

# European XFEL Users' Meeting — Satellite meeting

## Chemical Dynamics Opportunities at the Scientific Instrument FXE



28 January 2020

European XFEL, Holzkoppel 4, 22869 Schenefeld and  
DESY, Notkestraße 85, 22607 Hamburg

### Abstract:

The Femtosecond X-Ray Experiments (FXE) Instrument has recently taken large steps towards experiments for time-resolved x-ray emission (XES) and wide-angle X-ray scattering (WAXS) studies. The instrument can now host experiments, which demand an unprecedented high average flux and signal quality, possible due to the MHz delivery rate of >2 mJ X-ray pulses. The current status of the FXE will be given together with its upcoming capabilities.

This workshop seeks to bring together the scientific community aiming to exploit this instrument for chemical dynamics research benefiting from the spin and electronic sensitivity delivered from XES data, and from structural dynamics studies exploiting WAXS at up to 20 keV. The workshop will cover variety of topics in photochemistry, which can benefit for the simultaneous determination of coupled electronic and geometric transient structure changes on femtosecond time scale.

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Tuesday 28 January 2020 – morning: DESY, room tbd // afternoon: EuXFEL XTOB 1.01			
09:00	<b>Welcome</b>	Sakura Pascarelli	European XFEL
09:15	FXE instrument update	Dmitry Khakhulin	European XFEL
09:45	Spin cross-over dynamics in biology and condensed matter	Majed Chergui	EPFL, Switzerland
10:10	Visualizing the ultrafast spin-dynamics in photoexcited Nickel tetrapyrroles	Sophie Canton	ELI-Alps, Hungary DESY, Germany
10:35	<b>Coffee break</b>		
11:00	Ultrafast X-ray spectroscopy to understand the photochemistry of base metal complexes	Matthias Bauer	University of Paderborn, Germany
11:25	Tracking coherent structural dynamics in solvated metal complexes	Martin M. Nielsen	DTU, Denmark
11:50	First Discussion Round	Wojciech Gawelda	European XFEL
12:30	<b>Bus transport to EuXFEL</b>		
13:00	<b>Lunch at <i>BeamStop</i> Restaurant</b>		
14:00	Solving chemical processes dynamics with X-ray spectroscopy	Jacinto Sa	Uppsala University, Sweden
14:25	Luminescent 3d <sup>6</sup> and 4d <sup>6</sup> metal complexes made from Earth-abundant elements as alternatives to non-emissive Fe(II) compounds	Oliver Wenger	University of Basel, Switzerland
14:50	Tuning Ligand-Environments for the Stabilization of Iron Complexes in Oxidation States +I to +V, including Spin-Crossover in 4-Coordinate Fe(II)	Karsten Meyer	Friedrich Alexander University, Erlangen, Germany
15:15	Tracking reaction intermediates in catalytic reactions relevant to molecular artificial photosynthesis	Antoni Llobet	ICIQ, Spain
15:40	<b>Coffee break</b>		
16:00	Ultrafast, fast and slow structural changes of photoactive orange carotenoid protein during its photocycle	Eugene Maksimov	Moscow State University, Russia
16:25	Spinflip in chromium and vanadium complexes	Katja Heinze	Johannes Gutenberg University, Mainz, Germany
16:50	Second Discussion Round	Christian Bressler	European XFEL
17:30	Tour of FXE	all	
18:30	<b>Dinner at <i>BeamStop</i> Restaurant</b>	all	