

# 2025 Spring Meeting

May 26 – 30 | Strasbourg Convention Centre

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## SYMPOSIUM Q

X-ray and neutron methods at large-scale facilities for materials and their processes: microscopy/imaging, diffraction, spectroscopy and spectromicroscopy

> Oral sessions : LUXEMBOURG - GROUND FLOOR Poster sessions : ETOILE - FIRST FLOOR

> > Symposium Organizers:

Ana DIAZ, Paul Scherrer Institute – Photon Science Division, Switzerland

Anatoli POPOV, University of Latvia, Institute of Solid State Physics, Latvia

Jesper WALLENTIN, Lund University; Division of Synchrotron Radiation Research, Sweden

Julie VILLANOVA, European Synchrotron Radiation Facility, France

Peter HEDSTRÖM, KTH Royal Institute of Technology, Sweden

Thomas W. CORNELIUS (Main organizer), Institut Matériaux Microélectronique Nanosciences de Provence (IM2NP), CNRS, France

Tim A. BUTCHER, Max-Born-Institute, Germany

Wei CAO, University of Oulu, Finland

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		Monday May 26		
	<b>QO</b> 1	I Soft/Tender X-rays for characterizing materials		
		Chairperson(s): BUTCHER Tim a.		
	WALLENTIN Jesper			
		View session abstracts		
08:30	2848	Beating the complexity of functional materials and molecules throught the selectivity of soft X-rays		
		FÖHLISCH Alexander (Invited) Investigating Reactant-Rich Liquid Precursor in Cerium Oxalate Crystallization: 3D		
09:00	284	Mapping of Cerium Concentration by Soft X-ray Cryo-Nanotomography RAIMBAULT Jade		
00.15	1100	Coupling TEY and FY mapping: observing Cu species distribution on Renaissance		
03.15	1103	ORSILLI Jacopo		
09:30	577	Simplifying Access to X-ray Absorption Spectroscopy with Laboratory-Based X-ray Spectrometers		
		ARONSTEIN Paul		
09:45	788	FREYCHET Guillaume		
		Monday May 26		
	QO2 In-situ / operando investigation of materials			
		Chairperson(s): CORNELIUS Thomas		
		DIAZ Ana		
		<u>View session abstracts</u>		
10:30	2159	energy materials and devices		
		LTUNNAKU Sandrine (Invited) Multi technique approach for Catalvsis: Ammonia oxidation as case study		
11:00	1182	RESTA Andrea		
11:15	1729	Operando microLaue: a new tool to study electro-chemo-mechanics in battery electrode particle		
11:30	2745	Influence of N <sub>2</sub> on Ag Thin Film Growth – A combined real-time techniques study MICHEL Anny		
11:45	366	High resolution in-situ synchrotron nano-tomography and Al-powered analysis to quantify anode degradation in high energy density LiBs <b>BRUNNER Roland</b>		

## May 26 **manufacturing** (s): CAO Wei

. jM Peter

View session abstracts

manufacturing characterization through advanced

ted)

/ Reflectivity for Characterizing the Growth of 2D

Laser-based Additive Manufacturing through

Studies of the Properties of On-surfaces es

haracterisation of the incipient growth of des via atomic/molecular layer deposition

a synchrotron-based multitechnique approach

acterization by Isolated Diffraction Spot Tracking raction Experiments

## May 26 alysis of materials

POPOV Anatoli i.

VA Julie

View session abstracts

term operated Solid Oxide Cells in steam X-ray nano-analysis techniques.

tions in Axial Heterojunction Perovskite CsPb(Br1led by Operando Nano-focused X-ray Photoelectron

