Departamento de Física de la Materia Condensada

Universidad Zaragoza

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David Zueco

Instituto de Nanociencia y Materiales de Aragón,
CSIC - Universidad de Zaragoza

Light-matter interfaces, a journey from quantum optics to quantum materials

Light-matter interaction offers the potential to control, measure, and modify the properties of matter. When the intensity of light is sufficiently high, it can be considered a classical field. However, reducing the number of photons both light and matter behave quantum mechanically, and their interplay yields novel phenomena, primarily due to light-matter entanglement. Pushing this concept further, we can consider utilizing the quantum vacuum of light as a means to control, measure, and modify the properties of matter. In this talk, I will discuss these light-matter interactions in a broad context, setting the stage for the final part, which is dedicated to exploring how the light vacuum influences matter.

Dr. David Zueco did his PhD on quantum open systems at Universidad de Zaragoza (2007), then he moved to Augsbrug in the group of Peter Hanggi. In 2011 he became Araid researcher and since 2020 he is Tenured Scientist at CSIC (INMA). He also serves as the coordinator of the interuniversity master's program in quantum technologies. As a theoretical physicist, his work centers on quantum optics, focusing on the interaction between light and matter at the quantum level. He is also interested in the quantum many-body problem and exploring how quantum computing and artificial intelligence algorithms can assist in solving challenges within condensed matter and optimization tasks.

Con la colaboración de:

Facultad de Ciencias
Universidad Zaragoza

INMA

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Consejo Superior de Investigaciones Científicas
Universidad Zaragoza

2 Febrero (viernes)

HORA: 12:30

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