

Interplay Between Electron Phonon And Coulomb Interactions

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Interplay Between Electron Phonon And

The interplay between electron-phonon (EP) interaction and strong electron-electron (e-e) interaction in strongly corr elated electron systems is an .

(PDF) Interplay Between Electron-Phonon Interaction And ...

Interplay between electron-electron and electron-phonon interactions in nanostructures. The interaction between electrons and atomic vibrations (phonons) is a beautiful example of how a process from the heart of quantum mechanics can impact on us every day: this is how current heats up wires making your toaster work.

Interplay between electron-electron and electron-phonon ...

doped fullerenes is due to an interplay between the electron-phonon and electron-electron interaction. In particular, it is crucial that the important coupling is due to Jahn-Teller H g phonons.

Interplay between electron-phonon and electron-electron ...

We discuss the interplay between electron-electron and electron-phonon interactions for alkali-doped fullerenes and high temperature superconductors. Due to the similarity of the electron and phonon energy scales, retardation effects are small for fullerenes.

Interplay between electron-phonon and electron-electron ...

An exact diagonalization study of the Hubbard model having both on-site and inter-site electron-phonon interactions in the weak-coupling limit shows that on-site electron-phonon interaction generates an effective attraction between electrons which forms an on-site bipolaron (S0). On the other hand, electron-phonon interaction between nearest neighbor sites forms both on-site and inter-site ...

Interplay Between Electron-Phonon Interaction and Hubbard ...

Interplay between electron-phonon and Coulomb interactions in cuprates $S_q = (0.5, 0, 0)$ $q = (0.5, 0, 5, 0)$ A1g 1g B Figure 1. Half-breathing (upper left), breathing (lower left), A1g (upper middle), B1g (lower middle) and apical oxygen OZ Z (right) phonon modes. In the left and middle

Interplay between electron-phonon and Coulomb interactions ...

We first discuss the interplay between Coulomb and electron-phonon interactions in terms of sum rules for the imaginary parts of the electron and phonon self-energies. We consider the t-J model (equation) and the electron-phonon coupling in equation for k-independent coupling $g(k, q) = g(q)$, which results in an on-site coupling.

Interplay between electron-phonon and Coulomb interactions ...

We consider two different electron-phonon interactions, namely the ionic coupling for both modes, in which displaced oxygens influence the energy level on copper, and the covalent coupling for the breathing mode, which changes the Cu-0 hopping.

Interplay Between Electron Correlations and Electron ...

Interplay between electron-electron interaction and electron-phonon coupling near the Fermi surface of 1T-TaS 2

Interplay between electron-electron interaction and ...

Understanding the impact and complex interaction of thermal carrier scattering centers in functional oxide systems is critical to their progress and application. In this work, we study the interplay among electron and phonon thermal transport, mass-impurity scattering, and phonon-vacancy interactions on the thermal conductivity of cadmium oxide.

Interplay between mass-impurity and vacancy phonon ...

Formation of electron pairs is essential to superconductivity. For conventional superconductors, tunnelling spectroscopy has established that pairing is mediated by bosonic modes (phonons): a peak...

Interplay of electron-lattice interactions and ...

We find that genuine many-body results, due to the interplay between the electron-electron and electron-phonon interactions, play an important role for the the results in the t-J model. (© 2005 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim)

Interplay between electron-phonon and electron-electron ...

Here we report the discovery of fermion-boson many-body interplay in kagome lattice of CoSn, which arises from the coupling of the phonon flat-band with the kagome electrons, utilizing the...

Fermion-boson many-body interplay in a frustrated kagome ...

The electron relaxation and thermalization of the two subsystems are a direct result of an interplay between electron-phonon coupling and hot-electron diffusion . Purely time-resolved studies...

Tracking ultrafast hot-electron diffusion in space and ...

Effects due to the interplay between the Coulomb and electron-phonon interactions are studied. For weakly doped cuprates, the phonon self-energy is strongly reduced due to correlation effects, while there is no corresponding strong reduction for the electron self-energy.

Interplay between electron-phonon and Coulomb interactions ...

He et al. found a rapid and correlated increase of the superconducting gap and electron-phonon interactions as the chemical composition of their bismuth-based cuprate samples was varied across a...

Rapid change of superconductivity and electron-phonon ...

Interplay between charge-lattice interaction and strong electron correlations in cuprates: Phonon anomaly and spectral kinks Article (PDF Available) in EPL (Europhysics Letters) 91:47007 · April ...

(PDF) Interplay between charge-lattice interaction and ...

For $\beta = \text{Ga}_2\text{O}_3$ and ZnGa_2O_4 , initial attempts to interpret the measured magnetoconductivity raised fundamental questions about the interplay between the large number of phonon modes in these lattices, electron-phonon scattering, and lattice disorder.

Electron-phonon coupling and electron mobility in ...

Interplay between the electrical and thermal transport of silicon nanoscale MOSFETs. Mohamed Mohamed, Zlatan Aksamija ... In this report we introduce our newly developed 3D full-band particle Monte Carlo (MOCA3D) simulator with full electron and phonon dispersion and use it to investigate the electro-thermal behavior of Silicon-on-Insulator n ...