

# Ultrafast Studies of Single Plasmonic Nanostructures

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4 PM



The optical properties of metal nanostructures are dominated by plasmon resonances, which are strong collective motions of the conduction electrons. These resonances are at the heart of a variety of schemes for molecular sensing and plasmon enhanced catalysis. However, the dynamics of plasmons can be difficult to study due to the distribution of particle sizes and shapes present in typical samples. In this talk I will describe single particle experiments that provide information about the ultrafast energy relaxation processes of plasmonic nanostructures, and how these structures interact with their environment. Examples of the processes that have been studied include the creation of novel hybrid states through coupling between plasmons and excitons, and the strange case of viscoelastic effects in the damping of vibrational modes of metal nanostructures.