A 9: Poster: Interaction with VUV and X-ray light I

Time: Monday 17:00–19:00 Location: C/Foyer

A 9.1 Mon 17:00 C/Foyer

Time-resolved nanoplasma formation by resonant XUV radiation — •Aaron LaForge[1], Alessandra Ciavardini[2], Mike Ziemkiewicz[3], Yevheniy Ovcharenko[4], Oksana Plekan[5], Paola Finetti[5], Robert Richter[5], Kevin Prince[5], Paolo Piseri[6], Michele Di Friaia[7], Arik Mika[8], Marcel Drabbels[8], Carlo Callegari[5], Thomas Moeller[4], Frank Stienkemeier[1], Patrick O'Keeffe[2], and Marcel Mudrich[1] — [1]Universität Freiburg, 79104 Freiburg, Germany — [2]CNR-IMP , 00016 Monterotondo Scalo, Italy — [3]University of California, Berkeley, California 94720, USA — [4]TU Berlin, 10623 Berlin, Germany — [5]Elettra, Basovizza, 34149 Trieste, Italy — [6]Università degli Studi di Milano, 20133 Milano, Italy — [7]University of Trieste, 34128 Trieste, Italy — [8]EPFL, CH-1015 Lausanne, Switzerland

The ionization dynamics of helium droplets resonantly excited by intence XUV radiation (10^12 W/cm^2) has been investigated. In this regime, a network of excited atoms is formed leading to all excited states collectively autoionizing where interesting effects such as nanoplasma and low energy electron formation and enhanced ionization rates were observed[1,2]. Here, we will present the first time-resolved measurements of such a system via XUV-UV pump-probe measurements where we see a clear time dependence on the nanoplasma formation. [1] Ovcharenko et al., Phys. Rev. Lett. 112, 073401 (2014) [2] LaForge et al., Sci. Rep. 4, 3621 (2014)

A 9.2 Mon 17:00 C/Foyer

X-ray movie of light induced dynamics in free nano particles — •Mario Sauppe[1], Leonie Flückiger[1], Jan P. Müller[1], Tais Gorkhover[1,2], Daniel Rolles[3], Benjamin Erk[3], Rolf Treusch[3], Authors as in[4], Thomas Möller[1], and Daniela Rupp[1] — [1]IOAP, TU Berlin — [2]LCLS, SLAC — [3]DESY — [4]see [2]

Naturally grown nanostructures like biological particles and clusters have an individual, complex and often non-reproducible structure. By using brilliant light pulses from short wavelength free-electron lasers, coherent diffraction imaging of single particles opens a new route to reveal the structures of such non-crystallizables targets [1].
We introduce a novel method to directly image the structural changes of the particles by recording a "two-frame movie ". Two separate images show the intact particle as well as the same particle at a later stage with the induced structural changes. The required double x-ray pulses are produced by a novel delay stage *DESC* soon available for users at the free-electron laser FLASH in Hamburg. The multilayer-based unit will be able to deliver x-ray double pulses with delays from 0 fs up to 600 ps. DESC will be set up as a part of the permanent endstation at FLASH, *CAMP* [2] including also KB optics for extremely tight focusing.
[1] M. M. Seibert et al., Nature 470, 78 (2011).
[2] L. Strüder et al., Nucl. Instr. Meth. Phys. Res. A 614 (2010) 483.