



## Tutorial on X-ray Holographic Imaging / Tomography

Thursday, 26 January 2017

Bldg. 2, Seminar Room 2

New (coherent) X-ray imaging capabilities have been developed, implemented and exploited at several instruments of PETRA III, e.g. at the beamline P05 (HZG) and the P10-GINIX setup (built by the University of Göttingen). Some of the interesting options include high resolution near-field imaging in the holographic regime and tomography. These developments led to the highest resolution images recorded in full-field in-line holography (Bartels et al., PRL 114, 048103, 2015) as well as to novel opportunities for tomographic imaging of biological cells and tissues (Krenkel et al., Scientific Reports 5, 9973, 2015). The full field micro tomography setup offers high-throughput user experiments in absorption mode and opens up unique possibilities in phase contrast mode (Stebner et al., Scientific Reports 6, 34352, 2016). In addition the nanotomography experiment is now in user operation offering full field x-ray microscopy at high spatial resolution (Ogurreck et al., JSR 23, 2016).

The first part of this tutorial workshop will give an introduction to both techniques and present the current instrumentation available at P05 and P10. Afterwards presentations will demonstrate the current capabilities and limitations of both instruments.

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### PROGRAMME

<b>Session 1: Tomography</b>		<i>Chair: M. Sprung</i>	
13:00	Welcome		DESY/HZG
13:10	Basics of imaging and tomography (40 + 5)	I. Greving	HZG
13:55	Imaging at the Beamline P05 (25 + 5)	F. Wilde	HZG
14:25	Examples and Applications (15 + 5)	F. Wilde	HZG
14:45	<b>Coffee break</b>		
<b>Session 2: Holographic Imaging</b>		<i>Chair: M. Sprung</i>	
15:15	Tutorial on Holographic Imaging (40+5)	T. Salditt	Univ. Göttingen
16:00	Imaging at P10-GINIX (25+5)	M. Osterhoff	Univ. Göttingen
16:30	Tomography of neural tissues (15+5)	M. Töpperwien	Univ. Göttingen
16:50	to be announced	M. Vassholz or K. Giewekemeyer	Univ. Göttingen European XFEL