

Abstract Submitted  
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**Anisotropic thermopower and planar Nernst effect in Ga<sub>1-x</sub>Mn<sub>x</sub>As**<sup>1</sup> YONG PU, JING SHI, Dept. of Physics, UC-Riverside — We have carried out the thermopower and magneto-thermopower measurements on three Ga<sub>1-x</sub>Mn<sub>x</sub>As (x=0.039, 0.049, and 0.059) samples above and below their Curie temperatures. Below the Curie temperature, we have observed magnetic field dependence in both parallel (longitudinal) and perpendicular (transverse) directions to the temperature gradient. The magnetic field dependence does not depend on the relative orientation between the temperature gradient and crystallographic direction of the GaAs. The transverse thermopower or the planar Nernst effect, shows abrupt jumps as the magnetization switches between the four-fold symmetry axes, which resembles the giant planar Hall effect found in similar materials. Although the longitudinal thermopower is not sensitive to the same switchings of the magnetization, it has a strong magnetic field dependence as the magnetization rotates. We have measured both effects vs. the magnetic field orientation with respect to the temperature gradient. Similar to the origin of the giant planar Hall effect, we attribute the longitudinal and transverse effects to the anisotropic magneto-thermopower. We interpret the both effects in the context of the anisotropic transport.

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