

# XRD

## excites

### Non-Ambient XRD & Beyond

**TUESDAY, JULY 9, 2024**

09:00 WELCOME

Horst Bischof (TU Graz)  
Christoph Ebner, Petra Kotnik (Anton Paar)

**Session 1**

**Chair: Claudia Weidenthaler**

09:20 **DAVID WALKER**

Non-ambient X-ray diffraction in the laboratory: A facility manager's perspective

10:10

ARTURAS VAILIONIS: Reciprocal space X-ray computed tomography

10:35

SAMUEL DUYKER: Extreme compressibility in torsionally-flexible framework materials

11:00

COFFEE BREAK

11:30

**SCOTT MISTURE**

Controlling oxygen partial pressure and heating/cooling rates during *in situ* PXRD and HRXRD studies of oxides

12:20

WINFRIED MALORNY: *In situ* investigations of hydrothermal reactions on a laboratory X-ray diffractometer

12:35

LUNCH

**Session 2**

**Chair: David Walker**

13:45

**CLAUDIA WEIDENTHALER**

*In situ* studies of energy materials

14:35

BERNHARD GADERMAIER: Operando X-ray powder diffraction to monitor the charge and discharge process in LiCoO<sub>2</sub> by using a laboratory diffractometer

15:00

AYMERIC MAGISSON: XRD analysis of zeolites: phase identification and structural flexibility

15:15

COFFEE BREAK

15:45

ASH AJEER: A laboratory-based system for synchronous and simultaneous X-Ray diffraction CT and colour transmission CT

16:00

STEVEN HUBAND: Particle growth and phase transition studies using small-angle X-ray scattering (SAXS)

16:15

**POSTER SESSION**

17:30

FAREWELL

**WEDNESDAY, JULY 10, 2024**

09:00 PHOTO AWARD | Organizational matters

**Session 3**

**Chair: Bernhard Gadermaier**

09:10

**RÉMY GUILLET-NICOLAS**

Tailoring gas adsorption properties of (small) pore flexible zeolites for gas separation applications

10:20

MERCEDES LINARES-MOREAU: *In situ* GIWAXS and AFM for the real-time monitoring of MOF degradation and transformation processes in controlled humidity environments

10:45

NINA STRASSER: Influence of pore-confined water on the thermal expansion of a zinc-based metal-organic framework

11:00

COFFEE BREAK

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WEDNESDAY, JULY 10, 2024

**Session 4**

**Chair: Scott Misture**

11:30	<b>VOLKER KAHLENBERG</b> Non-ambient PXRD investigations – examples from geology and applied mineralogy
12:20	JAN FILIP: High-temperature XRD as a unique tool for <i>in situ</i> monitoring of nanomaterial synthesis in variable thermal and redox conditions
12:35	LUNCH
13:30	<b>MONICA DAPIAGGI</b> Non-ambient diffraction: coupling of laboratory data with synchrotron radiation data
14:20	FAREWELL
14:25	<b>GRAZ CITY TOUR</b>
15:30	Bus transfer to Anton Paar GmbH (starting at Hotel Weitzer)
16:00	<b>COMPANY TOUR AT ANTON PAAR GMBH</b>
18:30	<b>SYMPOSIUM DINNER AT SUDHAUS</b>

THURSDAY, JULY 11, 2024

09:00 POSTER AWARD | Organizational matters

**Session 5**

**Chair: Rémy Guillet-Nicolas**

09:10	<b>VISHNU SHANKER</b> g-C <sub>3</sub> N <sub>4</sub> -Based nanocomposites heterostructure for efficient photocatalytic activity applicable for many applications
10:20	JAN JAKUBEK: High-resolution photon counting imaging detectors for various X-ray methods revealing material composition and microstructure
10:45	MILANA TRIFKOVIC: Advancing polymer composite solid state electrolytes via multiscale analysis
11:00	COFFEE BREAK

**Session 6**

**Chair: Monica Dapiaggi**

11:30	<b>STEFAN WEBER</b> A non-ambient XRD application for biological drug product development in pharmaceutical industry
12:20	JURIJ KORUZA: Solid-state synthesis of Ba <sub>x</sub> Ca <sub>1-x</sub> Zr <sub>y</sub> Ti <sub>1-y</sub> O <sub>3</sub> piezoceramics: Understanding the reaction route and secondary phase formation
12:35	LUNCH
13:45	XAVIER ALCOBE: Temperature- and RH-dependent XRD studies in MOF and pharmaceutical salts
14:10	STEFAN MELZER: Galvannealing kinetics: A high-speed story
14:25	FAREWELL
14:45	Bus transfer to Anton Paar GmbH (starting at TU Graz)
15:30	<b>NON-AMBIENT XRD WORKSHOP AT ANTON PAAR GMBH</b>
18:00	END OF WORKSHOP