

## Semiconductor Physics Division Fachverband Halbleiterphysik (HL)

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### Overview of Invited Talks and Sessions

(Lecture halls H 31, H 33, H 34, and H 36; Poster E (in front of H 39))

#### Invited Talks

HL 4.1	Mon	9:30–10:00	H34	<b>The role of suboxide kinetics and thermodynamics for the catalysis and facet formation during the molecular beam epitaxy of oxides</b> — •OLIVER BIERWAGEN
HL 4.2	Mon	10:00–10:30	H34	<b>Is There a Perspective of p-type Doping in Gallium Oxide?</b> — •DAVID ROGERS, FERECHEH TEHERANI, PHILIPPE BOVE, ERIC SANDANA, RYAN MC-CLINTOCK, MANIJEH RAZEGHI
HL 4.3	Mon	10:30–11:00	H34	<b>Highly rectifying contacts on Ga<sub>2</sub>O<sub>3</sub>, In<sub>2</sub>O<sub>3</sub> and (In,Ga)<sub>2</sub>O<sub>3</sub> thin films</b> — •DANIEL SPLITH
HL 4.4	Mon	11:15–11:45	H34	<b>Understanding the impact of vibrations and defects on the optical properties of phosphors</b> — •P. ERHART, C. LINDERÄLV, D ÅBERG, Y.-C. LIN, M BETTINELLI, N. C. GEORGE, S. F. PARKER, M. KARLSSON
HL 4.5	Mon	11:45–12:15	H34	<b>atomically resolved termination engineering of electronic states at oxide semiconductors</b> — •YA-PING CHIU
HL 4.6	Mon	12:15–12:45	H34	<b>Nanoscale Control of Native Point Defects and Doping in Oxide Semiconductors</b> — •LEONARD BRILLSON
HL 6.1	Mon	12:15–12:45	H33	<b>Advanced nanoscale characterization of structural and optical properties of novel Nanostructures using scanning transmission electron microscopy cathodoluminescence</b> — •FRANK BERTRAM
HL 13.1	Tue	9:30–10:00	H31	<b>GaN-based quantum dot single photon sources at room temperature</b> — •YASUHIKO ARAKAWA, MARK HOLMES, MUNETAKA ARITA
HL 13.2	Tue	10:00–10:30	H31	<b>Quantum light generation based on group III-nitride semiconductor nanophotonic structures</b> — •YONG-HOON CHO
HL 13.3	Tue	10:30–11:00	H31	<b>Growth of desorption-induced GaN quantum-dots</b> — •CHRISTOPH BERGER, GORDON SCHMIDT, HANNES SCHÜRMMANN, SEBASTIAN METZNER, PETER VEIT, JÜRGEN BLÄSING, FRANK BERTRAM, ARMIN DADGAR, JÜRGEN CHRISTEN, ANDRÉ STRITTMATTER, STEFAN KALINOSWKI, STEFAN T. JAGSCH, GORDON CALLSEN, MARKUS R. WAGNER, AXEL HOFFMANN
HL 13.6	Tue	11:45–12:15	H31	<b>Nitride single photon sources: quantum dots and defects</b> — •RACHEL OLIVER, TONGTONG ZHU, IGOR AHARONOVICH, ROBERT TAYLOR
HL 13.7	Tue	12:15–12:45	H31	<b>GaN-based single photon emitters</b> — •DONAT JOSEF AS
HL 26.1	Wed	9:30–10:00	H34	<b>GaAs quantum dots as tunable sources of entangled and indistinguishable photons</b> — •ARMANDO RASTELLI
HL 26.3	Wed	10:15–10:45	H34	<b>Phonon-assisted bright and dark exciton preparation in a semiconductor quantum dot</b> — •DORIS REITER

HL 26.5	Wed	11:15–11:45	H34	<b>Towards Quantum Communication Networks Exploiting Solid-State Quantum-Light Sources</b> — ●TOBIAS HEINDEL
HL 26.6	Wed	11:45–12:15	H34	<b>Single Organic Molecules for Quantum Optics</b> — ●ILJA GERHARDT, MOHAMMAD REZAI, JÖRG WRACHTRUP
HL 26.8	Wed	12:30–13:00	H34	<b>Quantum repeater development based on entangled photons from quantum dots</b> — ●MICHAEL ZOPF, ROBERT KEIL, YAN CHEN, JINGZHONG YANG, FEI DING, OLIVER G. SCHMIDT
HL 30.1	Wed	12:15–12:45	H33	<b>Topology-driven excitonic Aharonov–Bohm effect in core–multishell nanowires</b> — ●VLADIMIR M. FOMIN, PIERRE CORFDIR, OLIVER MARQUARDT, RYAN B. LEWIS, CHIARA SINITO, MANFRED RAMSTEINER, ACHIM TRAMPERT, UWE JAHN, LUTZ GEELHAAR, OLIVER BRANDT

### Invited talks of the joint Symposium SKM Dissertation-Prize 2019

See SYSD for the full program of the symposium.

