

Workshop on

Science Opportunities with Table-Top Coherent X-Ray Sources

at Ångström Laboratory (Häggsalen) on 28-29 October, 2019

The purpose of the workshop is to explore the science case for developing and operating a next-generation compact coherent x-ray source in Sweden. The unique high repetition rate x-ray pulse pattern of the source will enable researchers to address novel scientific problems for atoms, molecules and condensed matter based on x-ray photoelectron spectroscopy and x-ray scattering techniques.

These sources bridge the gap between large-scale facilities such as MAX IV and the European XFEL and femtosecond laser systems as they are for instance used at Uppsala University's HELIOS facility. Compact x-ray sources are based on a radically new approach replacing undulators with laser-based x-ray generation from relativistic electron beams. Worldwide, several sources of this type are planned or are under construction. We consider it important for Swedish science and technology to explore the benefits offered by this approach. In particular, we believe that superconducting accelerator technology available at Uppsala University will provide a head start to move such a development towards very high repetition rates.

The workshop aims at bringing together international experts in compact x-ray source development and photon science researchers who could use such facilities.

Program

Mon Oct 28		
13:00-13:15	Hermann Dürr	Welcome
13:15-14:00	Franz Kärtner, CFEL, Hamburg	THz-driven inverse Compton source
14:00-14:45	Jom Luiten, TU Eindhoven	Cold and hot electron sources for the generation of coherent soft and hard X-rays by Compton scattering
14:45-15:30	Fulvio Parmigiani, Trieste University	Drafting the science case for ultrafast laser-based experiments with EUV-soft X-ray photons
15:30-16:00	Coffee Break	
16:00-16:45	Peter Amann, Stockholm University	In-operando investigation of catalytic reactions using time-resolved and ambient pressure XPS
16:45-17:30	Kristina Edström, Uppsala University	X-rays for battery research

Tue Oct 29		
9:00-9:45	Laszlo Veisz, Umeå University	Laser-driven electron acceleration and XUV / X-ray generation
9:45-10:30	Simone DeMitri, Fermi, Trieste	Electron beam generation
10:30-11:00	Coffee Break	
11:00-11:45	Fivos Perakis, Stockholm University	Dynamics in Complex Systems
11:45-12:30	Håkan Rensmo & Ute Kappel, Uppsala University	Interfaces and dynamics in perovskite and other photovoltaic materials - Photoemission spectroscopy studies
12:30-13:00	Round Table Discussion	

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