17:15	1432	Multimodal µLaue-XEOL Study of Light-emitting, Crystalline Materials: Application to Nitride Micro-Wires				Tuesday I QO6 Surfaces, interfa
17:30	1675	A Fountain of possibilities – the ID16B beamline at ESRF BENTER Sandra				Chairperson(s): B
17:45	2705	High-Resolution Multimodal Hard X-ray Spectro-Microscopy of Au Microcrystallites				LAU V
		<b>SOW Chaitali</b> Imaging strain fields: a dual synchrotron X ray diffraction approach to advancing	11	0:30	1578	Jani Hariom (Invited)
18:00	2602	semiconductor characterization <b>RODRIGUEZ-LAMAS Raquel</b>	1	1:00	158	Transistors
		Tuesday May 27 QO5 X-ray imaging, tomography	1	1:15	425	Orbital-overlap-driven hybridiz LaMO <sub>3</sub> (M = Ti-Ni) and La <sub>2</sub> CuO <sub>4</sub> <b>Siewierska Katarzyna</b>
		Chairperson(s): DIAZ Ana VILLANOVA Julie	1	1:30	674	Electronic properties of BaZrS <sub>3</sub> Optoelectronic Devices <b>RIVA Stefania</b>
08:30	900	<u>View session abstracts</u> Synchrotron X-ray nano-tomography of Almazium: healing mechanisms of a new high-strength healable aluminium alloy produced by LPBF <b>SIMAR Aude (Invited)</b>	1	1:45	2441	Morphological design and lumin photocatalysts <b>PANKRATOVA Viktorija</b>
09:00	3107	Using synchrotron ptychographic X-ray computed tomography (PXCT) and in situ micro-compression to study fully hybrid 3D metal-ceramic metamaterials <b>GROETSCH Alexander</b>			Q07	Tuesday I 7 Coherence and nano X
09:15	332	Time and Temperature Resolved Nanotomography of Crystallization Processes IHLI Johannes				Chairperson(s): COI WALLENTIN
09:30	980	Capacitors at low temperatures revealed by cryo-synchrotron X-ray phase contrast microtomography VIJAYAKUMAR Jaianth	1	2.45	205	Leveraging X-ray coherence to p
09:45	293	Scanning X-ray nanodiffraction with in-situ mechanical tests DAVYDOK Anton	1.	3.43	202	CALVO-ALMAZÁN Irene (Inv
			1	4:15	497	High Pressure Using Bragg Cohe ZAKARIA Abdelrahman
			1	4:30	350	Coalescence of GaN on Si nano-µ diffraction <b>GERGAUD Patrice</b>
			1	4:45	2372	Perspectives for X-ray scatterir synchrotron sources at the ESR <b>ZONTONE Federico</b>

