

Abstract Submitted
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Electron phonon coupling and phonon renormalization in covalent metals PEIHONG ZHANG, SUNY - Buffalo, STEVEN G. LOUIE, MARVIN L. COHEN, UC Berkeley — Electron-phonon (el-ph) coupling contributes to the finite lifetime of both electrons and phonons, renormalizes their energy, and is responsible for conventional superconductivity. Therefore, phonon renormalization relates directly to the el-ph coupling in metals and is a convenient indication of the coupling strength. In this talk, we will discuss phonon renormalization effects in materials with strong el-ph coupling using a recently developed formalism [1]. We will focus on covalent metals such as MgB₂ and related systems and heavily doped covalent semiconductors.

[1] P. Zhang, S. G. Louie, and M. L. Cohen, PRL **94**, 225502 (2005).

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