

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 4月 28日(火)
14:00 ~ 16:00, April 28 (Tue), 2009

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

題目: **Ultrafast focal-point optics for nonlinear microscopy and microprocessing**

講師: **Prof. Kazuyoshi Itoh (Osaka University)**

要旨: The high intensity at the focal point of tightly-focused ultrafast laser pulses strongly enhances interaction between light and matter in which the phase matching condition is left out of account. The localized interaction can be utilized for nonlinear optical microscopy and laser microprocessing. I will present our recent works on two types of new nonlinear optical microscopy and several laser microprocessing techniques. One of the two is based on the four wave mixing and the other stimulated Raman scattering. The laser processing techniques include those for photonic device fabrication, welding glass with metals and generation of nano-sized particles inside glass..

題目: **Precise length metrology using optical frequency combs**

講師: **Dr. Kaoru Minoshima (AIST)**

要旨: Optical frequency comb has revolutionized many research fields from fundamental science to application in 10 years. In this talk, two topics on length metrology using frequency combs from our group's activities will be introduced. One is about picometer displacement measurement using a Fabry-Perot cavity and a tunable optical single-wavelength generator based on a femtosecond optical frequency comb. The setup provides sub-pm (sub-10pm) stability over 1(30) minute(s), respectively. The other one is about high precision long absolute distance measurements. Intermode beats of a femtosecond frequency comb is used to realize 2-micrometer resolution for 240-m distance and sub-micrometer for short distance without significant air fluctuation.