

Physikalisches Kolloquium



Thursday, 08.02.2024, 16:15, HS 100

Reception with coffee & cookies 16:00

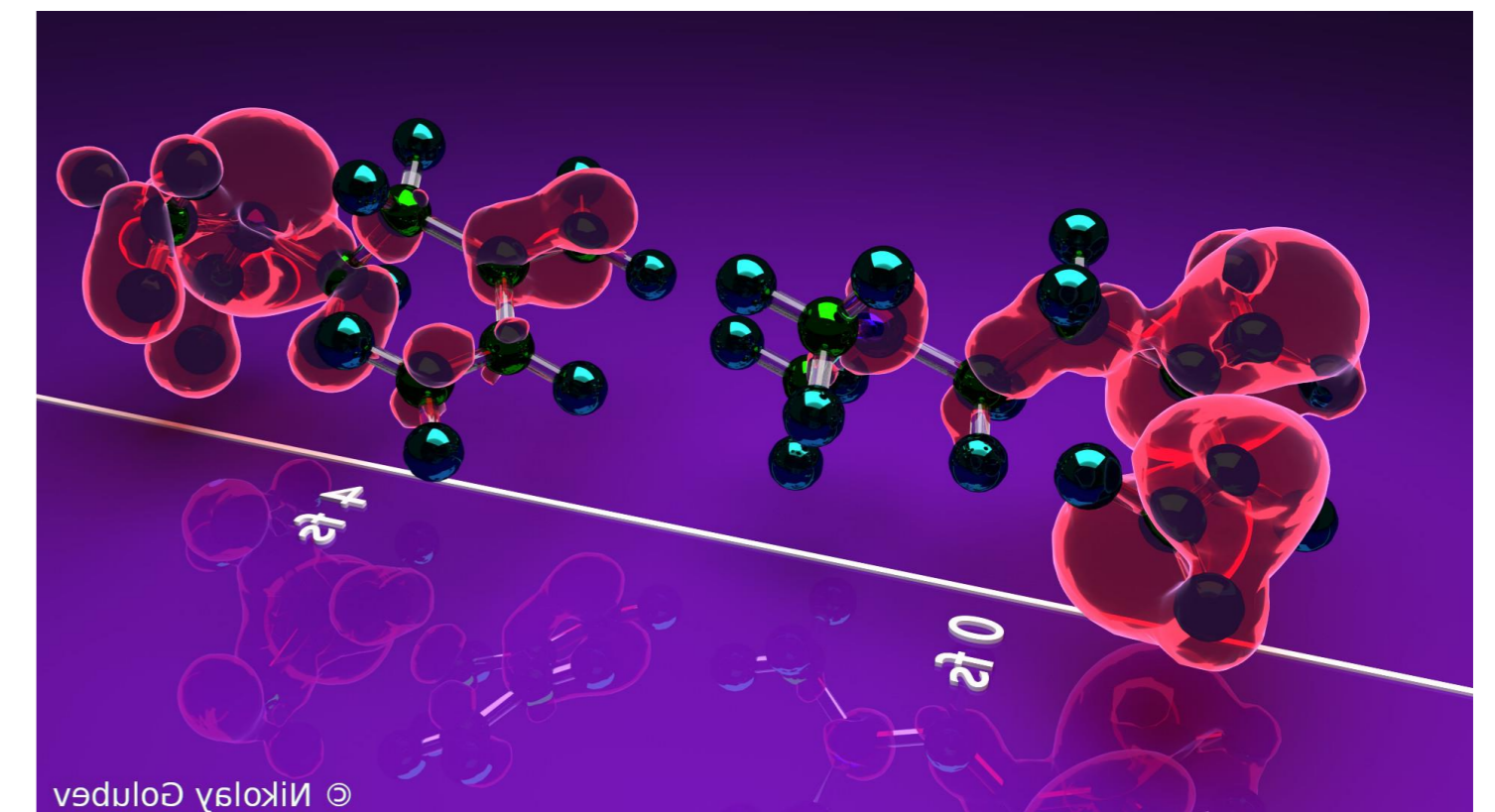
(For university staff: please bring your own cup for sustainability reasons)

Prof. Dr. Alexander I. Kuleff, Theoretical Chemistry Group,
Heidelberg University:

Ultrafast non-adiabatic charge dynamics in molecules initiated by ionization or excitation

Abstract

Exposing molecules to ultrashort pulses results typically in a coherent population of several and even many electronic states. This triggers complex ultrafast dynamics in which both the electron and nuclear motions are strongly coupled and leads to a redistribution of the charge within the system. In this talk, fully quantum simulations of ultrafast charge dynamics initiated by both ionization and excitation of polyatomic molecules will be presented, and the possibility to trace these dynamics by attosecond transient-absorption spectroscopy will be discussed. Examples of decoherence and revival of coherence will be shown, as well as of the transfer of electronic coherence through conical intersections. The possibility for a laser control of the electron-coherence time and the effect of optical cavity will also be discussed.



All of you interested in physics are cordially invited!