

4CF15-2015-000325

Abstract for an Invited Paper
for the 4CF15 Meeting of
the American Physical Society

Attosecond spectroscopy: Application in study of conical intersections

ARVINDER SANDHU, APS

The emergence of attosecond spectroscopy has offered researchers a new experimental tool, which provides unprecedented temporal resolution for the direct measurement and control of electronic processes. Pioneering studies have obtained unique physical insights by taking snapshots of atomic and molecular phenomena on the natural timescale of electrons. Ongoing efforts aim to expand the scope of attosecond XUV research for exploration of complex dynamics in molecules and materials. In this talk I will discuss our recent work on the study of coupled electron-nuclear dynamics, where we probe the coherent evolution of electron hole near a conical intersection of a polyatomic molecule. Such conical intersections serve as nature's energy funnels in many biochemical processes (e.g. DNA repair, light harvesting etc.). I will show that apart from the sensitive measurements of electronic couplings, we can also use our methods to monitor the evolution of quantum coherence in molecular dynamics.