SYSD 1.1	Mon	9:30– 9:50	H2	<b>Synchronization and Waves in Confined Complex Active Media</b> — ●JAN FREDERIK TOTZ
SYSD 1.2	Mon	9:50–10:10	H2	<b>Spin scattering of topologically protected electrons at defects</b> — ●PHILIPP RÜSSMANN
SYSD 1.3	Mon	10:10–10:30	H2	<b>Beyond the molecular movie: Revealing the microscopic processes behind photo-induced phase transitions</b> — ●CHRIS W. NICHOLSON
SYSD 1.4	Mon	10:30–10:50	H2	<b>Thermodynamic bounds on current fluctuations</b> — ●PATRICK PIETZONKA
SYSD 1.5	Mon	10:50–11:10	H2	<b>Lightwave-driven quasiparticle acceleration</b> — ●FABIAN LANGER
SYSD 1.6	Mon	11:10–11:30	H2	<b>Ultrafast plasmon-driven point-projection electron microscopy</b> — ●JAN VOGELSANG
SYSD 1.7	Mon	11:30–11:50	H2	<b>Helimagnets, sand patterns and fingerprints linked by topology</b> — ●PEGGY SCHÖNHERR

### Invited talks of the joint Symposium Geometry, Topology, and Condensed Matter

See SYGT for the full program of the symposium.

SYGT 1.1	Tue	9:30–10:00	H1	<b>Thermal Properties of Vortices on Curved Surfaces</b> — ●JOSÉ LORENZANA
SYGT 1.2	Tue	10:00–10:30	H1	<b>Curvature-induced effects in manomagnets</b> — ●DENIS SHEKA
SYGT 1.3	Tue	10:30–11:00	H1	<b>Magnetization configurations and reversal of individual ferromagnetic nanotubes</b> — ●MARTINO POGGIO
SYGT 1.4	Tue	11:15–11:45	H1	<b>An experimental perspective on topology and nanoelectronics in graphene and related 2D materials.</b> — ●IVAN J. VERA-MARUN
SYGT 1.5	Tue	11:45–12:15	H1	<b>Roles of the curvature in two-dimensional nematic films</b> — ●GAETANO NAPOLI

### Invited talks of the joint Symposium Interaction Effects and Correlations in twodimensional Systems - New Challenges for Theory

See SYTS for the full program of the symposium.

SYTS 1.1	Wed	15:00–15:30	H1	<b>Spectra of layered semiconductors from many-body perturbation theory</b> — ●MICHAEL ROHLFING
SYTS 1.2	Wed	15:30–16:00	H1	<b>Dark exciton dynamics in 2D materials</b> — ●ERMIN MALIC
SYTS 1.3	Wed	16:00–16:30	H1	<b>Excitons versus electron-hole plasma in monolayer transition metal dichalcogenide semiconductors</b> — ●ALEXANDER STEINHOFF
SYTS 1.4	Wed	16:45–17:15	H1	<b>Theory of near K-point optical properties of TMDC multilayers</b> — ●TINEKE STROUCKEN
SYTS 1.5	Wed	17:15–17:45	H1	<b>High-throughput modeling and discovery of novel 2D materials</b> — ●KRISTIAN THYGESEN

### Invited talks of the joint Symposium Czech Republic as Guest of Honor

See SYCZ for the full program of the symposium.

SYCZ 1.1	Thu	9:30–10:00	H4	<b>Crystal symmetries and transport phenomena in antiferromagnets</b> — •TOMAS JUNGWIRTH
SYCZ 1.2	Thu	10:00–10:30	H4	<b>Terahertz subcycle charge and spin control</b> — •RUPERT HUBER
SYCZ 1.3	Thu	10:30–11:00	H4	<b>1D molecular system on surfaces</b> — •PAVEL JELINEK
SYCZ 1.4	Thu	11:15–11:45	H4	<b>Tunneling microscopy on insulators provides access to out-of-equilibrium charge states</b> — •JASCHA REPP
SYCZ 1.5	Thu	11:45–12:15	H4	<b>Occam’s razor and complex networks from brain to climate</b> — •JAROSLAV HLINKA
SYCZ 1.6	Thu	12:15–12:45	H4	<b>Long range temporal correlations in complex systems</b> — •HOLGER KANTZ

### Invited talks of the joint Symposium Interactions and Spin in 2D Heterostructures

See SYIS for the full program of the symposium.

