Abstract Submitted
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Anomalous Nernst effect of the heavy-fermion superconductor URu_2Si_2 TAKUYA YAMASHITA, SHO TONEGAWA, YUGO TSURUHARA, HIROAKI SUMIYOSHI, SATOSHI FUJIMOTO, Dept. Phys., Kyoto Univ., TATSUMA MATSUDA, Dept. Phys., Tokyo Metropolitan Univ., YOSHINORI HAGA, ETSUJI YAMAMOTO, JAEA, YOSHICHIKA ONUKI, JAEA, Dept. Phys., Ryukyu Univ., TAKASADA SHIBAUCHI, YUJI MATSUDA, Dept. Phys., Kyoto Univ. — The heavy-fermion material URu_2Si_2 exhibits the "hidden order" and superconducting phase transitions at $T_{HO} = 17.5$ K and $T_{SC} = 1.4$ K, respectively. Below T_{HO} a significant decrease of carrier density has been observed, and the remaining carriers condense into the superconducting state below T_{SC}. The superconducting symmetry is suggested to be chiral d-wave with time reversal symmetry breaking. We have recently measured the Nernst coefficient ν(T) in an ultraclean single crystal of URu_2Si_2 with RRR $\sim$ 700, which is much larger than the previous report [1]. We observed an increase of in ν(T) below T_{HO} which shows an additional steep increase below $\sim 3T_{SC}$. The magnitude of ν(T) is much larger than the previous report and reaches $\sim$ 200 μV/KT at 1 T. We show that such a giant Nernst effect in an ultraclean sample cannot be explained by conventional Gaussian superconducting fluctuations. Possible origins including fluctuations of exotic chiral superconductivity will be discussed.

[1] R. Bel *et al.*, Phys. Rev. B **70**, 220501 (2004).

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