

Abstract Submitted  
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**Spin-resolved electron-phonon coupling in FeSe**<sup>1</sup> TIMUR BAZHIROV, JESSE NOFFSINGER, MARVIN L. COHEN, University of California Berkeley — FeSe is one of the simplest iron-based superconductors. There are previous studies indicating that including the iron magnetic moment ordering has a significant effect on electron-phonon interactions and thus might be important for superconductivity. To explore the role of spin-dependent phonon induced pairing of the electrons, we apply first principle techniques based on the pseudopotential density functional approach and the local spin density approximation to calculate the electron-phonon coupling properties of FeSe. Our results indicate that introducing magnetic moments leads to a significant increase in coupling at least for certain phonon modes. At the gamma point in the Brillouin zone the increase is two-fold. Both phonon renormalization and electron-phonon matrix elements increases are present.

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