### May 27 aces, nanostructures BUTCHER Tim a.

Wei

View session abstracts

scale antiferromagnetism

copy In GaN/Si based High Electron Mobility

zation in 3d-transition metal perovskite oxides

thin film surfaces and interfaces for

nescence characterization of ZnIn<sub>2</sub>S<sub>4</sub>-based

### May 27 K-ray diffraction imaging

RNELIUS Thomas

N Jesper

View session abstracts probe the complexity of realistic systems at the

#### vited)

Defect Dynamics in Platinum Nanocrystals Under erent X-ray Diffraction Imaging

-pillars followed by synchrotron X-ray nano

ng exploiting coherence of 4th generation RF beamline ID10

15:00	1231	More than just an image: Multidimensional Nano-Imaging of Dynamic Processes at the ID16B Beamline, ESRF			C	Wednesday 109 Characterization of
15.15	2469	Advances in material characterisation using multi-modal scanning X-ray nanoprobes: with focus on in-situ and in-operando capabilities				Chairperson(s): CO
13.15	2105	KAZEMIAN Majid				DIAZ A
15:30	176	Advancing 3D Diffraction Imaging: ESRF's New IDO3 DFXM Beamline YILDIRIM Can Probing the Key Roles for Driving Water Electrolysis Using Operando X-Ray	0	)8:30	2174	Texture tomography, a new tool Polycrystalline Materials EREW/EIN Moritz (Invited)
15:45	453	Spectroscopy LIN Yan-Gu	0	)9:00	3120	Multi-Scale Structural Characte Photonic Applications DIAZ Ana
		Tuesday May 27				Deconvolving the orientation d
		Q08 Microstructure and texture	0	)9:15	2360	angle x-ray scattering tensor to <b>RENSMO Linnea</b>
		Chairperson(s): HEDSTROM Peter POPOV Anatoli i.	0	)9:30	2904	Universal Patterns of Topologic Systems
		View session abstracts				KARPOV Dmitry
16:30	2842	Residual stress field in metallic alloys resulting from Laser Shock Peening, investigated by in-situ x-ray diffraction at the EuXFEL facility <b>CASTELNAU Olivier (Invited)</b>	0	)9:45	2697	synchrotron sources to unveil r bioglass nanoparticles for rege
17:00	2611	Full picture of Static and Dynamic Lattice Deformation in (Si)GeSn Microlasers by X ray Diffraction Microscopy FORLEY-WIFIAK Annieszka Anna				Wednesday
17:15	1628	Deep learning algorithms for high-throughput X-ray diffraction data analysis SOUESME Arthur			Q10 I	1aterial characterizatio
17:30	2337	High-Throughput Mapping of Dislocation Recovery in Low-Carbon Graded Alloys via In Situ HEXRD MANDILOVIC Vuk				Chairperson(s POPOV An
17:45	1630	Unveiling The Mechanisms of Ultrafast Growth Processes with In-situ techniques at light sources: correlative X-Ray Diffraction and X-Ray Absorption Spectroscopy <b>PACH Elzbieta</b>	1	10:30	384	Lithium/electrolyte distributior operando characterizations usi SENYSHYN Anatoliy (Invite
18:00	385	Characterization of the Transformation Induced Plasticity (TRIP) in ceria- stabilized tetragonal zirconia micropillars by in situ Laue microdiffraction <b>CORNELIUS Thomas</b>	1	11:00	576	Functionalized syndiotactic pol complemented by in-situ FTIR a <b>RADULESCU Aurel</b>
18:15	2033	Operando X-ray diffraction imaging of crystal structure and orientation in all components of all-solid-state-batteries JACQUET Quentin	1	11:15	3132	Recent developments on materi correlative synchrotron and ne <b>BURCA Genoveva</b>
			1	11:30	2781	A Multi-Technique Approach Cor Oxidation State Evolution in Ni- <b>DIAZ-SANCHEZ Jesus</b>
			1	11:45	1730	In-situ Neutron Radiography un mortars <b>Yue Zengliang</b>

## y May 28 hierarchical structures

RNELIUS Thomas

#### Ana

View session abstracts

to study Local Crystallographic Texture in

erization by PXCT and SAXS of Porous Ceramics for

listribution function from the form factor in smalltomography experiments

cal Heterogeneities in Synthetic and Biological

tering and Phase-Contrast Tomography at multiscale-structured bone scaffolds made of nerative biomaterials

#### iy May 28 on using neutron techniques

(s): CAO Wei

natoli i.

#### View session abstracts

n and transfer in cylinder-type Li-ion cells – ing synchrotron radiation and neutrons ed)

