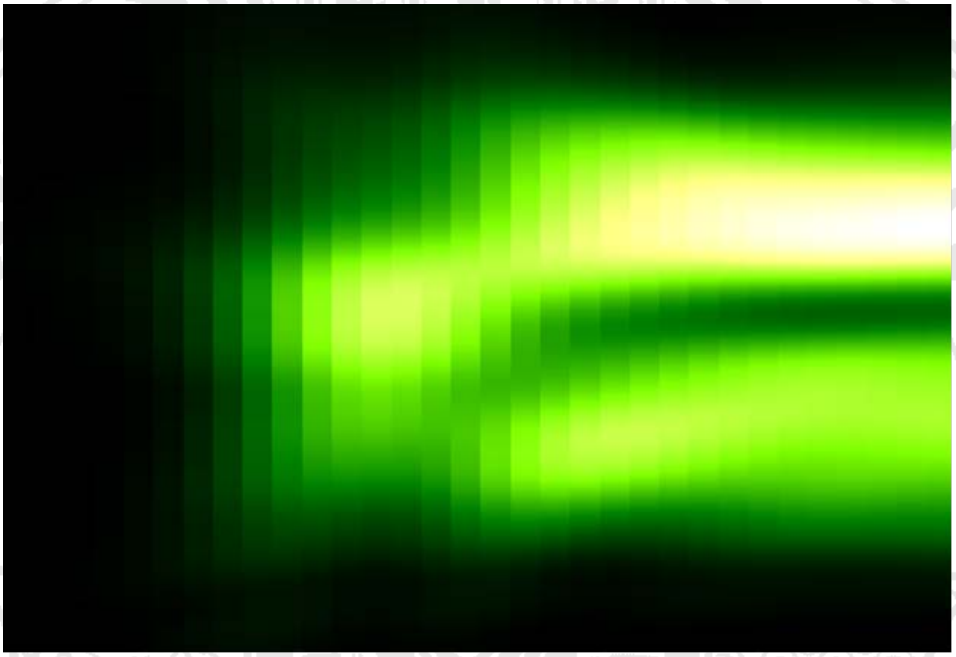
PHYSIKALISCHES KOLLOQUIUM

AM 19. JUNI 2017 UM 17 UHR C.T.

IM HÖRSAAL I, PHYSIKHOCHHAUS



ATTOSECOND PHOTOIONIZATION SPECTROSCOPY: USING ATTOSECOND LIGHT PULSES TO CLOCK ELECTRON EMISSION

DR. PASCAL SALIERÈS

CEA, CNRS, UNIVERSITÉ PARIS-SACLAY

The recent generation of attosecond light pulses (1 attosecond = 10^{-18} s) has opened the possibility to track the fastest dynamics in matter, in particular the electron dynamics that naturally occur on such a short timescale. Attosecond spectroscopy is thus able to shed new light on fundamental electronic processes involved in a variety of physical, chemical and biological reactions. A recent example is photo-electron emission: tiny delays between photon absorption and electron emission are becoming measurable in rare gas atoms, molecules or solids. When ionization occurs in the vicinity of a resonance, the dynamics is strongly perturbed and cannot be simply characterized by a group delay. It is now possible to reconstruct the full ionization dynamics, e.g., through a Fano resonance, evidencing how photoelectron wavepackets are born and morph into asymmetric Fano profiles. During this colloquium, I will review the recent studies performed at CEA-Saclay in attosecond photoionization spectroscopy, with a special emphasis on the above example.