

Abstract Submitted
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Doping evolution of nodal quasiparticle velocities in cuprate superconductors S. RENÉ DE COTRET, J.-PH. REID, N. DOIRON-LEYRAUD, L. TAILLEFER, University of Sherbrooke, B.J. RAMSHAW, R. LIANG, D.A. BONN, W.N. HARDY, University of British Columbia — The thermal conductivity of the cuprate superconductor $\text{YBa}_2\text{Cu}_3\text{O}_y$ was measured at temperatures down to $T \sim 50$ mK on high-quality single crystals with a hole doping ranging from $p = 0.06$ to $p = 0.18$. The residual linear term at $T \rightarrow 0$ is a direct measure of the ratio of nodal quasiparticle velocities. When combined with published data on $\text{Tl}_2\text{Ba}_2\text{CuO}_{6+\delta}$ [1], our data spans the full superconducting phase. The ratio of quasiparticle velocities agrees well with recent, high-resolution ARPES measurements of the Fermi velocity and gap velocity at the nodes as a function of doping, in the related cuprate superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ [2,3].

[1] D.G. Hawthorn *et al.*, Phys. Rev. B **75**, 104518 (2007).

[2] I.M. Vishik *et al.*, Phys. Rev. Lett. **104**, 207002 (2010).

[3] I.M. Vishik *et al.*, ArXiv, 1209.6514 (2012).

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