Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

A Study on the Magnetic Ordering in Fe_3Al and $(Fe_{0.7}Ni_{0.3})_3Al$ Alloy Films S. Y. PARK, K. H. HAN, K. H. CHO, P. J. KIM, Y. P. LEE, Quantum Photonic Science Research Center and Department of Physics, Hanyang University, Seoul, 133-791 Korea, K. W. KIM, Department of Physics, Sunmoon University, Asan, 336-708 Korea — The magnetic ordering in Fe_3Al and $(Fe_{0.7}Ni_{0.3})_3Al$ films were investigated by Brillouin light scattering (BLS), and compared with the results using a superconducting quantum interference device (SQUID). $(Fe_{0.7}Ni_{0.3})_3Al$ and Fe_3Al films (100 nm thick) were deposited at room temperature and 400°C on Si(100) substrates by ultrahigh-vacuum dc magnetron co-sputtering. The crystal structures were understood by x-ray diffraction in glancing- incidence mode. In order to obtain the values of the g-factor, the saturated magnetization and the spin-wave stiffness constant, the BLS experiments were employed. The temperature dependence of magnetization was measured at 5 - 150 K in an applied field of 3 kOe by using the SQUID. It was found that the magnetic ordering in the $(Fe_{0.7}Ni_{0.3})_3Al$ film, based on both the SQUID and the BLS measurements, are weaker than the Fe_3Al film.

YoungPak Lee
Department of Physics, Hanyang University, Seoul, 133-791 Korea

Date submitted: 27 Nov 2004 Electronic form version 1.4