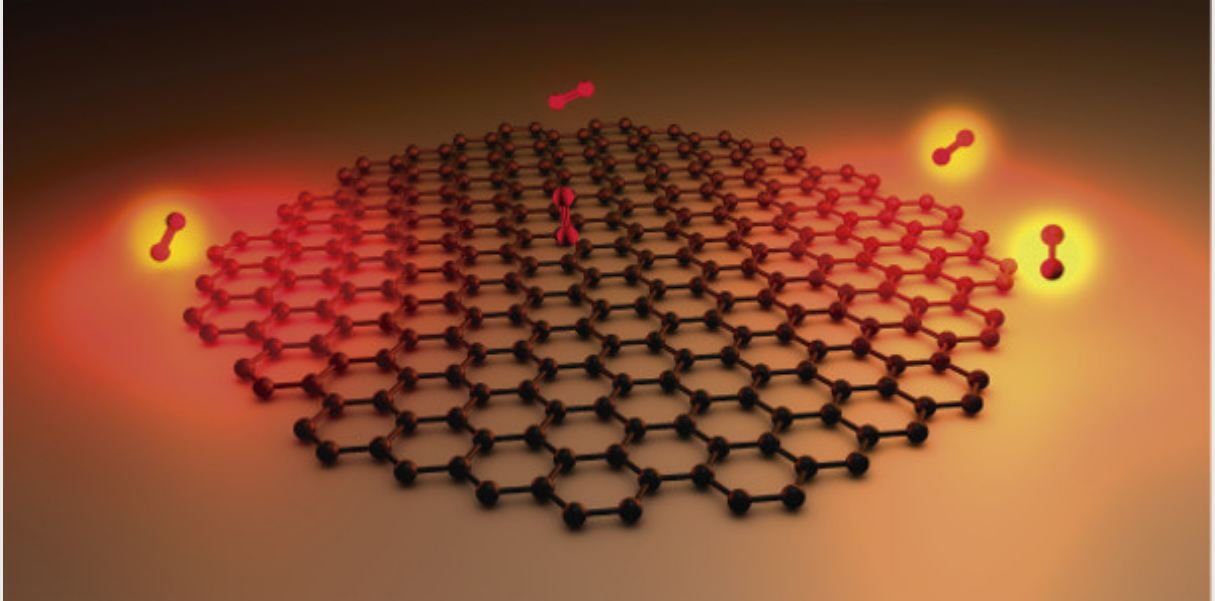


Metallic Nanostructures and Quantum Emitters



Title: Metallic Nanostructures and Quantum Emitters.

When: Wednesday, April 03, (2019), 12:00.

Place: Department of Theoretical Condensed Matter Physics, Faculty of Sciences, Module 5, Seminar Room (5th Floor).

Speaker: Alejandro Manjavacas, University of New Mexico, USA.

The optical response of quantum emitters, such as atoms, molecules, or quantum dots, is strongly modified by their interaction with the near-field of metallic nanostructures that support plasmon resonances. In this talk, we will discuss recent results showing how different metallic nanostructures, ranging from 3D gold elements to 2D graphene systems, can enhance the rates of dipole-forbidden transitions. Furthermore, we will analyze the fundamental limits of the local density of photonic states, a magnitude that quantifies the interaction of a quantum emitter with the local electromagnetic field, through the study of a sum rule that establishes an upper bound to this quantity. Finally, if time permits, we will discuss the response of arrays with multi-particle unit cells using an analytical approach based on plasmon hybridization, which provides a simple and efficient way to design structures with engineered properties.