

# エクストリームフォトンクスセミナー

## *Extreme Photonics Seminar*

日時: 平成20年8月19日(火)  
14:00 ~ 15:00, Aug.19 (Tue), 2008

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

題目: Laser Interaction with Materials: From Structuring to Thin Film Deposition

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Laser ablation has become an important scientific technology for physical, chemical, biomedical, and material sciences. The widespread application of laser ablation in material synthesis, surgery, spectroscopic and analysis, cutting, drilling, surface cleaning and texturing, and many other areas has generally outpaced research on fundamental physical processes. Laser ablation has gained enormous impetus especially in the field micro- and nanotechnology, and the need to understand fundamental behavior clearly exists. We are studying various fundamental as well as applied fields of laser ablation i.e. laser direct structuring, pulsed laser deposition (PLD) and laser-induced forward transfer (LIFT). In the field of laser direct structuring the structuring of glassy carbon for micro fuel cells and band-gap materials for microoptical elements will be discussed. Pulsed laser deposition and two variations of this technique are used to create thin crystalline films of perovskites and spinels. These films are used to study fundamental aspects of energy storage, e.g. in Li-ion batteries or electrodes in solid oxide fuel cells. The deposited films are studied by various methods while the deposition process is monitored by time- and space-resolved emission spectroscopy, ion probes, quartz microbalances, and mass spectroscopy. LIFT can be used to transfer functional sensitive materials, such as light emitting polymers, without degradation.

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