

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Electron-electron interaction in superconducting Lithium under pressure¹ AMANDEEP KAUR, ERIK YLVISAKER, University of California, Davis, DEYU LU, YAN LI, Brookhaven National Laboratory, GIULIA GALLI, WARREN PICKETT, University of California, Davis — Lithium is known to exist in different phases and to superconduct under pressure (P). We investigate the screened electron-electron interaction in Li as a function of P by analyzing the dielectric band structures of several phases. These band structures are obtained by iterative diagonalization² of the dielectric matrix as a function of wave vector and frequency. Even though the superconductivity in lithium is electron-phonon mediated, lithium is a good test system to study the screened e-e interaction more generally, which might be a primary mechanism for the superconductivity in high T_c nitrides of the form $MNCl$ ($M=Ti,Zr,Hf$).

¹Work supported by Grant # DE-FC02-06ER25777.

²H.Wilson, F.Gygi and G.Galli, Phys. Rev. B, 78,113303 (2008); Hugh F. Wilson, Deyu Lu, Francois Gygi Phys. Rev. B. 79, 245106 (2009).

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Date submitted: 14 Dec 2010

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