SYIS 1.1	Thu	15:00–15:30	H1	<b>Magic Angle Graphene: a New Platform for Strongly Correlated Physics</b> — •PABLO JARILLO-HERRERO
SYIS 1.2	Thu	15:30–16:00	H1	<b>Bilayer Graphene Quantum Devices</b> — •KLAUS ENSSLIN
SYIS 1.3	Thu	16:00–16:30	H1	<b>Light-Matter interaction in van der Waals heterostructures</b> — •TOBIAS KORN
SYIS 1.4	Thu	16:45–17:15	H1	<b>Spin transport in Van der Waals materials and heterostructures</b> — •BART VAN WEES
SYIS 1.5	Thu	17:15–17:45	H1	<b>Flipping the valley in graphene quantum dots</b> — •MARKUS MORGENSTERN

### Invited talks of the joint Symposium Identifying Optimal Physical Implementations for beyond von Neumann Computing Concepts

See SYCC for the full program of the symposium.

SYCC 1.1	Fri	9:30–10:00	H1	<b>On the Link Between Energy and Information for the Design of Neuromorphic Systems</b> — •NARAYAN SRINIVASA
SYCC 1.2	Fri	10:00–10:30	H1	<b>Encoding neural and synaptic functionalities in electron spin: A pathway to efficient neuromorphic computing</b> — •KAUSHIK ROY
SYCC 1.3	Fri	10:30–11:00	H1	<b>Neuromorphic computing with spintronic nano-oscillators</b> — •PHILIPPE TALATCHIAN
SYCC 1.4	Fri	11:15–11:45	H1	<b>Artificial Intelligence and beyond von Neumann architectures, a mutual opportunity</b> — •MIRKO PREZIOSO
SYCC 1.5	Fri	11:45–12:15	H1	<b>Brain-inspired approaches in ultrafast magnetism</b> — •JOHAN H. MENTINK

### Sessions

HL 1.1–1.3	Sun	16:00–18:15	H4	<b>Tutorial: Resistive Switching: From basic physics of memristive devices to neuromorphic systems (joint session HL/TUT)</b>
HL 2.1–2.14	Mon	9:30–13:15	H31	<b>Nitrides: Devices</b>
HL 3.1–3.9	Mon	9:30–12:00	H33	<b>Semiconductor lasers and Photonic crystals</b>
HL 4.1–4.6	Mon	9:30–12:45	H34	<b>Focus Session: Oxide Semiconductors for Novel Devices I (joint session HL/DS)</b>
HL 5.1–5.15	Mon	9:30–13:30	H36	<b>Topological insulators</b>
HL 6.1–6.1	Mon	12:15–12:45	H33	<b>Invited talk Bertram</b>
HL 7.1–7.8	Mon	15:00–17:15	H31	<b>Organic photovoltaics and electronics (joint session HL/PPP)</b>
HL 8.1–8.10	Mon	15:00–17:30	H33	<b>Transport and theory of electronic structure</b>
HL 9.1–9.10	Mon	15:00–17:30	H34	<b>Focus Session: Oxide Semiconductors for Novel Devices II</b>
HL 10.1–10.8	Mon	15:00–17:15	H36	<b>Quantum information systems</b>
HL 11.1–11.9	Mon	15:00–18:40	PHY 5.0.20	<b>Focus: Advanced TEM spectroscopy - low energy excitations and chemical composition at high resolution (joint session KFM/HL)</b>
HL 12.1–12.71	Mon	17:30–20:00	Poster E	<b>HL Poster I</b>
HL 13.1–13.7	Tue	9:30–12:45	H31	<b>Focus Session: GaN-based single photon emitters</b>

