

Coherent multidimensional techniques for the characterization of nanomaterials

Elisabetta Collini

Department of Chemical Sciences, University of Padova, via Marzolo 1, 35131 Padova, Italy

elisabetta.collini@unipd.it

Abstract

2D electronic spectroscopy (2DES) techniques have gained particular interest given their capability of following ultrafast processes in real-time. These techniques have been primarily applied to biological complexes but are now gaining ground to characterize transport processes in artificial nanomaterials and nanodevices.

In this lecture, I will highlight the enormous potential of 2DES techniques to impact the field of nanosystems, quantum technologies, and quantum devices. The attention will be focused in particular on recent results obtained on semiconductor nanocrystals ('quantum dots') in solid-state devices and metal-organic hybrid systems.