

Abstract Submitted
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Electron-phonon renormalization effects in the ARPES spectra of doped graphene: a first principles approach FRANCESCO MAURI, MATTEO CALANDRA, IMPMC, Universite Paris 6 — Recent experimental investigations of the hole excitations in graphene [1], bilayer graphene [2] and graphite [3] by angular resolved photoemission indicated the occurrence of kink structures in the band dispersions and in the lifetime of hole excitations. These kinks have been attributed to electron-phonon coupling effects. In this work we calculate the effect of electron-phonon scattering on the angular resolved photoemission spectra (ARPES) of graphene as a function of doping. We use electron-phonon coupling parameters derived from density functional theory calculations. We compare our results for the quasiparticle dispersion and for the lifetime of the electrons and holes with those obtained from ARPES.

- [1] A. Bostwick *et al.*, cond-mat/0609660
- [2] T. Ohta *et al.*, Science **313**, 951 (2006)
- [3] S. Zhou *et al.* cond-mat/0609028

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