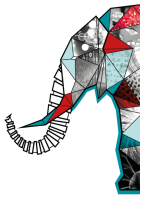
25e Congrès Général de la Société Française de Physique



ID de Contribution: **169** Type: **Poster**

Dark vertical conductance of cavity-embedded semiconductor heterostructures

We present a linear-response nonlocal theory of the electronic conductance along the vertical (growth) direction of a generic doped semiconductor heterostructure embedded in a single-mode cavity electromagnetic resonator in the absence of illumination [1]. The conductance depends on the ground-state properties and virtual collective polaritonic excitations [2, 3] that have been determined via a bosonic treatment in the dipole gauge. We show that, depending on the system parameters, the cavity vacuum effects can enhance or reduce significantly the dark vertical conductance with respect to the bare heterostructure.

[1] C. Naudet-Baulieu, N. Bartolo, G. Orso and C. Ciuti, preprint arXiv:1903.11562.
[2] N. Bartolo and C. Ciuti, Phys. Rev. B 98, 205301 (2018).
[3] G. L. Paravicini-Bagliani, F. Appugliese, E. Richter, F. Valmorra, J. Keller, M. Beck, N. Bartolo, C. Rössler, T. Ihn, K. Ensslin, C. Ciuti, G. Scalari, and J. Faist, Nature Physics 15, 186 (2019).

Choix de session parallèle

2.3 Fluides quantiques et lumière

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Classification de Session: Séance Poster