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Modeling the Tunneling Anisotropic Magneto-Seebeck Effect[1]
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— Due to increasing energy consumption in high-density electronics, the control and recycling of heat generated in nanostructures is highly desirable. The effect of temperature gradients on magnetic nanostructures has thus prompted a renewed interest in the long-known Seebeck effect, as it applies to spin-polarized systems. One such phenomenon is the Magneto-Seebeck (MS) effect, in which the Seebeck coefficient of a magnetic tunnel junction (MTJ) changes based on its magnetization configuration. As a result, the thermal properties of an MTJ can be tuned via magnetic field. We extend the study of this effect to the Tunneling Anisotropic Magnetoresistance (TAMR), in which an MTJ with a single ferromagnetic contact produces a spin-orbit-coupling-induced magneto-transport anisotropy. We present numerical results of this Tunneling Anisotropic Magneto-Seebeck Effect in a CoPt/MgO/Pt heterostructure.

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