

# エクストリームフォトンクスセミナー

## *Extreme Photonics Seminar*



日時： 平成21年2月4日(水)  
10:00 – 12:00, February 4 (Wed) 2009

場所： 研究交流棟5階会議室W524  
Cooperation Center, 5F Meeting Room, W524

題目： Adiabatic theory of ionization of atoms  
by intense laser pulses

講師： **Dr. Oleg I. Tolstikhin**  
(Russian Research Center %urchatov Institute+)

**要旨**： The period of oscillations of the electric field in NIR laser pulses (2.7 fs for 800 nm) essentially exceeds the characteristic time of the electronic motion in atoms (0.024 fs). Thus one can expect that the adiabatic approximation provides a proper theoretical framework for describing the variety of phenomena occurring in the interaction of atoms with intense NIR laser pulses. In the present work we develop the adiabatic theory of ionization for a simplified one-dimensional problem. Our main results consist in the following: (1)The factorization formula for the photoelectron spectrum in the back-scattering region, first suggested by Morishita et al. on the basis of ab initio calculations, is derived analytically; (2)the shape of the photoelectron wave packet, which is one of the two factors in the factorization formula, is explicitly given in terms of the shape of the laser pulse; (3)the interference of short and long back-rescattered trajectories is analyzed and the corresponding oscillating structure in the spectrum is described. A comparison of the present adiabatic theory with the strong-field approximation is discussed.

題目： Managing of ultrashort pulses by time-preserving  
optical configurations

講師： **Dr. Luca Poletto**  
( LUXOR - Laboratory for UV and X-Ray Optical Research, Italy)

**要旨**： I will address the problem of spectral selection of ultrashort pulses in the extreme-ultraviolet region by grating monochromators. The broadening of the pulse that is given by the diffraction phenomena from the grating will be discussed. Different configurations of monochromators will be presented: single-grating monochromator with temporal broadening in the few- to several tens of femtosecond range and double-grating monochromator with almost perfect compensation of the delay at the output. The use of such configuration for temporal pulse shaping will be also discussed.

