

LabXSpec4

Fourth International Workshop on Laboratory-Based High Energy-Resolution X-ray Spectroscopy

17.03-18.03.2026

Mülheim Chemistry Campus, Germany

TUESDAY 17/3	
08:30 – 09:20	Registration & Coffee
09:20 – 09:30	Welcome
09:30 – 10:30	Session 1 (talks of 30 minutes), session chair: t.b.a. (MPI CEC) <ul style="list-style-type: none">Unveiling the Structures of Heterogeneous Materials with Synchrotron- and Lab-Based XAS and Machine Learning Janis Timoshenko (Fritz Haber Institute of the Max Planck Society)Introduction to X-Ray Emission Spectroscopy with An Emphasis on Valence-to-Core XES of Molecular Systems Zachary (Ira) Mathe (Max Planck Institute for Chemical Energy Conversion)
10:30 – 11:00	Coffee break
11:00 – 12:00	Presentations from industrial partners (talks of 15 minutes), session chair: Kushal Sengupta (MPI CEC) <ul style="list-style-type: none">Advanced X-ray spectroscopy applications using high brightness MetalJet Sources Martin Norrefeldt (Excillum AB)POLLUX – A Hybrid Photon Counting Detector for X-ray Spectroscopy in the soft and hard energy range Hans Gildenast (DECTRIS Ltd.)Advancements in Laboratory X-ray Spectroscopy: New Hardware and Software Solutions from easyXAFS, and XAFS on a New Continent Devon Mortensen (easyXAFS LLC)Dispersive lab-based X-ray spectrometers from LynXes Zoltán Németh (LynXes Innovation Ltd.)
12:00 – 13:30	Lunch
13:30 – 14:50	Session 2 (talks of 20 minutes), session chair: John Carl Camayang (MPI CEC) <ul style="list-style-type: none">A New Old Trick with the X-ray Rowland Circle: Asymmetric Operation of Laboratory and Synchrotron Spectrometers Gerald Seidler (University of Washington)Recent Progress in in situ and operando XAFS with a von Hámos HAPG spectrometer Sebastian Praetz (Technische Universität Berlin)Lab-based X-ray Spectroscopy at IFJ PAN - Current Status and Recent Applications Rafał Faselow (Institute of Nuclear Physics Polish Academy of Sciences)X-ray Absorption Spectroscopy Applications on a Multi-Purpose Laboratory X-ray Diffractometer Lei Ding (Malvern Panalytical B.V.)
14:50 – 15:20	Coffee break
15:20 – 16:40	Session 3 (talks of 20 minutes), session chair: Issiah Lozada (MPI CEC) <ul style="list-style-type: none">Computational Methods for Calculating X-Ray Spectroscopies Tiago da Costa Gouveia (Max-Planck-Institut für Kohlenforschung)Operando Investigations of Batteries Using Laboratory and Synchrotron Sources Adrian Jonas (Physikalisch-Technische Bundesanstalt)

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	<ul style="list-style-type: none">• Evaluating The Analytical Capabilities of $K\alpha$ X-Ray Emission Spectroscopy of 3d-Elements Frithjof. Mähler (Clausthal University of Technology)• Avoiding Unwanted Oxidation – Different Methods for XAS Sample Preparation and the Question of Homogeneity Konrad Ritter (Leipzig University)
16:40 – 17:40	Laboratory visit (in groups) – 1 st option
17:40 – 19:00	Poster session
19:00 – 20:30	Dinner
20:30 – 21:00	Poster session cont.

WEDNESDAY 18/3

09:00 – 10:20	Session 4 (talks of 20 minutes), session chair: Liqun Kang (MPI CEC) <ul style="list-style-type: none">• Development of an in situ XAFS Pellet Cell for a Commercial lab XAFS Spectrometer Simon Beaumont (Durham University)• Versatile Sample Cells for Soft and Hard Transmission XAFS Experiments on Thin Films Richard Gnewkow (Technische Universität Berlin)• Laboratory-Based Operando X-Ray Absorption Spectroscopy for Monitoring Thermocatalytic and Electrocatalytic Processes of Different Time Scales Joon Baek Jang (Fritz Haber Institute of the Max Planck Society)• Optimisation of Laboratory-Scale XAS Apparatus for Nuclear Fuel Research Simon Orlat (University of Helsinki)
10:20 – 10:50	Coffee break
10:50 – 12:15	Session 5 (talks of 20 minutes), session chair: Gabriele Deplano (MPI CEC) <ul style="list-style-type: none">• A Parallel-Beam Wavelength-Dispersive X-Ray Emission Spectrometer for High Energy Resolution In-Air Microanalysis Matjaz Kavcic (Jozef Stefan Institute)• Resonance Inelastic X-Ray Scattering for Studying Organo-Sulfur Cathode Materials Hongfei Yang (Physikalisch-Technische Bundesanstalt)• Analytical Capabilities at the Cu K-Edge – Comparison synXAS, labXAS and XEELS for metallic Cu, Cu₂O and CuO Claudia Schnohr (Leipzig University)• Quantitative Operando NEXAFS Characterisation of Sodium Transport Processes at Hard-Carbon Anodes of Na-Ion Batteries Katja Frenzel (Physikalisch-Technische Bundesanstalt)• Closure
12:15 – 13:45	Lunch (at MPI CEC)
13:45 – 14:45	Laboratory visit (in groups) – 2 nd option

