Abstract Submitted
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Detection of helical spin structures by magnetotransport[1] ALI C. BASARAN, Univ of California - San Diego, RAFAEL MORALES, Univ of the Basque Country, STEFAN GUENON, Eberhard-Karls-Universitat Tubingen, IVAN K. SCHULLER, Univ of California - San Diego — We have developed a method which allows determining the magnetic helicity in thin films by magnetotransport measurements. A helical spin configuration occurs during magnetization reversal in exchange coupled Ni/FeF_2 heterostructures. Both longitudinal and transverse components of the magnetization are concurrently detected using magnetotransport through a lithographically patterned cross junction. Small angle deviations around the well-defined unidirectional anisotropy axis reveal the change in the helicity of in-depth spin configuration. The simulations obtained using an incomplete domain wall model are in excellent agreement with the experimental data. Thus, we show that the complex spin formations in nanomagnetic systems can be studied with a lab based, well known, and rather simple experimental technique.

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