

Nanocavities, nano-imaging, and quantum technologies with twisted and stacked 2D materials

Frank Koppens

ICFO (Barcelona)
Frank.Koppens@icfo.eu

Two-dimensional (2D) materials have extraordinary potential to control light and light-matter interactions on an atomic scale. Recently, twisted 2D materials have drawn considerable attention due to their capability of inducing moiré superlattices and the discovery electronic correlated phases. Various nanoscale optoelectronic probing scheme, utilizing infrared and terahertz radiation, are presented, revealing the materials topology, photoconversion, interaction effects and even single photon detection capabilities. Furthermore, by probing modulated 2D materials on the nanoscale, record-small nanoscale polaritonic cavities are revealed, as well as the formation of nanoscale hypercrystals, exhibiting negative refraction and topological interface states

Figures

