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Doping dependence of electron-electron scattering in Na_xCoO_2
S. Y. LI, University of Sherbrooke, LOUIS TAILLEFER, University of Sherbrooke and CIAR, Canada, FANGCHENG CHOU, Y. S. LEE, Massachusetts Institute of Technology — The in-plane resistivity ρ was measured down to 40 mK for a single crystal of Na_xCoO_2 ($x = 0.75$), which has spin-density-wave order below $T_c = 22$ K. We show its Fermi-liquid ground state by observing a T^2 dependence of ρ at low temperature, $\Delta\rho = AT^2$. The measured value of coefficient $A = 2.60$ $\mu\Omega$ cm K^{-2} is about 100 and 3 times of that in $Na_{0.31}CoO_2$ and $Na_{0.70}CoO_2$, respectively, indicating an increase of electron-electron scattering upon Na doping. The enormous A, and the moderate electron specific heat coefficient γ, gives an even larger Kadowaki-Woods ratio A/γ^2 than that previously reported in $Na_{0.70}CoO_2$ (Li *et al.*, Phys. Rev. Lett. **93**, 056401 (2004)).

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