

エクストリームフォトンクスセミナー
Extreme Photonics Seminar

No. 12

Language: English

Date : March 1 (Fri), 2013, 15:00 ~ 16:00
Location : Cooperation Center, 4F Meeting Room, W425
(研究交流棟 4 階会議室 W425)

Title : Femtosecond laser processing of fused silica: a micro-manufacturing platform for single-material microsystems

Speaker : Prof. Yves Bellouard
(Eindhoven University of Technology, The Netherlands)

Ultrafast lasers are characterized by ultra-high peak power pulses (Gigawatt/mm² or even Terawatt/mm² with table-top, commercial systems) leading to a radically different laser-matter interaction than conventional lasers: in particular, non-linear absorption phenomenon like multi-photons processes are observed opening new and exciting opportunities to tailor the matter in its intimate structure with spatial resolution smaller than the laser wavelength itself and noticeably, in three dimensions.

The first part of this talk will discuss the effect of these lasers on fused silica from the viewpoint of structural and physical properties modifications. The second part will show how these laser-induced modifications can be used to manufacture novel types of microsystems that integrate multiple functionalities in a single monolith.

As an illustration, we will present various microsystems that perform opto- fluidics and opto- mechanical functions.