
Electron-phonon quantum simulator

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Résumé

We consider a mixture of two species of atoms. One of them is spin-polarised and trapped in an optical lattice acting as the "ions", while the other is untrapped and can act as the electron component through its interactions with the first species. We show that there is a Peierls transition in this mixture as well as a new type of polaron problem. One of the novelties of this approach is to explore the low energy oscillations of atoms in the optical lattice.

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