

Magnetic Properties of Low Symmetry Oxide Stabilized by PLD Method

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I will introduce basic of pulsed laser deposition, transition metal oxide having perovskite structure, and XRD mapping. Then I will introduce our researches; 1) Stabilization of low symmetry perovskite oxide thin film on top of substrate having in-plane anisotropy and 2) magnetic properties of these films.

CaHfO₃ was used to tune magnetic anisotropy of SrRuO₃ on top of SrTiO₃ (001) with miscut angle and SrTiO₃ (110) substrate without miscut angle.[1-2] Ferromagnetic insulator of YTiO₃ could be stabilized on top of LaAlO₃ (110) substrate for the first time.[3]

References

- [1] B. W. Lee, C. U. Jung, M. Kawasaki, and Y. Tokura, "Tuning of magnetism in SrRuO₃ thin films on SrTiO₃ (001) substrate by control of the twin and strain amount in the buffer layer", J. of Applied Physics. 104, 103909 (2008).
- [2] C. U. Jung, Hiroyuki Yamada, M. Kawasaki, and Y. Tokura, "Magnetic anisotropy control of SrRuO₃ films by tunable epitaxial strain", Appl. Phys. Lett., 84, 2590 (2004).
- [3] S. C. Chae, Y. J. Chang, S. S. A. Seo and T. W. Noh, D.-W. Kim, and C. U. Jung, "Epitaxial growth and the magnetic properties of orthorhombic YTiO₃ thin films", Appl. Phys. Lett. 89, 182512 (2006).