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Electronic structure of potassium graphite intercalation compounds KC8 and KC24 J. CAMACHO, Brookhaven National Laboratory, M.H. UPTON, Argonne National Laboratory, Z.-H. PAN, T. VALLA, Brookhaven National Laboratory, A.V. FEDOROV, Lawrence Berkeley National Laboratory, A.C. WALTERS, C.A. HOWARD, M. ELLERBY, University College London — The recent discovery of high superconducting transitions in graphite intercalation compounds has sparked a new wave of interest in these materials. We report angle-resolved photoemission spectroscopy study of the first and second stage of graphite intercalated with potassium: KC8 and KC24. In both compounds, a complete charge transfer from the alkali metal to the graphene sheets was observed. Electron-phonon coupling on graphene-derived p^* states with in-plane graphene-derived phonons is stronger in KC8, following a universal trend observed in other alkaline intercalated compounds where the coupling strengthens with doping of p^* states. The observed coupling is therefore a good candidate for pairing interaction that causes superconductivity in graphite intercalation compounds.

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