25e Congrès Général de la Société Française de Physique

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Permanent heat currents in optically-coupled optomechanical chains

We investigate arrays of optomechanical resonators where only neighboring optical modes are coupled. We derive the general effective master equation that governs the reduced dynamics of the mechanical modes. In particular, optical driving of the array produces an effective phonon hopping coupling between mechanical modes as well as a directional dissipative coupling. By considering a ring geometry, we show that such systems can exhibit cavity-mediated permanent circulating heat currents that can be controlled by the phase of the optical driving fields. We discuss the promising perspectives for semiconductor optomechanical microdisk arrays.

Choix de session parallèle

2.3 Fluides quantiques et lumière

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