



IMPRS UFAST Call for PhD applications 2020/2021



Structural Dynamics of Molecular Complexes with pulsed X-Rays

C. Bressler-1

Title of PhD Project	Structural Dynamics of Molecular Complexes with pulsed X-Rays
Type	Experimental
Supervisor(s)	Prof. Christian Bressler
Affiliation(s):	European XFEL
Number of positions:	1
Abstract:	<p>We study novel functional transition metal compounds capable to generate electricity or to activate catalytic processes. Understanding these processes requires probes that monitor chemical dynamics on ultrafast timescales to understand bond-breaking and formation. For this purpose we use femtosecond laser systems and ultrafast x-ray sources at large-scale facilities. These compounds will be synthesized and characterized with ultrafast laser spectroscopies. Key reaction steps will be investigated with spin- and structure-sensitive x-ray tools from synchrotrons and free electron laser sources.</p> <p>Requirements:</p> <ul style="list-style-type: none">• experience performing and analyzing spectroscopic measurements on molecular systems,• experience involving ultrafast lasers or synchrotron/FEL radiation is an asset• Experience with a programming language (python and/or MATLAB) and/or computational chemistry software (Gaussian, Orca, etc.) is an asset• Good communication skills and ability to work in an international and multi-disciplinary team with English as the working language
Contact person for scientific questions about the project:	Christian Bressler: christian.bressler@xfel.eu Katharina Kubicek: katharina.kubicek@xfel.eu