

Abstract Submitted  
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**Density-matrix renormalization group study of pairing in Holstein-Hubbard model: effect of electronic band structure**<sup>1</sup> MASAKI TEZUKA, University of Tokyo, RYOTARO ARITA, Max-Planck Institute Stuttgart and University of Tokyo, HIDEO AOKI, University of Tokyo — The density-matrix renormalization group, with a modification [1], is used to directly obtain correlation functions[2] when both electron-electron and electron-phonon interactions are strong with the Holstein-Hubbard model in a region intermediate between the adiabatic (Migdal's) and antiadiabatic limits. We found that the pairing correlation for a one-dimensional system at half-filling does not dominate over the charge density-wave(CDW) correlation, even when the phonon-induced attraction is comparable with the electron-electron repulsion. However, the pairing is shown to become dominant in a trestle lattice where the electron-hole symmetry is absent, which indicates that superconductivity can appear in a manner dependent on the lattice (hence the electronic band) structure even for the Holstein-Hubbard model with on-site interactions. Band- filling dependence is also discussed. [1] M. Tezuka, R. Arita, and H. Aoki, *Physica* 359B-361B, 708 (2005). [2] M. Tezuka, R. Arita, and H. Aoki, *Phys. Rev. Lett.* 95, 226401 (2005).

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Masaki Tezuka  
University of Tokyo

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