

X-ray scattering as a magnetic probe

X-ray scattering has been extensively utilized as a powerful probe for atomic structures of materials since Laue's discovery of x-ray diffraction. Though interaction between electromagnetic waves and magnetic moments has been well known for a long time, its weak interaction strength has been a barrier for x-ray scattering to be a useful tool for characterizing magnetic properties of materials. However, strong intensity of x-rays available at synchrotron radiation facilities and recent developments in beamline instrumentations allow us to measure x-ray magnetic scattering from various samples including single crystals, thin films and surfaces. Several features of x-ray magnetic scattering will be presented.

references

- S. Banerjee, Y. J. Park, D. R. Lee, Y. H. Jeong, K. B. Lee, S. B. Yoon, Effects of oxidation process on interface roughness of gate oxides on silicon: x-ray reflectivity study, Appl. Phys. Lett. 72, 433 (1998).
- D. R. Lee, Park, K. B. Lee, Y. H. Jeong, Nonspecular x-ray reflectivity study of partially correlated interface roughness of a Mo/Si multilayer, Phys. Rev. B57, 8786 (1998).
- D. R. Lee, Y. J. Park, S. H. Park, Y. H. Jeong, K. B. Lee, H. Hashizume, Resonant x-ray reflectivity measurements of a magnetic multilayer [Gd/Fe]₁₀, Physica B248, 146 (1998).
- S. Banerjee, Y. J. Park, D. R. Lee, Y. H. Jeong, K. B. Lee, Anomalous x-ray reflectivity study of metal oxide thin films, Applied Surface Science in press (1998).