Structure and Magnetic Properties of Ferromagnetic Perovskite Thin Film

by Qin Qing

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Abstract

Manipulating magnetization by electrical current plays a dominating role in recent development of spintronics devices. La$_{0.7}$Sr$_{0.3}$MnO$_3$ is a promising perovskite material exhibits ferromagnetism at room temperature. In this work, magnetic relaxation of La$_{0.7}$Sr$_{0.3}$MnO$_3$, which is essential for high speed and low power spintronics, is investigated systematically by angle resolved broadband ferromagnetic resonance. A robust ultra-low damping is observed. Furthermore, we reported anisotropic Gilbert damping and the tuning of such anisotropy through manipulating strain. Possible mechanisms are discussed. In addition, we also investigated the exchange coupling of perovskite heterostructures such as La$_{0.7}$Sr$_{0.3}$MnO$_3$ and SrRuO$_3$.

Biography

Ms Qin Qing received a Bachelor’s degree of Material Physics in 2011 from Anhui University. She is currently pursuing her Ph.D in Materials Science and Engineering under A/P Chen Jingsheng in his magnetic and spintronics group. Her research interests lie in the field of ferromagnetic perovskite material, mainly in magnetic dynamic properties and magnetic coupling in heterostructures.