

Phase retrieval of broadband attosecond light pulses and electron wave packets

C. D. Lin

Kansas State University

Abstract

Time-domain physics, unlike the traditional energy-domain physics, is all about the phase. Since laboratory measurements are always carried out in the energy domain, to a large extent, **ultrafast dynamics is all about the retrieval of spectral phase of the light pulse and/or of the electron wave packet**. For the light pulse, RABITT and FROG-CRAB have been proposed and used to retrieve the spectral phases of attosecond pulses, but their limitations are often ignored. I will present some recent progress we have made on this issue, especially for the retrieval of broadband pulses. On the retrieval of electronic wave packets, the prevailing literature has focused on the “photoionization time delay” and “charge migration”, instead of the spectral phase of the wave packet. I would like to raise the issue of what is supposed to be an “electronic movie” for the description of attosecond electron dynamics.