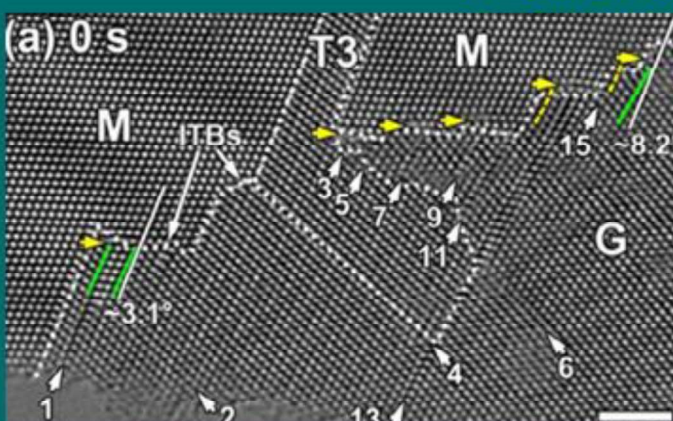
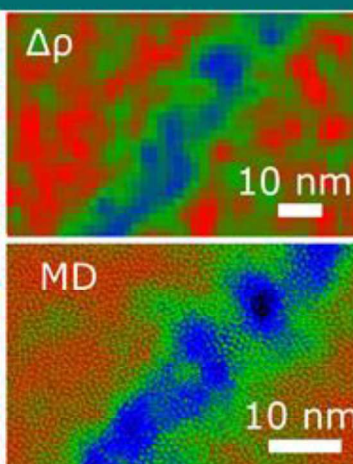
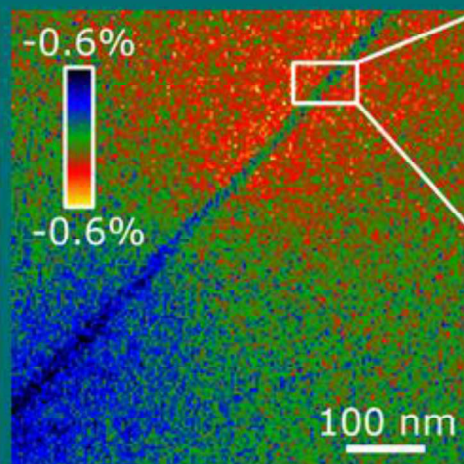
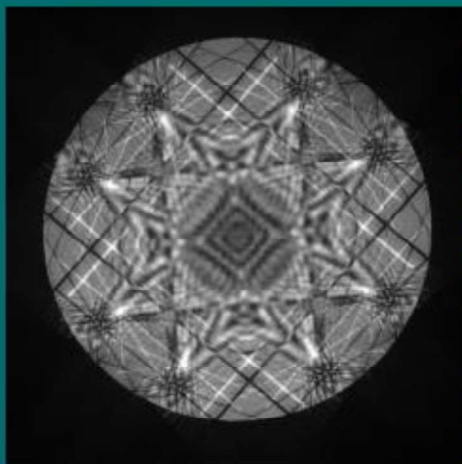
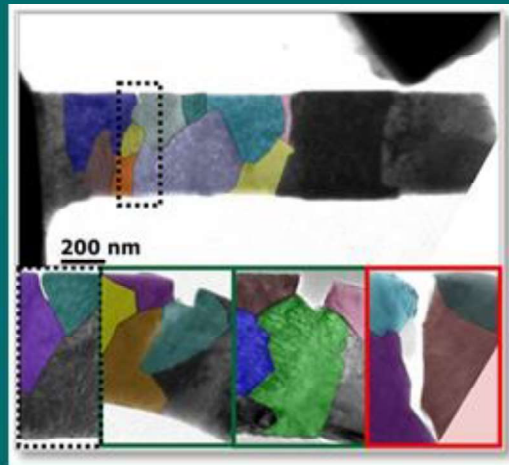


