/Skipping and Aharonov-Bohm Physics</i>
Benedikt Frieß MPI-FKF Stuttgart	<i>Spin and Charge Ordering in the Quantum Hall Regime</i>

Friday

Morning - Qubits and Quantum Dots

Jörg Wrachtrup University of Stuttgart	<i>(Title to be announced)</i>
Annika Kurzmann University of Duisburg-Essen	<i>Optical detection of charge carrier dynamics in a self-assembled quantum dot</i>

Kai Müller
WSI, TU München

Generation of single-photon and two-photon pulses from a quantum two-level system

Afternoon - Devices

Benedikt Schwarz
TU Wien

Mid-infrared frequency combs: Laser dynamics and miniaturized devices

Aleksandar Matkovic
Montan University Leoben

Interfaces between 2D materials and organic semiconductors

Martin Kaltenbrunner
University of Linz

Metal Halide Perovskites for Ultrathin Solar Cells and Light Emitting Diodes using Nanoporous Thin Films