

## Thin Films Division Fachverband Dünne Schichten (DS)

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### Overview of Invited Talks and Sessions

(Lecture halls H1, H3, and H5; Poster P)

#### Topical Talks

DS 5.1	Tue	13:30–14:00	H3	<b>Single crystal diamond grown by CVD: state of the art, current challenges and applications</b> — ●JEAN-CHARLES ARNAULT, SAMUEL SAADA, VICTOR RALCHENKO
DS 5.2	Tue	14:00–14:30	H3	<b>Tuning Semiconductor Mode-Locked Laser Frequency Combs by Gain and Cavity Design</b> — STEFAN MEINECKE, ●KATHY LÜDGE
DS 5.3	Tue	14:30–15:00	H3	<b>Monolayer-thick GaN/AlN heterostructures for UVB &amp; UVC ranges: technology, design and properties</b> — VALENTIN JMERIK, ALEXEY TOROPOV, VALERY DAVYDOV, ●SERGEY IVANOV
DS 5.4	Tue	15:15–15:45	H3	<b>Optical and vibrational properties of layered 2D materials</b> — ●JANINA MAULTZSCH
DS 5.5	Tue	15:45–16:15	H3	<b>Organic/inorganic low dimensional material systems: Fundamental aspects and device applications</b> — ●EMIL LIST-KRATOCHVIL
DS 6.1	Thu	13:30–14:00	H1	<b>Exceptional Topology of Non-Hermitian Systems: from Theoretical Foundations to Novel Quantum Sensors</b> — ●JAN CARL BUDICH
DS 6.2	Thu	14:00–14:30	H1	<b>In situ fabrication of (Bi,Sb)-based topological insulator - superconductor hybrid devices</b> — ●PETER SCHÜFFELGEN
DS 6.3	Thu	14:30–15:00	H1	<b>Atomic monolayers as two-dimensional topological insulators</b> — ●RALPH CLAESSEN
DS 6.4	Thu	15:15–15:45	H1	<b>Topological Insulator Lasers</b> — ●MORDECHAI SEGEV
DS 6.5	Thu	15:45–16:15	H1	<b>TBA</b> — ●MORAIS SMITH

#### Invited talks of the joint symposium SKM Dissertation Prize 2021 (SYSD)

See SYSD for the full program of the symposium.

SYSD 1.1	Mon	10:00–10:25	Audimax 2	<b>Avoided quasiparticle decay from strong quantum interactions</b> — ●RUBEN VERRESEN, RODERICH MOESSNER, FRANK POLLMANN
SYSD 1.2	Mon	10:25–10:50	Audimax 2	<b>Co-evaporated Hybrid Metal-Halide Perovskite Thin-Films for Optoelectronic Applications</b> — ●JULIANE BORCHERT
SYSD 1.3	Mon	10:55–11:20	Audimax 2	<b>Attosecond-fast electron dynamics in graphene and graphene-based interfaces</b> — ●CHRISTIAN HEIDE
SYSD 1.4	Mon	11:20–11:45	Audimax 2	<b>The thermodynamics of stochastic systems with time delay</b> — ●SARAH A.M. LOOS
SYSD 1.5	Mon	11:50–12:15	Audimax 2	<b>First Results on Atomically Resolved Spin-Wave Spectroscopy by TEM</b> — ●BENJAMIN ZINGSEM

#### Invited talks of the joint symposium Advanced neuromorphic computing hardware: Towards efficient machine learning (SYNC)

See SYNC for the full program of the symposium.

SYNC 1.1	Wed	10:00–10:30	Audimax 1	<b>Equilibrium Propagation: a Road for Physics-Based Learning</b> — •DAMIEN QUERLIOZ
SYNC 1.2	Wed	10:30–11:00	Audimax 1	<b>Machine Learning and Neuromorphic Computing: Why Physics and Complex Systems are Indispensable</b> — •INGO FISCHER
SYNC 1.3	Wed	11:00–11:30	Audimax 1	<b>Photonic Tensor Core Processor and Photonic Memristor for Machine Intelligence</b> — •VOLKER SORGER
SYNC 1.4	Wed	11:45–12:15	Audimax 1	<b>Material learning with disordered dopant networks</b> — •WILFRED VAN DER WIEL
SYNC 1.5	Wed	12:15–12:45	Audimax 1	<b>In-memory computing with non-volatile analog devices for machine learning applications</b> — •JOHN PAUL STRACHAN

### Prize talks of the joint Awards Symposium (SYAW)

See SYAW for the full program of the symposium.

SYAW 1.1	Wed	13:30–14:00	Audimax 1	<b>Organic semiconductors - materials for today and tomorrow</b> — •ANNA KÖHLER
SYAW 1.2	Wed	14:00–14:30	Audimax 1	<b>PbTe/CdTe nanocomposite as an attractive candidate for room-temperature infrared detectors</b> — •GRZEGORZ KARCZEWSKI
SYAW 1.3	Wed	14:40–15:10	Audimax 1	<b>Fingerprints of correlation in electronic spectra of materials</b> — •LUCIA REINING
SYAW 1.4	Wed	15:10–15:40	Audimax 1	<b>Artificial Spin Ice: From Correlations to Computation</b> — •NAËMI LEO
SYAW 1.5	Wed	15:40–16:10	Audimax 1	<b>From microwave optomechanics to quantum transport – carbon nanotubes as highly versatile hybrid devices</b> — •ANDREAS K. HÜTTEL
SYAW 1.6	Wed	16:20–16:50	Audimax 1	<b>Quantum spin dynamics of a spin-1/2 antiferromagnetic Heisenberg-Ising chain</b> — •ZHE WANG
SYAW 1.7	Wed	16:50–17:20	Audimax 1	<b>Imaging the effect of electron transfer at the atomic scale</b> — •LAERTE PATERA

### Invited talks of the joint symposium Spain as Guest of Honor (SYES)

See SYES for the full program of the symposium.