# 15th ASEM Workshop on ADVANCED ELECTRON MICROSCOPY



## Scientific program

Thursday, April 24, 2025

TIME		PAGE
9:30	<b>Registration</b>	
12:35	<b>Opening address</b> (Univ.-Prof. D. Kiener, Vice rector Univ.-Prof. H. Antrekowitsch, KommR W. Mautner)	
12:45	<b>Plenary lecture by</b> Sven Klumpe: Cryo-(P)FIB development from unicellular to multicellular organisms	21
	Stefan Redl: Iron distribution in developing bone after treatment with intravenous iron formulations	22
13:15 – 14:05	Philipp Christ: Probing the Optical Properties of Organic Photovoltaic Materials at the Nano Scale with STEM-EELS	23
	Philip Steiner: Non-Apoptotic Programmed Cell Death in Innate Immune- and Cancer Cells: A Caspase-Independent Mechanism Induced by Thapsigargin	24
	Sponsor presentation: Min Wu (ThermoFisher Scientific)	25
14:05	<b>Coffee break</b>	
14:30	Fritz Grasenick Award ceremony	
14:38	<b>Grasenick Award lecture by</b> Nikola Simic: Gaining Insights into Li-ion Distribution and Diffusion in LiFePO <sub>4</sub> Using Correlated (S)TEM Diffraction, EELS and Atomically Resolved IDPC imaging	26
14:58	<b>Grasenick Award lecture by</b> Bettina Zens: Unveiling the ultra-structural landscape of native extracellular matrix via lift-out cryo-FIBSEM and cryo-ET	27
15:18	Sponsor presentation: Georg Raggl (JEOL)	28
15:30	<b>Coffee break</b>	
	Alexey Minenkov: Correlative Transmission Electron Microscopy for Nanophase Identification in Galvannealed Advanced High-Strength Steel	29
16:00 – 17:00	Thomas Spielauer: Advancing coherent in-situ cryogenic electron spin resonance in scanning electron microscopes	30
	Jana Dzíbelová: Atomic-resolution investigation of 2D hematene	31
	Gerlinde Habler: Orientation relationships between garnet host and rutile inclusions and their interfaces at micro- and nanoscale	32
	Sponsor presentation: Sajjad Tollabimazraehno (Videko)	33
17:00 – 18:00	<b>Poster session 1</b>	54- 73
19:00	<b>Conference dinner</b>	

## Friday, April 25, 2025

TIME		PAGE
9:00	<b>Plenary lecture by</b> Jani Kotakoski: Atomically precise structures tailored into 2D materials	34
9:30 – 10:20	Clara Kofler: From four t(w)o three: How 4D-STEM measurements of 2D materials lead to 3D information	35
	Elena Unterleutner: From Sample Preparation to Data Analysis: Refining STEM-Based Defect Detection in doped SrTiO <sub>3</sub>	36
	Aleksander Brozyniak: Precession Electron Diffraction for modern steel systems	37
	Sponsor presentation by Mikhail Lazarev (Bruker)	38
10:20	<b>Coffee break</b>	
10:45 – 12:00	Sponsor presentation by Eric Hummel (Leica)	39
	Kerstin Hingerl: Mission possible: Cryo-SEM enables a new dimension of sample investigation and visualisation	40
	Hanieh Jafarian: Optical Near-Field Electron Microscopy: a novel non-invasive widefield technique for prolonged nanoscale dynamic imaging	41
	Lukas Schweiger: Nanoporous FeTi – Is there plenty of room at the bottom for hydrogen?	42
	Tatiana Kormilina: Characterization of nanoporous copper materials by STEM tomography, EDX tomography and fine structure EELS	43
	Sponsor presentation by Martin Sláma (Tescan)	44
12:00	<b>Poster session 2</b> and lunch break	74- 90
13:00 – 14:00	Johannes Liesche: Visualizing the dynamic structure of cell walls	45
	Antonin Jaroš: Detection of Spin System Dynamics in TEM	46
	Shrirang Chokappa: Selective defect creation in 2D hexagonal boron nitride via low-energy Ar <sup>+</sup> irradiation	47
	Claire Chisholm: SEM-Based Dislocation Characterization in GaN	48
	Sponsor presentation by Wolfgang Schwinger (Zeiss)	49
14:00	<b>Coffee break</b>	
14:15	<b>General assembly</b>	
15:20 – 16:00	Alexander Preimesberger: Exploring single-photon recoil on free electrons	50
	Lukas Schretter: Revealing extreme variations in local deformation via 4D-STEM-based strain mapping in nanocrystalline gold	51

