Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Thickness and surface-termination effects on magnetocrystalline anisotropy of FeM (M=Rh, Cr, and Pt) (001) thin films[1] SOYOUNG JEKAL, SUNG-HYON RHIM, SOON-CHEOL HONG, Univ of Ulsan — FeM (M=Rh, Cr, and Pt) alloys show diverse interesting physical properties,[2,3,4] which attracted these alloys as a promising candidate for spintronics application.[5] In this study, we investigate effects of thickness and surface-termination on magnetism and magnetocrystalline anisotropies (MCAs) on the CsCl-structured FeM(001) thin films, using Vienna Ab initio Simulation Package. Two surface terminations (Fe-terminated and M-terminated) and thicknesses from 3 to 15 monolayers are taken into account. We find that magnetism and MCAs are sensitive to the surface termination and the thickness, whose relevance to electronic structures will be discussed.

[1]Supported by Basic Research Program (2010-0008842) and by Priority Research Centers Program (2009-0093818) through National Research Foundation of Korea.
[2]X. Mart et al., Nature Mater. **13**, 367 (2014)
[3]S. L. Qiu, P. M. Marcus, and V. L. Moruzzi, J. Appl. Phys. **85**, 4839 (1999).
[4]G. Brown, B. Kraczek, A. Janotti, T. C. Schulthess, G. M. Stocks, and D. D Johnson, Phys. Rev. B **68**, 052405 (2003).
[5]X. Mart, et al.

Sung-Hyon Rhim
Univ of Ulsan

Date submitted: 14 Nov 2014 Electronic form version 1.4