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Magnetization-induced Second-harmonic Generation in Fe-Au Alloy Films and Fe/Au Multilayered Films Y.H. HYUN, J.Y. KIM, G.J. LEE, 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 surfaces and the interfaces of magnetic films were investigated by using magnetization-induced second-harmonic generation (MSHG). $\text{Fe}_x\text{Au}_{1-x}$ ($0 < x < 1$) alloy films of about 100 - 150 nm in thickness and $(3.0 \text{ nm Fe} / t_{\text{Au}})_{20}$ multilayered films (MLF) ($t_{\text{Au}} = 1.0 - 3.0 \text{ nm}$) were prepared by rf-sputtering on glass substrates at room temperature. The structures and the magnetic hysteresis loops of Fe-Au alloy films and Fe/Au MLF were measured by x-ray diffraction and vibrating sample magnetometry (VSM), respectively. The magneto-optical Kerr effect (MOKE) was obtained in the equatorial mode and the MSHG measurements were also performed in the longitudinal mode. The MSHG results are analyzed in connection with the MOKE and the VSM results.

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