



## Day 1

9:00-9:15	Registration	
9:15-9:50	Welcome and Introduction	Justus Just (MAX IV), Eva Unger (HZB/HU Berlin), Marjolein Thunnissen (Science Director, MAX IV)
09:50-10:50	<b>Overview 1: in-situ Methods</b>	
15'	GIWAXS and XRD	Eva Herzig (University of Bayreuth)
15'	XAS and XEOL	Justus Just (MAX IV)
15'	PDF	Olivia Aalling-Frederiksen (University of Copenhagen)
15'	Diffuse scattering	Michael Toney (University of Colorado)
10:50-11:00	<b>Discussion I: Multimodal combination of techniques: wish vs. reality</b>	
11:00-11:20	Coffee break	
11:20-11:50	<b>Overview 2: Hard X-ray in-situ Beamlines at MAX IV</b>	
10'	Balder – XAS/XES, multimodal real-time XAS-XRD	Justus Just (MAX IV)
10'	ForMAX – thin-film small- and wide-angle x-ray scattering	Kim Nygård (MAX IV)
10'	DanMAX – in-situ and powder diffraction	Mads Jørgensen (MAX IV)
11:50-12:30	<b>Overview 3: Material Synthesis</b>	
20'	Lead-halide perovskites	Eva Unger (HZB/HU Berlin)
10'	Organics and composite materials	Jens Wenzel Andreasen (DTU)
10'	Nanocrystals	Jonathan Quinson (Aarhus University)
12:30-14:00	Lunch (incl. 2x 15 min walking time)	Eatery Lund, SONY building
14:00-15:20	<b>Session 1: Perovskites</b>	
30'	<i>In situ X-ray scattering of Halide Perovskite Film Formation</i>	Michael Toney (University of Colorado)
20'	<i>Characterising the crystallisation pathways of metal halide perovskites</i>	Joel Smith (University of Oxford)
30'	<i>in-FORM: Integrating Robotic Synthesis with in-situ Multimodal Hard X-ray Characterization to Unravel Complex Synthesis Processes: lead-halide perovskites</i>	Justus Just (MAX IV), Matteo Ciambezi (MAX IV, FOM Technologies)
15:20-15:50	Coffee break	

15:50-17:30	<b>Session 2: Metals and Oxides</b>	
20'	<i>Exploring the Formation of Oxides through coupled Scattering Techniques and X-Ray Absorption Spectroscopy: From binary to high-entropy oxides</i>	Andrea Kirsch (University of Copenhagen)
20'	<i>X-rays for metal nanoparticle catalysis and synthesis</i>	Jonathan Quinson (Aarhus University)
20'	<i>Ambient pressure soft x-ray photoelectron spectroscopy and DFT in the in situ/operando study of atomic layer deposition</i>	Joachim Schnadt (Lund University)
20'	<i>tba. Early stages of Zr-MOF synthesis: formation of Zr-cluster in solution and MOF nucleation</i>	Olena Zavorotynska (University of Stavanger)
20'	<i>Studying the stability of thermoelectric materials in operando using X-ray scattering</i>	Rasmus Christensen (Aarhus University)
17:30-18:30	<b>Poster contributions</b>	
18:45	Transfer to Dinner	
19:15-21:15	<b>Workshop Dinner</b>	Bjärreds Saltsjöbad

## Day 2

9:00-10:20	<b>Session 3: Perovskites and Organics</b>	
30'	<i>tba. Formation of metal-halide perovskites and organics by in-situ small and wide angle scattering</i>	Eva Herzig (University of Bayreuth)
30'	<i>Model supported in-line X-ray characterization for fast materials processing</i>	Jens Wenzel Andreasen (DTU)
20'	<i>Coupled Experimental and Theoretical Investigation of Active Layer Formation in Organic Solar Cells</i>	Maxime Siber (HI-ERN / FZ Jülich)
10:20-10:35	<b>Discussion II: Closing the gap between model and experiment in complex systems</b>	
10:35-11:00	Coffee break	
11:00-11:45	<b>Session 4: Other Materials and Software</b>	
15'	<i>Energy-related and compositionally complex materials at BAM</i>	Kirill Yusenko (BAM Berlin)
15'	<i>KiMoPack- an universal tool for multimodal analysis</i>	Jens Uhlig (Lund University)
15'	<i>in-FORM: Multi-modal data reduction software and texture correction for structure refinement</i>	Jiatu Liu (MAX IV)
11:45-12:15	<b>Discussion III: Discovering, assessing and mitigating beam damage</b>	
12:15-12:30	<b>Final Discussion &amp; Concluding remarks</b>	
12:30-14:00	Lunch (incl. 2x 15 min walking time)	Eatery Lund, SONY building
14:00-15:00	<b>MAX IV Tour (Beamlines and in-FORM platform)</b>	
15:00-15:30	Coffee break	
15:30-17:00	<b>Discussions with beamlines / in-FORM project</b>	Balder, CoSAXS, DanMAX
17:00	End of Workshop	