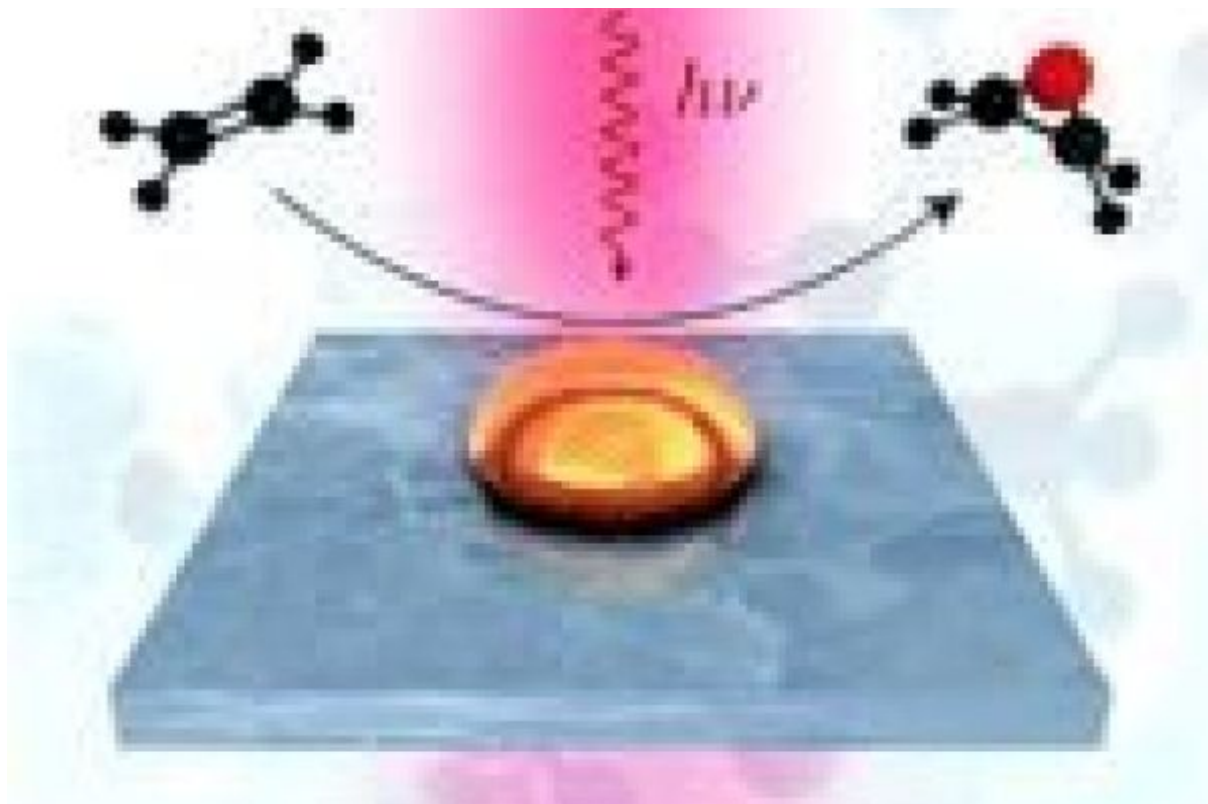




Coherent Control of Individual Molecules

Review on fs single molecule detection in *Chem. Soc. Rev.*

January 29, 2014

ICFO contributes with a Tutorial Review on "Ultrafast Single Molecule Detection" to the special themed issue on "Single Molecule Optical Spectroscopy" in *Chemical Society Reviews*.

Since its inception more than 20 years ago, optical spectroscopy of single molecules has steadily expanded to an amazing variety of fields of natural science. The technique itself has experienced a spectacular breakthrough with super-resolution microscopy, with the tracking of fluorescent proteins, molecular motors, protein folding, diffusion, with spectroscopy of individual plasmonic nanoparticles and numerous applications to other new materials.

The ultrafast time scale (fs - ps) has always been a challenge in single molecule detection. In this review the advances of 8 year of ultrafast single molecule detection are presented step

by step, from first incoherent fs traces, towards coherent control electronic and vibrational dynamics of chromophores and finally the tracking of persistent coherences in light harvesting complexes.