Departamento de Física de la Materia Condensada
Universidad Zaragoza

SEMINARIOS 2021

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Manipulating matter by strong coupling to vacuum fields

Excitons are bound pairs of excited electrons and holes and play a crucial role in many photophysics processes occurring in Nature, such as photosynthesis and light absorption in organic and inorganic semiconductor materials. On the other hand, one of the most important phenomena in Quantum Electro-Dynamics (QED) is the so-called ``Strong Coupling'' regime, which appears when the interaction between light and excitons in matter is so strong that the photon and matter components mix to create hybrid light/matter states, called polaritonic modes. Traditionally, this hybrid character has been used to achieve new functionalities in which polaritons are thought of as dressed photons, e.g., by exploiting exciton-exciton coupling to construct interacting photons. However, over the last years, it has become clear that the strong coupling regime can be used with an alternative purpose: to significantly modify internal material properties and chemistry by dressing the excitons.

Francisco José García Vidal es catedrático de Física Teórica de la Materia Condensada en la Universidad Autónoma de Madrid (UAM). Se doctoró en la UAM en el año 1992, realizando más tarde una estancia postdoctoral en el Imperial College de Londres. El Prof. García Vidal ha sido investigador principal en numerosos proyectos nacionales e internacionales, entre ellos una ERC Advanced Grant, es miembro del consejo editorial de la revista Physical Review Letters, fellow de la Optical Society of America y ha recibido el premio Jaume I en su modalidad de investigación básica. Francisco J. García Vidal es también director, desde su fundación en el año 2012, del Centro de Investigación en Física de la Materia Condensada (IFIMAC) de la UAM.

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14th of May (Friday)

PLACE: Zoom & Youtube (scancode)

TIME: 12:30

zoom

SCAN ME