

Science@FELs 2014 Conference

15 – 17 September 2014

Paul Scherrer Institute
Auditorium, WHGA/001
Villigen, Switzerland

Monday, 15 September 2014

08h00 – 13h00 **Registration** (in front of Auditorium - WHGA/001)

09h00 – 10h30 Students Session 1 (*Chair: Rafael Abela, PSI*)

- 09h00 **Jerome Hastings** (SLAC National Accelerator Laboratory)
X-Ray Free Electron Lasers: Seeing the Light Fantastic
- 09h45 **Justin Wark** (University of Oxford)
High Energy Density Science with X-Ray Free Electron Lasers

10h30 – 11h00 Coffee Break

11h00 – 12h30 Students Session 2 (*Chair: Rafael Abela, PSI*)

- 11h00 **Joachim Stöhr** (Stanford University)
A New Era of X-ray Science: Beyond one-photon-at-a-time
- 11h45 **Ilme Schlichting** (Max Planck Gesellschaft Heidelberg)
X-ray Free-Electron Lasers – a bright future for crystallography

12h30 – 13h30 Lunch (PSI restaurant OASE)

Opening Session (*Chair: Rafael Abela, PSI*)

13h30 – 14h00 Joel Mesot (Director, Paul Scherrer Institut)
Josef Feldhaus (DESY)

14h00 – 15h50 Condensed Matter Session 1 (*Chair: Joachim Stöhr, Stanford University*)

- 14h00 **Steven Johnson** (ETH Zürich)
An x-ray view of ultrafast dynamics in the solid state: coupled motion of the lattice, spins and orbitals
- 14h35 **Clemens von Korff Schmising** (Technische Universität Berlin)
Imaging ultrafast demagnetization dynamics after a spatially localized optical excitation
- 15h00 **Simon Gerber** (SLAC National Accelerator Laboratory)
Direct structural characterization of photo-induced coherent phonon oscillations in BaFe₂As₂ via ultrafast x-ray diffraction
- 15h25 **Capotondi, Flavio** (Elettra Sincrotrone Trieste)
DiProl, the coherent diffraction imaging end-station at FERMI@Elettra FEL user facility: present status and future research opportunities

15h50 – 16h20 Coffee Break

16h20 – 18h10 Condensed Matter Session 2 (*Chair: Steven Johnson, ETH Zürich*)

- 16h20 **Ben Murdin** (University of Surrey)
Coherent control and electrical detection of charge excitations in hydrogenic silicon impurities with a Free Electron Laser
- 16h55 **Harald Schneider** (Helmholtz-Zentrum Dresden-Rossendorf)
Terahertz spectroscopy of zero- and two-dimensional semiconductor nanostructures with the free-electron laser FELBE
- 17h20 **Wilfried Wurth** (Universität Hamburg/ DESY)
Time-resolved photoelectron spectroscopy using high-repetition rate free-electron lasers
- 17h45 **Paul Beaud** (Paul Scherrer Institut)
A time-dependent order parameter for photo-induced ultrafast phase transitions

18h10 **Walk to SLS** (Poster Session)

18h30 **Poster Session, Apero Riche** (SLS)

