Embedded quantum light emitters support the study of confined light and matter interactions

The interaction of light and matter, and the dual particle–wave nature of both, is at the heart of quantum theory. Light exists as both waves and particles; the photon is a quantum of light. Similarly, all matter exhibits wave-like behaviour. Phonons are elementary units of vibrational energy arising from oscillating atoms in a crystal. Vibration in one atom can set off a wave (phonon) travelling through the crystal. Heat is also the result of the motion of atoms and molecules. Unlike photons of different frequencies (and corresponding wavelengths) that generally do not interact, phonons...
of different wavelengths can bump into each other and produce different wavelengths. The EU-funded FOWLING project is investigating quantum optomechanical nanostructures with a goal of increasing the understanding and control of optomechanical coupling (of photons and phonons) for applications ranging from quantum information processing to quantum sensors.

**Fields of science**

natural sciences > physical sciences > electromagnetism and electronics > electromagnetism  
natural sciences > physical sciences > optics > cavity optomechanics  
natural sciences > physical sciences > atomic physics  
natural sciences > physical sciences > theoretical physics > particle physics > photons

**Keywords**

Optomechanics  light-matter interaction  lasing

**Programme(s)**

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions  
H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

**Topic(s)**

MSCA-IF-2019 - Individual Fellowships

**Call for proposal**

H2020-MSCA-IF-2019

See other projects for this call

**Funding Scheme**

MSCA-IF - Marie Skłodowska-Curie Individual Fellowships (IF)
Coordinator

FUNDACIO INSTITUT CATALA DE NANOCIENCIA I NANOTECNOLOGIA

Net EU contribution
€ 160 932,48

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Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Other funding
€ 0,00

EC signature date 17 April 2020
Last update: 24 July 2023

Permalink: https://cordis.europa.eu/project/id/897148

European Union, 2023