Hot electrons widen the promises of localized plasmons

Bruno Palpant

Laboratoire de Photonique Quantique et Moléculaire, CentraleSupélec, ENS Paris-Saclay, CNRS, Université Paris-Saclay, 2 rue Joliot-Curie, 91190 Gif-sur-Yvette, France

The localized plasmon resonance enables effective input of energy into metal nanoparticles by light irradiation. Using ultrashort laser pulses leads to the generation of a hot electron gas, the dynamics of which results in diverse interesting phenomena: transient ultrafast modulation of the optical response, multiphoton emission of both electrons and broadband light, strong heat burst. We will present the basic principles and illustrate these effects through examples.