HL 14.1–14.9	Tue	9:30–13:15	H32	<b>PhD-Symposium: Photoluminescence of halide perovskites: What does it tell us and what not? (joint session DS/AKjDPG/HL)</b>
HL 15.1–15.7	Tue	9:30–11:15	H33	<b>Energy materials (other than photovoltaics)</b>
HL 16.1–16.14	Tue	9:30–13:15	H34	<b>Focus Session: Oxide Semiconductors for Novel Devices III</b>
HL 17.1–17.13	Tue	9:30–13:00	H36	<b>Two-dimensional Materials I (joint session HL/CPP)</b>
HL 18.1–18.6	Tue	9:30–12:00	PHY 5.0.20	<b>Diamond I (joint session KFM/HL)</b>
HL 19.1–19.5	Tue	11:30–12:45	H33	<b>Thermoelectricity</b>
HL 20.1–20.5	Tue	14:00–15:15	H31	<b>Optical Properties</b>
HL 21.1–21.6	Tue	14:00–15:30	H33	<b>Quantum Nanophotonics in Solid State Systems</b>
HL 22.1–22.7	Tue	14:00–15:45	H34	<b>Quantum dots and wires: Transport properties</b>
HL 23.1–23.7	Tue	14:00–15:45	H36	<b>Two-dimensional Materials II: graphene (joint session HL/CPP)</b>
HL 24.1–24.13	Wed	9:30–13:00	H31	<b>Nitrides: Preparation and characterization I</b>
HL 25.1–25.9	Wed	9:30–12:00	H33	<b>Group IV (other than C): Si/Ge/SiC</b>
HL 26.1–26.8	Wed	9:30–13:00	H34	<b>Focus Session: Quantum light sources for applications in quantum communication networks</b>
HL 27.1–27.13	Wed	9:30–13:00	H36	<b>Two-dimensional Materials III (joint session HL/CPP)</b>
HL 28.1–28.5	Wed	9:30–11:30	PHY 5.0.20	<b>Diamond II (joint session KFM/HL)</b>
HL 29.1–29.7	Wed	9:30–12:10	H47	<b>Microscopy, Tomography and Spectroscopy with X-ray Photons, Electrons, Ions and Positrons (joint session KFM/HL)</b>
HL 30.1–30.1	Wed	12:15–12:45	H33	<b>Invited talk Fomin</b>
HL 31.1–31.8	Wed	15:00–17:15	H31	<b>Nitrides: Preparation and characterization II</b>
HL 32.1–32.9	Wed	15:00–17:30	H33	<b>Spintronics</b>
HL 33.1–33.9	Wed	15:00–17:30	H34	<b>Quantum light sources</b>
HL 34.1–34.9	Wed	15:00–17:30	H36	<b>Photovoltaics (joint session HL/CPP)</b>
HL 35.1–35.72	Wed	17:30–20:00	Poster E	<b>HL Poster II</b>
HL 36.1–36.13	Thu	9:30–13:00	H31	<b>II-VI- and III-V-semiconductors</b>
HL 37.1–37.9	Thu	9:30–12:45	H32	<b>Focus Session: Growth, Properties and Application of Epitaxial Graphene (joint session DS/O/HL)</b>
HL 38.1–38.7	Thu	9:30–11:15	H33	<b>Organic semiconductors</b>
HL 39.1–39.12	Thu	9:30–12:45	H34	<b>Quantum dots and wires: Optical properties I</b>
HL 40.1–40.13	Thu	9:30–13:00	H36	<b>Perovskite and Hybrid Photovoltaics I (joint session HL/CPP)</b>
HL 41.1–41.8	Thu	15:00–17:15	H31	<b>Heterostructures, interfaces, and surfaces</b>
HL 42.1–42.8	Thu	15:00–17:15	H34	<b>Quantum dots and wires: Preparation and characterization</b>
HL 43.1–43.9	Thu	15:00–17:30	H36	<b>Perovskite and Hybrid Photovoltaics II (joint session HL/CPP)</b>
HL 44	Thu	17:30–18:30	H34	<b>Annual General Meeting of the Semiconductor Physics Division</b>
HL 45.1–45.67	Thu	18:30–21:00	Poster E	<b>HL Posters III</b>
HL 46.1–46.12	Fri	9:30–12:45	H31	<b>Ultra-fast phenomena</b>
HL 47.1–47.13	Fri	9:30–13:00	H34	<b>Quantum dots and wires: Optical properties II</b>
HL 48.1–48.13	Fri	9:30–13:00	H36	<b>Two-dimensional Materials IV (joint session HL/CPP)</b>

## Annual General Meeting of the Semiconductor Physics Division

Thursday 17:30–18:30 H34

- Bericht
- Wahl
- Verschiedenes