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Fermi Surface Topology Effects on the Electron-Phonon Coupling in Electron-doped Cuprates S.R. PARK, D.J. SONG, C.S. LEEM, CHUL KIM, C. KIM¹, Institute of Physics and Applied Physics, Yonsei University, Seoul, Korea, B.J. KIM, School of Physics and Center for Strongly Correlated Materials Research, Seoul National University, Seoul, Korea, H. EISAKI² — We have performed high resolution angle resolved photoemission (ARPES) studies on electron doped cuprate superconductors $\text{Sm}_{2-x}\text{Ce}_x\text{CuO}_4$ ($x=0.10, 0.15, 0.18$). Imaginary parts of the electron removal self energy by a newly developed method shows kink-like features due to electron-bosonic mode coupling. The kink-like feature is seen along both nodal and anti-nodal directions but at different energies of 50 and 70 meV. Such energy scales can be reconciled by taking the Fermi surface topology and phonon dispersions into account, revealing the kink structures are due to the electron-phonon coupling. Estimated electron-phonon coupling constant λ from the self energy is about 0.6 independent of doping and is isotropic. In addition to the low energy feature, we observe a hump structure at 350 meV which is anisotropic and exists only in the anti-nodal spectrum.

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