Tuesday, 16 September 2014

09h00 – 10h50	Biology Session (<i>Chair: Ilme Schlichting, Max Planck Gesellschaft Heidelberg</i>)
09h00	Gebhard Schertler (Paul Scherrer Institute) New opportunities with Free Electron Lasers to study membrane protein dynamics
09h35	Karol Nass (Max Planck Institute for Medical Research) Radiation damage in serial femtosecond crystallography
10h00	Matthias Frank (Lawrence Livermore National Laboratory) Fixed Target 2D and 3D Protein Crystallography at XFELs
10h25	Sebastien Boutet (Linac Coherent Light Source) Macromolecular Crystallography at XFELs and LCLS: Current Status, Limitations and Future Plans
10h50 – 11h10	Coffee Break
11h10 – 13h00	Chemistry Session (<i>Chair: Britta Redlich, Radboud University Nijmegen</i>)
11h10	Martin Beye (Helmholtz-Zentrum Berlin) Ultrafast Surface Chemistry at LCLS
11h45	Wojciech Gawelda (European XFEL) Observing molecular dynamics with ultrafast X-ray spectroscopies and scattering
12h10	Kirsten Schnorr (Max-Planck-Institut für Kernphysik) Electron Rearrangement Dynamics in Dissociating Multiply Charged Iodine Molecules
12h35	Thomas Penfold (Paul Scherrer Institut) A combined experimental and theoretical study of the excited state dynamics of a prototypical Cu(I)-phenanthroline complex
13h00 – 14h00	Lunch (PSI restaurant OASE)
14h00 – 15h50	Theory Session (<i>Chair: Christopher Mudry, Paul Scherrer Institut</i>)
14h00	Beata Ziaja-Motyka (CFEL) Transitions in matter triggered by intense ultrashort X-ray pulses
14h35	Alison Crawford (Nano Bio Spectroscopy Group, UPV/EHU) Soft X-ray ionisation of atoms within TDDFT and nuclear effects on the attosecond TRPES of ethylene
15h00	Zoltan Jurek (CFEL/ DESY) XMDYN: Modeling radiation damage of XFEL irradiated samples
15h25	Basil Deschaud (University of Bordeaux) Atomic kinetics in solids under strong XFEL irradiation
15h50 – 16h20	Coffee Break
16h20 – 18h10	Site Visit Paul Scherrer Institute
18h30	Conference Dinner (PSI restaurant OASE)

Wednesday, 17 September 2014

09h00 – 10h50 **Matter under extreme Conditions Session** (*Chair: Justin Wark, University of Oxford*)

- 09h00 **Hitoki Yoneda** (University of Electro-Communications, Institute for Laser Science)
Ultra-intense x-ray laser matter interaction with hard x-ray free electron laser
- 09h35 **Sven Toleikis** (DESY)
Resolving Ultrafast Heating of Dense Cryogenic Hydrogen
- 10h00 **Joanna Hozowska** (University of Fribourg)
Multiphoton induced x-ray fluorescence of Fe atoms
- 10h25 **Mykhaylo Ozerov** (Helmholtz-Zentrum Dresden-Rossendorf)
Electron spin resonance study in the chiral ferrimagnet Cu₂OSeO₃ using pulsed magnetic fields up to 64 T and terahertz free electron laser

10h50 – 11h10 Coffee Break

11h10 – 13h00 **Atomic, Molecular-Systems Session** (*Chair: Josef Feldhaus, DESY*)

- 11h10 **Marc Vrakking** (Max Born Institute)
Complementary uses of High-Harmonic and FEL-based XUV radiation
- 11h45 **Andreas Przystawik** (DESY)
Hidden Charge States in Soft-X-Ray Laser-Produced Nanoplasmas Revealed by Fluorescence Spectroscopy
- 12h10 **Michael Meyer** (European XFEL)
Dichroism in the two-color multi-photon ionization of helium
- 12h35 **Frank Stienkemeier** (University of Freiburg)
Cluster Experiments at the Free Electron Laser FERMI at Elettra

13h00 – 14h00 Lunch (PSI restaurant OASE)

14h00 – 16h00 **New Developments Session** (*Chair: Bruce Patterson, Paul Scherrer Institut*)

- 14h00 **Bill Pedrini** (Paul Scherrer Institut)
Revival of X-ray cross-correlations "because" of X-ray Free Electron Lasers
- 14h30 **Marion Harmand** (University of Paris, Ecole Polytechnique)
Arrival time diagnostic using free carriers generation induced by X-ray FEL
- 15h00 **Yoshinori Nishino** (Hokkaido University, Research Institute for Electronic Science)
Coherent imaging by x-ray laser diffraction
- 15h30 **Filippo Bencivenga** (Elettra Sincrotrone)
Advanced pump-probe experiments at FERMI, results and perspectives

16h00 **Closing Remarks**