lystyrene gels and membranes by SANS and QENS and conductivity measurements

ials science at the UK large-scale facilities using utron imaging techniques

mbining XANES, HAXPES, XPS, and NRA to Probe -Rich NMC Cathodes

ncovers invisible water absorption in cementitious

		Wednesday May 28	13:45 13	1_2279	In situ synchrotron X-ray diffra Wang Shubo
		Chairperson(s): nan <u>View session abstracts</u>	13:45 14	₽_2312	Spectroscopic and synchrotron orientations irradiated with 23 DAULETBEKOVA Alma
13:45	01_1093	Using pydidas for XRD analysis in material science applications DAVYDOK Anton	13:45 15	5_2428	Multispectral synchrotron imag BM18 <b>GÄN7 Peter</b>
13:45	02_1172	Spectromicroscopy tools to unravel morphological, structural and chemical properties that govern the photoelectrochemical activity in solar water splitting reactions MEDDAS Bilal	13:45 16	5_2456	Operando Spectroscopies for in Catalysts WARTNER Garlef
13:45	03_126	Operando Characterization and Regulation of Lithium/Sodium Initial Nucleation via In-situ Liquid Phase TEM <b>ZENG Zhiyuan</b>	13:45 17	'_2465	Grain Orientation and Strain Ma Experiments and Simulations BONGIORNO Sergio
13:45	04_1606	Neutron scattering experiment and simulation in halide perovskite CsPbBr <sub>3</sub> XU Zeli	13:45 18	3_2563	Toward tailored film morpholog solar cell application: An GIWA) <b>GIIPTA Vinav</b>
13:45	05_1696	A new sample environment to monitor high temperature phase transitions by X-ray scattering <b>SUN Xiao</b>	13:45 19	3_2579	Nondestructive Inspection of Pl ELSAFI Alaa
13:45	06_17	Investigation of residual stress gradients in wet blasted <b>Q</b> -Al <sub>2</sub> O <sub>3</sub> hard coatings deposited by chemical vapour deposition using confocal Raman spectroscopy <b>NAICKER Serena</b>	13:45 20	)_2618	Characterization of interfacial of thermoplastic composites <b>ALLEN Kendra</b>
13:45	07_1724	A Software Framework for the Visualization and Analysis of Compressed 4D Tomography Data GÄNZ Potor	13:45 21	2731	Unveiling Battery Ageing Mecha XU Yaolin
13:45	08_1897	Carrier-Resolved Ultra-Low Mobility in Nanochannels: Enhanced Insights from Electron and Photon Beam Techniques	13:45 22	2896	Unveiling Crystal Orientation-E Thin-Film Transistors Using Dyn <b>ZHANG Wen-Shan</b>
13:45	09 1962	IHM Kyuwook From Storage to Catalysis: Operando XAS Insights into Phosphate Materials for Sustainable Energy	13:45 23	1_2958	Luminescence Investigation of <b>POPOV Anatoli I.</b>
		YADAV Jaya	13:45 24	ł_2966	POPOV Anatoli I.
13:45	10_1991	A versatile soft X-ray experimental endstation constructing at Taiwan Photon Source <b>CHEN Chia-Hao</b>	13:45 25	i_2990	Luminescence study of ScF <sub>3</sub> sin synchrotron radiation <b>KONUHOVA Marina</b>
13:45	11_1996	Advancements in Charge Mobility Measurement: EDC Scanning Microscopy for Nanochannel Analysis <b>KOO Somang</b>	13:45 26	5_308	Plasticity enhancing deformation following the profilometry-base <b>SARKAR Arnab</b>
13:45	12_2010	Investigating the Reversible Phase Transition from Perovskite to Brownmillerite in La <sub>1-x</sub> Sr <sub>x</sub> MnO <sub>3</sub> <b>CHO Ha Eun</b>	13:45 27	7_314	Advanced Synchrotron X-ray Te Materials Growth on Liquid Met <b>REIN Valentina</b>

- action Study of Ni<sub>3</sub>TeO<sub>6</sub> calcination mechanism
- studies of Y<sub>3</sub>Al<sub>5</sub>O<sub>12</sub> single crystals of different 30 MeV Xe ions
- ging with energy integrating detectors at ESRF-EBS
- nvestigating Pre-Catalytic Phase Transitions of OER
- apping in Advanced Semiconductor Substrates:
- gies in the organic and perovskite thin films for XS and EBSD analysis
- hotovoltaic Module Materials in the Field
- crystallization dynamics in carbon fiber
- anisms with Synchrotron X-Ray Spectroscopy
- Dependent Charge Transport Properties in Organic namic Charging
- BaMgF<sub>4</sub> Ceramics Under VUV Synchrotron Excitation
- Excitation Study of YAG: Eu and YAG: Cr Ceramics
- ngle crystals excited by electron beam or UV-VUV
- on mechanism in heat-treated Fe-Mn-C steels ed indentation plastometry (PIP) tests
- echniques for Operando Characterization of 2D tals

13:45	29_570	Characterisation of circular materials with synchrotron X-rays through the European project ReMade@ARI ADMANS Gary
13:45	30_581	Enhancement of DMATMS Selectivity Through Tailored Surface Hydroxyl Group for Advanced Nanofabrication SIM Eunji
13:45	31_841	Recent ESRF Beamlines' Contribution for ReMade@ARI Experiments ZHANG Zhenggang
13:45	32_956	Study of hematite-based photoanodes using operando STXM and Raman spectroscopy – methods and first results MOCKBEL Meyssa
13:45	33_968	The matrix factor influence neutralization at TXRF material analysis <b>EGOROV Vladimir</b>
13:45	34_987	Exploring thermal vibration anisotropy in HCP zinc using EXAFS spectroscopy and machine learning-enhanced molecular dynamics simulations <b>KUZMIN Alexei</b>
13:45	35_989	Validation of fine-tuned universal machine learning interatomic potentials using EXAFS spectra <b>KUZMIN Alexei</b>