



Österreichische  
Physikalische  
Gesellschaft



# Gemeinsame Jahrestagung in Innsbruck 30. August - 3. September 2021

Universität Innsbruck, Technik Campus

## Joint Annual Meeting in Innsbruck 30 August - 3 September 2021

### Programmübersicht Program Overview



in Zusammenarbeit mit - in collaboration with



# Joint Annual Meeting in Innsbruck 2021

Schedule Thursday 02.09.2021

TIME	Rooms			TIME
	A (ground floor)	B (first floor)	C (ground floor)	
08:00	<i>Registration</i>			08:00
	<b>PLENARY SESSION</b>			
09:00	8 Hans Peter Beck (p)			09:00
09:10				09:10
09:20				09:20
09:30				09:30
09:40	9 Martina Merz (p)			09:40
09:50				09:50
10:00				10:00
10:10				10:10
10:20	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	10:20
10:30				10:30
10:40				10:40
10:50	10 Michael Benedikt (p)			10:50
11:00				11:00
11:10				11:10
11:20				11:20
11:30	11 Kenny Choo (i)			11:30
11:40				11:40
11:50				11:50
12:00	12 Aleksandar Matković (i)			12:00
12:10	13 Karin Hain (i)			12:10
12:20				12:20
12:30	14 Patrick Haworth Owen (i)			12:30
12:40				12:40
12:50				12:50
13:00	<i>Poster Session and Lunchbuffet</i>	<i>Poster Session and Lunchbuffet</i>	<i>Poster Session and Lunchbuffet</i>	13:00
	<b>KOND</b>	<b>FAKT - TASK</b>	<b>Surfaces, Interfaces and Thin Films</b>	
14:30	141 Niels B. M. Schröter (i)	362 Ingo Rienäcker	241 Florian Lackner	14:30
14:45		363 Stergiani Marina Vogiatzi	242 Dirk Hegemann	14:45
15:00	142 Lukas Sieberer	364 Giovanni Dal Maso	243 Vladyslav Romankov	15:00
15:15	143 Patrick M. Lenggenhager	365 Bernd Michael Stechauner	244 Eduardo Martínez Castellano	15:15
15:30	144 Aleksandra Nelson	366 Ryoto Iwai	245 Serguei Sekatski	15:30
15:45	145 Paolo Mognini	367 Irene Cortinovis	246 Vladimir N. Strocov	15:45
16:00	146 Valerio Peri	368 Jonas Nuber	247 Alexey Minenkov	16:00
16:15				16:15
16:30	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	16:30
16:45				16:45
17:00	151 Barbara Schneider	371 Vasile Mihai Ghete		17:00
17:15	152 Sebastian Stock	372 Benjamin Banto Oberhauser		17:15
17:30	153 Georg Marschick	373 Henri Hugo Sieber		17:30
17:45	154 Mauro David	374 Fabian Zierler		17:45
18:00	155 Rocío Sáez-Blázquez	375 Alexander Martin Stauffer		18:00
18:15	156 Benedikt Limbacher	376 Philipp Peter Blumer		18:15
18:30	157 Fatme Hakka	377 Raphaela Wutte		18:30
18:45	158 Franz Wenzl	378 Helmut Leeb		18:45
19:00	<i>Transfer to Dinner</i>			19:00
19:15	<i>Conference Dinner</i>			19:15
19:30				19:30
19:45				19:45
20:00				20:00
				20:30
22:30				22:30

