

Experimental identification of extrinsic and intrinsic contributions in the AHE

Xiaofeng Jin

*Department of Physics, Fudan University, Shanghai 200433, China
E-mail: xfjin@fudan.edu.cn*

The anomalous Hall effect is one of the most prominent phenomena existing in magnetic materials. It has remained unsolved for more than a century because its rich phenomenology defies the standard classification methodology, prompting conflicting reports claiming the dominance of various processes. Working with epitaxial films of Fe, Ni, Co, $\text{Ni}_x\text{Cu}_{1-x}$, we succeeded in independent controls of different scattering processes through temperature and layer thickness. The resulting data allows an unambiguous identification of the intrinsic mechanism as well as the extrinsic mechanisms of the anomalous Hall effect.