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Optical detection of Spin-Seebeck Effect in Ferromagnetic thin films RYAN MCLAUGHLIN, DALI SUN, VALY VARDENY, University of Utah — The field of Spin Caloritronics has attracted great interest because of the generation of spin currents in the presence of temperature gradients, mainly detected by means of an Inverse Spin Hall Effect (ISHE) voltage in metals with strong spin-orbit coupling. However, this method of electrical detection is difficult due to the subtle voltage generated by the ISHE combined with a large number of artifacts such as proximity effect, anisotropic magnetoresistance, anomalous Nerst effect, etc., which makes a quantitative understanding of the Spin Seebeck Effect elusive. Instead, here we demonstrate an *optical* detection of spin accumulation in Ferromagnetic thin films using a custom-built Kerr Rotation sensitive interferometer, enabling us to investigate the pure spin accumulation from Spin Seebeck in the absence of spurious effects.

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