

# 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:** Feb.28(Tue), 2012, 15:00 ~ 16:00

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

**Title:** Femtosecond laser filamentation  
science in air

**Speaker :** Prof. See Leang Chin  
(Laval University)

When an intense femtosecond laser pulse propagates in air, it will self-focus resulting in a continuous series of foci, or a filament. Filaments can be formed remotely at different distances with different lengths, in principle. With a Ti-sapphire laser at a wavelength of 800nm (invisible), the color of the pulse will be broadened into the near UV as well as into the infrared after filamentation. This so-called chirped white light laser or supercontinuum could be used as a remote special purpose 'illuminator'. The intensity inside the filament core being high ( $\sim 5 \times 10^{13}/\text{cm}^2$ ), nonlinear optical phenomena occur inside the filament. Examples are third and higher harmonics generation, ultrafast birefringence, THz generation, molecular excitation giving rise to fluorescence, population trapping, molecular alignment, remote lasing in air, etc. Possible applications to remote detection of various chem-bio targets and pollutants as well as the induction of condensation (snow and rain making) will also be discussed.

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