

アト秒量子ダイナミクスセミナー

日時：2018年11月13日（火）15:00-17:15

場所：東6号館8階803会議室

15:00-16:00 Prof. Jiro Itatani, University of Tokyo

“Polarization analysis of high harmonic generation in crystalline solids”



Abstract: High harmonics (HHs) are produced in a semiconductor GaSe by using intense mid-infrared pulses. The polarization analysis with crystal rotation shows that the two origins of solid HHs, namely, the intraband current and interband polarization, behave differently. We also show that the HHs originated from intraband current is directly related to the band structure, which has mathematical similarity to molecular orbital tomography.

16:15-17:15 Prof. Chii-Dong Lin, Kansas State University

“A new method for spectral phase retrieval of single attosecond pulses utilizing the Auto-correlation of photoelectron streaking spectra”



Abstract: We have developed a new algorithm for retrieving the spectral phase of an isolated attosecond pulse based on the photoelectron spectra generated in atoms by the attosecond pulse in the presence of a time-delayed infrared laser. Instead of employing the whole set of the streaking spectra as in the previous phase retrieval algorithms, we calculated the autocorrelation (AC) of the streaking trace, and used it to extract the spectral phase. We illustrate that this method can be used to extract narrow- as well as broad-band attosecond pulses. For narrow-band pulses, this method does not have the limitation of the FROG-CRAB. We showed that the accuracy of the retrieved phase is best evaluated by comparing the AC of the experimental trace and the AC of the retrieved trace. For broadband pulses, we claimed that existing reported attosecond pulses in the soft-X-ray region have not been correctly retrieved.

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