

Abstract Submitted
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Planar Nernst effect and Spin dependent Seebeck effect on Py/Ag thin films¹ PRIYANGA JAYATHILAKA, DUSTIN BELYEA, TATIANA EGGERS, HILLARY KIRBY, CASEY W. MILLER, Department of Physics, University of South Florida — We are reporting a systematic study of planar Nernst effect (PNE) and Spin dependent Seebeck effect (SDSE) measurements and their relation to the Anisotropic Magneto Resistance (AMR) on Py thin films grown on SiOx substrates by magnetron sputtering. A 30nm thick Py film was followed by a 15nm of Ag cross electrodes. An in-situ mask exchanging system was allowed the Py and Ag to grow without breaking the vacuum. The sample was placed on top of two thermal baths which were independently controlled by a PID controller. A constant temperature gradient of 15K/cm was applied along the sample and the resultant voltages across the Ag electrodes were measured by nanovoltmeters as the field was swept. In measuring AMR no thermal gradient was applied, and a constant current was applied using a function generator. Both PNE and SDSE showed an AMR like field dependence and angular dependence. SDSE showed a $\text{Cos}^2(\theta)$ angular dependence and PNE showed a $\text{Sin}(2\theta)$ angular dependence. AMR showed the same angular dependence along the Py film and across the Py film respectively. This suggests both PNE and SDSE behave similar to the AMR in thin films.

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