

Abstract Submitted
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Thermal-transport measurement of the nodal superconductor KFe_2As_2 MINORU YAMASHITA, DAIKI WATANABE, TAKYUYA YAMASHITA, TAKASADA SHIBAUCHI, YUJI MATSUDA, Department of Physics, Kyoto University, HIDETO FUKAZAWA, TAKU SAITO, YOH KOHORI, Department of Physics, Chiba University, KUNIHIRO KIHU, AKIRA IYO, HIROSHI EISAKI, AIST, Tsukuba — Hole-doped Fe-based superconductors, $(\text{Ba}_{1-x}\text{K}_x)\text{Fe}_2\text{As}_2$, possess two different superconducting gap structures; a fully-gapped state near the optimally dope ($x \sim 0.5$) and a nodal gap state at the hole-dope end ($x = 1$). To investigate the detail gap structure, we performed thermal-transport measurements of KFe_2As_2 with very high purity ($\text{RRR} \sim 1,600$) down to 80 mK. From the temperature dependence of thermal conductivity at zero field, we find a finite residual of κ/T in the zero-temperature limit. This residual increases by magnetic field as $\propto \sqrt{H}$ in low fields, followed by a rapid increase near H_{c2} . Thermal conductivity measurements of different dopes ($x = 0.88, 0.93$) will be reported.

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