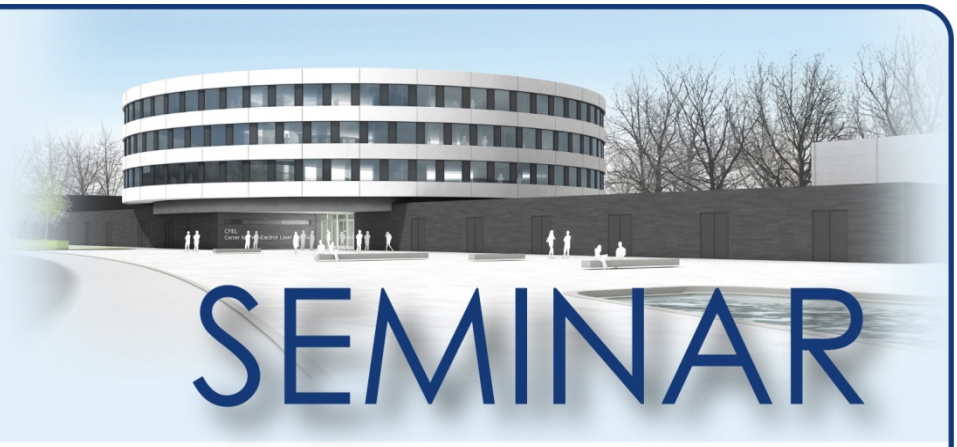
CFEL SCIENCE



SEMINAR

16 February 2023, 10:00–11:00h
CFEL (Bldg. 99) seminar room I+II

Serguei Patchkovskii

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Electron–nuclear correlations in attosecond and strong-field dynamics

On the timescale of interest to attosecond and strong-field science, electronic dynamics reign supreme. The heavier nuclei barely have time to move – and yet, electrons and nuclei remain correlated. I will look at two, limiting-case examples of such correlations: electronic-hole dynamics induced by broad-band, one-photon ionization; and centre-of-mass motion triggered by strong-field electronic excitation. For the hole dynamics, the minute nuclear displacements can cause the reduced electronic coherence to vanish after a few femtoseconds, effectively suppressing electronic dynamics on the longer time scales. In the other limiting case, the weak coupling of electronic dynamics to the centre-of-mass motion provides a sensitive, yet non-destructive probe of strong-field processes.

Host: Jochen Küpper/ CFEL Molecular and Ultrafast Science Seminar