(p) = Plenary talk, (i) = Invited talk

361 *cancelled*

Thursday, 02.09.2021, Room C

Time	ID	<b>SURFACES, INTERFACES AND THIN FILMS V: THIN FILMS AND INTERFACES</b> <i>Chair: Martin Sterrer, TU Graz</i>
14:30	241	<p align="center"><b>Core@multi-shell structures in helium droplets: Au nanoparticles covered by a hexane layer and rhodamine B fluorophores</b></p> <p align="center"><i>Florian Lackner, Roman Messner, Wolfgang E. Ernst Institute of Experimental Physics, Graz University of Technology</i></p> <p>Nanoparticles comprising three different materials in a core@shell@shell configuration are synthesized in cold helium droplets by sequential doping. Rhodamine B molecules form complexes in helium droplets that give rise to a strong fluorescence upon laser excitation, enabling an in situ investigation of the synthesized structures. In the presence of a Au core, fluorescence from the rhodamine B shell is quenched due to excitation transfer from excited molecules to the Au particle. The addition of an intermediate hexane layer inhibits the contact between Au core and rhodamine B shell, which results in the recovery of the fluorescence.</p>
14:45	242	<p align="center"><b>Color-Changing Coatings to Detect Critical-Temperature Conditions in High-Performance Fiber Applications</b></p> <p align="center"><i>Dirk Hegemann<sup>1</sup>, Martin Amberg<sup>1</sup>, Henning Galinski<sup>2</sup>, Ralph Spolenak<sup>2</sup> <sup>1</sup>Empa, <sup>2</sup>ETHZ D-MATL</i></p> <p>High performance synthetic fibers are increasingly applied in fields where they might be exposed to elevated temperatures. Above a critical temperature, <math>T_c</math>, however, they lose their mechanical properties resulting in unexpected failure under load. To enable a passive sensor monitoring the temperature history, we introduce a method to functionalize polymer fibers with ultrathin thermochromic optical coatings by Magnetron sputtering based on chalcogenide phase change materials. The optical contrast for the amorphous-to-crystalline transition of GeSbTe (GST) upon heating to <math>T_c</math> was enhanced by reflectors. We found, that the color change can be adjusted by the Ge content to the demanded temperature range matching <math>T_c</math> of industrially important polymer fibers.</p>
15:00	243	<p align="center"><b>Growth and morphology of ultrathin lithium fluoride deposited on Ag(100)</b></p> <p align="center"><i>Vladyslav Romankov, Jan Dreiser, Paul Scherrer Institut</i></p> <p>Lithium fluoride (LiF) is an interesting material for spintronic applications [1] and a potential candidate for decoupling single-molecule magnets from metallic substrates.[2] We have investigated the growth and morphology of LiF deposited onto the Ag(100) surface in the monolayer regime under different conditions. Scanning tunneling microscopy, low energy electron diffraction and polarized X-ray absorption spectroscopy reveal that LiF exhibits epitaxial Volmer-Weber type growth. When the substrate is held at room temperature during growth, anisotropic and strained dendrites form, while at 500 K LiF self-assembles into more relaxed square islands displaying a Moiré pattern.</p> <p>[1] Drew et al., Nature Materials, 8, 109 (2009); [2] Wäckerlin et al., Advanced Materials, 28, 5142 (2016).</p>
15:15	244	<p align="center"><b>Hybrid plasmon-phonon surface modes at CdZnO-sapphire interfaces: Grating coupling and applications</b></p> <p align="center"><i>Eduardo Martínez Castellano<sup>1</sup>, Georg Marschick<sup>2</sup>, Julen Tamayo-Arriola<sup>1</sup>, Javier Yeste<sup>3</sup>, Miguel Montes Bajo<sup>1</sup>, Vicente Muñoz-Sanjosé<sup>3</sup>, Gottfried Strasser<sup>2</sup>, Borislav Hinkov<sup>2</sup>, Adrián Hierro<sup>1</sup> <sup>1</sup> Universidad Politécnica de Madrid, <sup>2</sup> TU Wien, <sup>3</sup> Universitat de València</i></p> <p>Recently, CdO has been proposed as a very promising material for IR plasmonics due to its high plasma frequency and low damping. However, low propagation lengths and broad minima are common limitations with CdO surface plasmons. To overcome these limitations, we propose the use of thin high quality crystalline CdZnO layers grown on sapphire substrate. Hybrid surface modes arise from the interaction between the high energy phonons of the sapphire and CdZnO surface plasmons. Here, we design and realize gold gratings to such CdZnO layers and successfully couple mid-IR light with these hybrid modes and discuss their potential applications.</p>