



**4<sup>th</sup> May 2017 - 10:00h**

**CFEL – Building 99, seminar room I+II (ground floor)**

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## **XUV correlated electron dynamics in weak and strong fields**

Time-resolved XUV absorption spectroscopy gives direct access to bound-state few-electron dynamics of core and valence excited states in atoms. A deeper understanding of their (correlated) dynamics in response to driving electric fields can be understood as a fundamental building block to ultimately develop new quantum control schemes of ultrafast light–matter interaction, then applied to more complex systems and devices. Employing attosecond pulses from lab-based high-harmonic generation, perfectly synchronized to few-cycle NIR optical laser pulses, we make use of both the ultrashort capabilities of these sources to temporally resolve the ultrafast electron dynamics, as well as the high spectral resolution of grating-based optical detectors to spectrally resolve natural and laser-modified line shapes.

This talk gives an overview of experimental results from multidimensional (continuously tuning both the time delays and intensities of the laser pulses) spectroscopic measurements of small quantum systems, with access to bound-state correlated electron dynamics in atoms. As an outlook, a transfer of these concepts to all-XUV absorption spectroscopy at FELs, emphasizing on effects from intense XUV radiation, will be presented.

**Host: Jochen Küpper/ CFEL Molecular Physics Seminar**