

HIGH PERPENDICULAR MAGNETOCRYSTALLINE ANISOTROPIC L10 IRON PLATINUM FOR SPIN ORBIT TORQUE BASED MAGNETIC RANDOM ACCESS MEMORIES

by Yu Jihang

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Abstract

With the advent of the data boom generation, there is an increase in demand for fast, power saving, reliable, non-volatile and high areal density data-storage devices. Magnetic random access memories (MRAM) based on spin orbit torque (SOT) is one of the most promising devices for future generation memories due to its fast speed, low power consumption and high durability. This work explores SOT in a single layer PMA material- $L1_0$ -FePt by examining its sources of spin orbit interactions, performing the field-assisted SOT switching, quantifying the SOT of the material and revealing the source of SOT. It is the first time to realize SOT switching in a single-layer, metallic PMA material. This work opens a new aspect of SOT in single layer material. It intrigues researches on the underlying physics and the application of $L1_0$ materials in SOT-MRAM.

Speaker Yu Jihang

Biography

Ms Yu Jihang is currently a Ph.D. student in Material Science and Engineering under A/P Chen Jingsheng. She received her Bachelor's degree from National University of Singapore, department of Material Science and Engineering. Her research interest is high PMA material for spintronic devices.

ALL ARE WELCOME!

Host: Prof Chow Gan Moog