



北京大学量子材料科学中心

International Center for Quantum Materials, PKU

Weekly Seminar

Skyrmion Topological Spintronics

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Time: 4:00pm, March 29, 2017 (Wednesday)

2017 3 29

4:00

Venue: Room W563, Physics building, Peking University

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Abstract

Symmetry breaking together with the strong spin-orbit interaction give rise to many exciting opportunities to the condensed matter physics community. Topologically protected magnetic skyrmions are one of the examples. In this talk, I will first present our recent progress in electric creation and manipulation of magnetic skyrmion at room temperature in a common material system - heterostructures with an interfacial broken inversion symmetry. This is triggered by the inhomogeneous current induced spin-orbit torque in a Ta/CoFeB/TaO_x trilayer. Secondly, I will demonstrate experimentally a spin topology driven dynamics of magnetic skyrmion - the skyrmion Hall effect - that is the accumulation of skyrmions at one side of the device. Thirdly, strategy towards sub-50 nanometer skyrmions at room temperature in the absence of magnetic field will be discussed. In the end, some open questions and future focus points will be addressed.

About the speaker