AMOP Seminar

Atoms and Molecules Interacting with Ultrafast X-Ray Lasers

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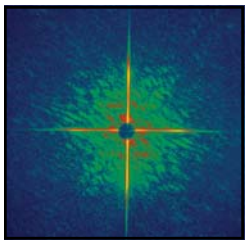
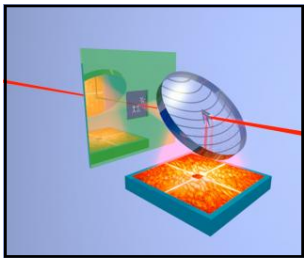
X-ray science is undergoing one of its greatest revolutions to date with the construction of intense x-ray free electron lasers in Stanford, USA (LCLS), Hamburg, Germany (XFEL), and Harima Science Garden City, Japan (SCSS). These are vast, several-hundred-million dollar machines that will provide x-ray pulses that are a million times brighter than current sources. Similarly groundbreaking are the emerging attosecond light sources based on intense, pulsed lasers; they are relatively inexpensive laboratory-size instruments. These two emerging radiation sources will enable radically new research and have numerous potential applications in materials science, chemistry, biology, AMO, condensed-matter, and plasma physics.



This will focus on
(i) How laser-dressed atoms interact with x rays, including how the novel electromagnetically-induced transparency (EIT) effect for x rays provides opportunities for ultrafast x-ray pulse shaping; and
(ii) How laser-aligned molecules can be probed with x rays, including how laser-alignment of molecules enables the probing of molecular dynamics with x rays; and
(iii)An outlook on proposed experiments on double core holes in laser-aligned molecules at Stanford's LCLS and the control of Auger decay on an electronic time scale using attosecond light pulses.



Wednesday, 29 October 2008

Brace Lab 202, 3:30pm