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Nernst and angle-dependent magneto thermopower measurements on Sr3Ru2O7 CHENYI SHEN, Department of Physics, Zhejiang University; Department of Physics and Material Research Institute, The Pennsylvania State University, HUI XING, XIAOJUN YANG, QIAN TAO, Department of Physics, Zhejiang University, MINGLIANG TIAN, High Magnetic Field Laboratory, Chinese Academy of Science, ZHIQIANG MAO, Department of Physics, Tulane University, ZHUAN XU, Department of Physics, Zhejiang University, YING LIU, Department of Physics and Material Research Institute, The Pennsylvania State University —
The behavior of the metamagnetic transition in Sr3Ru2O7, the double-layer member of the Ruddlesden-Popper homologous series the Srn+1RunO3n+1, depends strongly on the direction of the applied magnetic field. With the field applied along the c axis, the end point of the first order metamagnetic transition is located at a very low temperature, pushing the material to be close to a quantum critical point. Exotic phenomena such as an electronic nematic phase was proposed. However, important questions on this phase remains to be unresolved. Recent measurements on the field dependent specific heat appears to suggest a state with excessive entropy away from the quantum critical point. We present our Nernst effect and angle-dependent magneto thermopower measurements on high-quality single crystals of Sr3Ru2O7. The temperature gradient was applied along the a- (or b-) axis and 45-degree from it and the in-plane magnetic field was rotating in the ab plane. Interesting behavior was found in these measurements away from the quantum critical regime. The implications of our data on various issues on Sr3Ru2O7 will be discussed.

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