SYES 1.1	Wed	13:30–13:40	Audimax 2	<b>DFMC-GEFES</b> — •JULIA HERRERO-ALBILLOS
SYES 1.2	Wed	13:40–14:10	Audimax 2	<b>Towards Phononic Circuits based on Optomechanics</b> — •CLIVIA M. SOTOMAYOR TORRES
SYES 1.3	Wed	14:10–14:40	Audimax 2	<b>Adding magnetic functionalities to epitaxial graphene</b> — •RODOLFO MIRANDA
SYES 1.4	Wed	14:45–15:15	Audimax 2	<b>Bringing nanophotonics to the atomic scale</b> — •JAVIER AIZPURUA
SYES 1.5	Wed	15:15–15:45	Audimax 2	<b>Hydrodynamics of collective cell migration in epithelial tissues</b> — •JAUME CASADEMUNT
SYES 1.6	Wed	15:45–16:15	Audimax 2	<b>Understanding the physical variables driving mechanosensing</b> — •PERE ROCA-CUSACHS

### Invited talks of the joint symposium Attosecond and coherent spins: New frontiers (SYAS)

See SYAS for the full program of the symposium.

SYAS 1.1	Thu	10:00–10:30	Audimax 2	<b>Ultrafast Coherent Spin-Lattice Interactions in Iron Films</b> — •STEVEN JOHNSON
SYAS 1.2	Thu	10:30–11:00	Audimax 2	<b>Ultrafast spin, charge and nuclear dynamics: ab-initio description</b> — •SANGEETA SHARMA, JOHN KAY DEWHURST
SYAS 1.3	Thu	11:15–11:45	Audimax 2	<b>Light-wave driven Spin Dynamics</b> — •MARTIN SCHULTZE, MARKUS MÜNZENBERG, SANGEETA SHARMA
SYAS 1.4	Thu	11:45–12:15	Audimax 2	<b>All-coherent subcycle switching of spins by THz near fields</b> — •CHRISTOPH LANGE, STEFAN SCHLAUDERER, SEBASTIAN BAIERL, THOMAS EBNET, CHRISTOPH SCHMID, DARREN VALOVICIN, ANATOLY ZVEZDIN, ALEXEY KIMEL, ROSTISLAV MIKHAYLOVSKIY, RUPERT HUBER

SYAS 1.5 Thu 12:15–12:45 Audimax 2 **Ultrafast optically-induced spin transfer in ferromagnetic alloys**  
— ●STEFAN MATHIAS

### Invited talks of the joint symposium Physics of van der Waals 2D heterostructures (SYWH)

See SYWH for the full program of the symposium.

SYWH 1.1 Thu 13:30–14:00 Audimax 2 **Spin interactions in van der Waals topological materials and magnets** — ●SAROJ DASH

SYWH 1.2 Thu 14:00–14:30 Audimax 2 **Exciton optics, dynamics and transport in atomically thin materials** — ●ERMIN MALIC, SAMUEL BREM, RAUL PEREA-CAUSIN, DANIEL ERKENSTEN, ROBERTO ROSATI

SYWH 1.3 Thu 14:30–15:00 Audimax 2 **Correlated Electrons in van der Waals Superlattices: Control and Understanding** — ●TIM WEHLING

SYWH 1.4 Thu 15:15–15:45 Audimax 2 **Exciton manipulation and transport in 2D semiconductor heterostructures** — ●ANDRAS KIS

SYWH 1.5 Thu 15:45–16:15 Audimax 2 **Chern Insulators, van Hove singularities and Topological Flatbands in Magic-angle Twisted Bilayer Graphene\*** — ●EVA ANDREI, SHUANG WU, ZHENYUAN ZHANG

### Sessions

DS 1.1–1.4	Mon	10:00–11:00	H3	<b>Thin Film Properties</b>
DS 2.1–2.7	Mon	11:15–13:00	H3	
DS 3.1–3.9	Mon	13:30–16:15	H4	<b>2D materials and their heterostructures (joint session DS/HL/CPP)</b>
DS 4.1–4.27	Tue	10:00–13:00	P	<b>2D semiconductors and van der Waals heterostructures I (joint session HL/DS)</b>
DS 5.1–5.5	Tue	13:30–16:15	H3	<b>Poster</b>
DS 6.1–6.5	Thu	13:30–16:15	H1	<b>Focus Session: Highlights of Materials Science and Applied Physics I (joint session DS/HL)</b>
DS 7.1–7.4	Thu	15:15–16:15	H5	<b>Focus Session: Topological Phenomena in Synthetic Matter (joint session DS/HL)</b>
DS 8	Thu	18:00–19:00	MVDS	<b>Thin Oxides and Organic Thin Films (joint session DS/CPP)</b>
DS 9.1–9.4	Fri	10:00–11:00	H1	<b>Annual General Meeting of the Thin Films Division</b>
DS 10.1–10.7	Fri	11:15–13:00	H1	<b>Focus Session: Highlights of Materials Science and Applied Physics II (joint session DS/HL)</b>
DS 11.1–11.5	Fri	13:30–14:45	H4	<b>Focus Session: Highlights of Materials Science and Applied Physics III (joint session DS/HL)</b>
				<b>2D semiconductors and van der Waals heterostructures II (joint session HL/DS)</b>

### Annual General Meeting of the Thin Films Division

Donnerstag 18:00–19:00 MVDS

- Bericht
- Wahl
- Verschiedenes