



Πανεπιστήμιο  
Κύπρου

The Department of Physics at the University of Cyprus  
is organizing a seminar on

**Wednesday, 23 of November 2016, time 5:00 p.m.**

Room B229, Building 13, New Campus

Speaker:

**Professor Rodolfo Jalabert**

Institut de Physique et Chimie des Matériaux de Strasbourg, CNRS,  
Université de Strasbourg, France

**“Radiative and nonradiative decay of collective excitations  
in metamaterials built from metallic nanoparticles”**

The surface plasmon excitation occurring at optical frequencies in a metallic nanoparticle is a resonance involving the oscillation of the center of mass of conduction electrons. Radiative and nonradiative damping mechanisms contribute to the decay of this excitation. When metallic nanoparticles are assembled in an array, the dipolar near field interactions couple the plasmons of the individual particles, giving rise to collective modes that are distributed on the whole structure. In the cases of a dimer and a chain of nanoparticles, we calculate the frequencies and decay rates of the collective modes using an open quantum system approach. The size- and momentum-dependent nonradiative Landau damping is shown to be crucial in the case of small nanoparticles and become the limiting factor for plasmonic propagation along nanoparticle chains.

For more information please contact:  
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