

# エクストリームフォトニクスセミナー *Extreme Photonics Seminar*

Language: Japanese

**Date :** June 8(Fri), 2012, 15:00 ~ 17:00

**Location :** Cooperation Center, 5F Meeting Room, W524  
(研究交流棟 5 階会議室 W524 )

**Title :** Non-linear ionization of atoms and molecules irradiated by strong extreme ultraviolet free-electron laser pulse

**Speaker :** Dr. Atsushi Iwasaki  
(Dept. of Chemistry, The School of Science, The University of Tokyo)

Recent developments of electron accelerator and insertion device (undulator) have enabled us to use intense shortpulse for the study of non-linear optical processes of atoms and molecules such as multiphoton absorption and tunneling ionization in extreme ultraviolet, soft X-ray, and hard X-ray wavelength regions.

We have carried out the research and the development of the non-linear ionization processes of atoms and molecules at the SPring-8 Compact SASE Source (SCSS) test accelerator in RIKEN Harima Institute, which has unique features, intense short pulses and frequency tunability in the wavelength region from 50 nm to 62 nm. We measured the two-photon ionization cross-section of helium, the sequential multi-photon ionization of nitrogen, and performed pump-probe spectroscopy of nitrogen pumped by the EUV-FEL pulse and probed by ultra-short laser pulse.

In the seminar, I will present our research overview on the non-linear ionization of atoms and molecules in the strong EUV laser field, and latest status of seeded FEL generation and the application will be addressed.

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**Title :** From the study of the fiber laser to industrialization

**Speaker :** Dr. Kazuhiko Sumimura  
(Kokyo, Inc.)

The fiber laser is a growing market recently. It is used as a light source for materials processing, communication, medical care, military affairs, analysis, and measurement. It is also used for the front end of the ultrahigh-peak power laser and the pump laser of OPCPA.

Here, I talk about the market trend of the fiber laser and my past study of quasi-supercontinuum (QSC) generation for ultrahigh-resolution OCT. The QSC generation was demonstrated using ultrahigh-speed, wavelength-tunable, femtosecond soliton pulses based on an ultrashort-pulse laser system operating at a wavelength of 1.0  $\mu\text{m}$ . The wavelength tuning range was from 1.0 to 1.9  $\mu\text{m}$ , and the scanning speed was up to 1.3 MHz. Finally I will explain my life strategy and corporate strategy.

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