	Michael Seifner: In-Situ TEM Investigation of Dynamic Processes and Chemical Reactions	52
16:00	<b>Closing</b>	
16:30	Lab tour	

# Poster

## Session 1:

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2	Florian Zrim: Correlation of in situ DIC with EBSD for damage investigation in a three-point bending test of an AA6xxx	55
3	Umair Javed: Atomic-scale control of pore edges in 2D hexagonal boron nitride	56
4	P. Rembold: Entangled Electron-Photon Pairs and How to Find Them	57
5	Bernadette C. Ortner: Imaging and electro-optical characterization of donor networks for diluted donor organic solar cells with D18:L8-BO	58
6	D. Propst: Imaging the atomic structure of xenon implanted diamond with scanning transmission electron microscopy	59
7	D. Hornof: Calibration routine of TimePix 3 for Coincidence Microscopy on a FEI Tecnai G20	60
8	M. Theissing: Using Spherical Indexing for the investigation of Recrystallization in Wrought Aluminum Alloys	61
9	B.M. Mayer : Electron-beam-induced carbon doping of hexagonal boron nitride	62
10	I. C. Bicket: Experimental Considerations for Verifying Electron-Photon Entanglement in a Transmission Electron Microscope	63
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12	Roman Schuster: Role of interface orientation on the microstructure and texture of a spinel corona around a corundum single crystal	65
13	S. Schwarz: Characterization of tire wear particle emissions with Electron Microscopy	66
14	Somar Dibeh: Incorporating platinum single atoms into graphene via two-step implantation	67
15	Simon Fellner: Mapping local elastic strain in disordered materials via in-situ precession nanodiffraction mapping	68
16	Daniel Knez: Automated Thickness Determination from 4DSTEM data using Convolutional Neural Networks	69
17	Manuel Längle: Two-dimensional noble gas clusters in a graphene sandwich	70

18	J. Zalesak: In-situ SEM and ex-situ TEM investigations of chemical and physical processes utilizing $\mu$ Reactor technology	71
19	Wael Joudi: Corrugation-dominated mechanical softening of defect-engineered graphene	72
20	Martin Balabán: Design of Microresonators for the Coherent Manipulation of Spin Systems in a TEM	73

# Poster

## Session 2:

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22	Nandhini Ravindran: Overcoming challenges in the preparation of monolayer hBN TEM samples	75
23	Benedikt Wolfsjäger : Towards hydrogen diffusion modelling with 3D tomography of advanced high-strength steels	76
24	Zequn Zhang: Equiaxed microstructure design enables strength-ductility synergy in the eutectic high-entropy alloy	77
25	Georg Haberfehlner: Pore characterization of hard carbon anodes for sodium storage in sodium ion batteries by 2D and 3D TEM	78
26	E. Odörfer: Simulations of hexagonal boron nitride with varying defect atoms	79
27	Sergei A. Bogdanov: Ghost imaging with electron-photon pairs	80
28	P. Irschik : Atomically clean free-standing two-dimensional materials through heating in ultra-high vacuum	81
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30	Christian Kramberger: Dielectric Sheet Excitations of Graphene	83
31	J. Prechtel: Secondary Phase Measurements on a Large Scale in Aluminum Alloys	84
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33	M. Stöger-Pollach: Low voltage transmission electron microscopy in Austria	86
34	Harald Fitzek: Does it <i>really</i> work like that? – Reproducing publications in a Lab Exercise	87
35	Dominik Hagen: Quantitative SEM-analysis of diatom dispersion in lung tissue of confirmed drowning incidents	88
36	A. Andosch: Advancing extracellular vesicle visualization: A comparative analysis of high-resolution imaging techniques	89
37	David Lamprecht: Uncovering the atomic structure of substitutional platinum dopants in MoS <sub>2</sub> with single-sideband ptychography	90