Extreme Photonics Seminar

No. 5

Language: English

Date : Jan.9(Thu), 2014, 14:00 ~ 15:00

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

Title : Femtosecond laser pulses for remote sensing: fundamental and applications

Speaker : Prof. Huailiang XU
(College of Electronic Science & Engineering, Jilin University)

Powerful femtosecond laser pulses have demonstrated the capability to propagate at a distance as far as a few kilometers with high intensity of ~10^{13} W/cm^2. The intensity is high enough to induce ionization and fragmentation of all matters in the laser field, resulting in characteristic fingerprint emissions that could be used for identifying the substance. In this talk, the feasibility of femtosecond laser pulses for remote sensing of pollutants in the atmosphere will be first presented by demonstrating “clean” spectra from various targets ranging from gases, aerosols to solids. This will be followed by the introduction of several newly developed methods for coherent control of the fingerprint emissions of molecules. Finally, the underlying mechanisms responsible for the characteristic emissions of molecules in intense laser fields are discussed based on the understanding of strong-field-molecule interaction in atmospheric as well as in vacuum environments.

連絡先： 光量子工学研究領域 アト秒科学研究チーム 緑川(8532)
Contact: K. Midorikawa (ext.8532), Attosecond Science Research Team