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TUESDAY 17/3 (Poster session)

1. In-House X-Ray Spectroscopy at the University of Fribourg
Joanna Hoszowska (University of Fribourg)
2. Laboratory-Based X-Ray Absorption Spectrometer in the von Hamos Geometry
Jiasheng Chen (Max Planck Institute for Chemical Energy Conversion)
3. X-Ray Absorption Spectroscopy Implementation on a Laboratory X-Ray Powder Diffractometer
Charalampos Zarkadas (Malvern Panalytical B.V)
4. Towards Micromolar Concentrations in Liquid Phase Transmission NEXAFS Experiments with a Laser-Produced Plasma Source
Nikolas Wiesner (Technische Universität Berlin)
5. In-house soft X-ray absorption spectroscopy of M(acac)_x complexes
Seunghyun Moon (Max Planck Institute for Chemical Energy Conversion)
6. A Method for Deconvolution of EXAFS Spectra acquired by a HAPG von Hamos Laboratory Spectrometer
Jonas Grage (Technische Universität Berlin)
7. Evaluating the Impact of Spectral Deconvolution on Quantitative Benchmarking Between Laboratory and Synchrotron EXAFS Measurements
John Carl Camayang (Max Planck Institute for Chemical Energy Conversion)
8. Identification and Subtraction of Diffraction-Induced Glitches in X-Ray Absorption Spectroscopy
Liqun Kang (Max Planck Institute for Chemical Energy Conversion)
9. Impact of Sample Homogeneity on Spectral Quality in Laboratory-Based XAS
Alexander Kemmesies (Technische Universität Berlin)
10. Interlaboratory Comparison of XANES and EXAFS on Metallic Foils
Yves Kayser (Max Planck Institute for Chemical Energy Conversion)
11. Transferability of Neural-Network EXAFS Analysis to Laboratory Spectrometers
Nicholas Marcella (Stony Brook University)
12. RefXAS – A Curated Database for X-Ray Absorption Spectra with Metadata and Scientific Quality Control
Christopher Schlesiger (Technische Universität Berlin)
13. Workflow for Labxas Measurements at TU Berlin
Christopher Schlesiger (Technische Universität Berlin)
14. Capabilities of Laboratory XAS for Battery Research
Ramon Zimmermanns (Karlsruhe Institute of Technology)
15. Insights into Degradation Mechanisms in LiS Batteries by Quantitative Operando NEXAFS Spectrometry
Katja Frenzel (Physikalisch-Technische Bundesanstalt)
16. Laboratory Transmission EXAFS Quantifies Speciation and Structural Evolution in Pt on Mesoporous N-Doped Carbon Fuel-Cell Catalysts
Esmael Balaghi (University of Freiburg)
17. Towards Irradiation Induced Defect Annealing Experiments with in situ XAS in High Temperature Superconductors for Fusion Applications
Daniele Torsello (Politecnico di Torino)
18. Chemical State and Local Structure of the Eu-Doped Co(OH)₂ studied via In-House X-Ray Techniques
Wei Cao (University of Oulu)
19. Solution and Solid State Behaviour of a Spin Crossover Complex
Issiah Lozada (Max Planck Institute for Chemical Energy Conversion)

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20. Soft Magnetic Composites of Fe-Alloys and Mn-Zn Ferrite: Structural and Magnetic Properties for Advanced Electronics Sriram Jeyaram (National Institute of Technology, Tiruchirappalli)
21. Investigation of Electronic Structures using a Calibrated Wavelength-Dispersive Spectrometer for X-Ray Analysis Adrian Jonas (Physikalisch-Technische Bundesanstalt)
22. Biofortification of Iodine in Vegetables — Iodine K-Edge XANES in Various Plant Parts using XRF-XANES Patrick Kraus (Technische Universität Wien)
23. High Energy EELS and EMCD using a Standard (S)TEM EELS System Walid Hetaba (Max Planck Institute for Chemical Energy Conversion)
24. Electron-Energy Loss Spectroscopy of Metalloproteins Utkarsh Prakash (Max Planck Institute for Chemical Energy Conversion)
25. Development of a Laboratory 8 Kev X-Ray Microscope for Full-Field Imaging, STXM And XRF Heinrich Tost (University of Applied Sciences Koblenz)
26. Analytical X-Ray Nanoscopy in the Soft and Tender X-Ray Range Andreas Haidl (University of Applied Sciences Koblenz)
27. A Micro Focus Beamline in the Tender X-Ray Range Optimized for μ xafs, XES And RIXS Matthias Müller (Physikalisch-Technische Bundesanstalt)

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