



Dynamics of phonon clouds of correlated polarons

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Abstract

We investigate the Anderson-Holstein model with strong repulsion of impurity electrons using a strongcoupling approximation. The strong electron-phonon interaction determines the formation of polarons with heavy clouds of phonons surrounding the impurity electrons. We describe the collective mode of phonon clouds and the relation between electron propagators and correlation functions. We obtain the dependence of the collective mode energy on the hybridization parameter in the case $T = 0$ and prove that it is suppressed by increasing hybridization.

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