Electronic Raman Response in Electron-Doped Cuprate Superconductors

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The electronic Raman response in the electron-doped cuprate superconductors is studied based on the kinetic energy driven superconducting mechanism\(^1\). It is shown that although the domelike shape of the doping dependent peak energy in the \(B_{2g}\) symmetry is a common feature for both electron-doped and hole-doped cuprate superconductors\(^2\), there are pronounced deviations from a cubic response in the \(B_{1g}\) channel and a linear response in the \(B_{2g}\) channel for the electron-doped case in the low energy limit. It is also shown that these pronounced deviations are mainly caused by a nonmonotonic d-wave gap in the electron-doped cuprate superconductors\(^3\).


\(^3\)Zhihao Geng and Shiping Feng, arXiv:cond-mat/1103.2228.