



21st September 2016 - 2:00 p.m.
CFEL-bldg. 99, seminar room IV

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Exploring molecular strong field ionization with a hybrid coupled channels approach

Molecular strong field ionization (SFI) is at the heart of several ultrafast imaging/spectroscopic techniques such as laser induced electron diffraction and high harmonic spectroscopy. While proof-of-principle experiments are underway, it is still a long way before they can evolve into a standard imaging techniques. The coupled motion of electrons and nuclei under the influence of a non-perturbative external laser field is not fully understood yet and there is a strong demand for developing many body methods that can model these molecular SFI based processes.

I will present in this talk, the making of the hybrid coupled channels approach, one of the first multi-electron methods that has been realized in this context, by covering a range of technical aspects such as the construction of accurate channel functions, choice of gauge, linear dependency issues and so on. Using examples, I will demonstrate the role of multi-electron effects:

Exchange, core electron polarization and inner orbital ionization in molecular SFI.