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Ferrimagnetism in Gd-Ni bilayers MARTA MARSZALEK, J. JAWORSKI, Institute of Nuclear Physics, Radzikowskiego 152, 31-342 Krakow, Poland, W.E. EVENSON, Utah Valley State College, UT, A. BARTH, F. TREUBEL, M. ALBRECHT, G. SCHATZ, University of Konstanz, Department of Physics, P.O. Box M621, 78457 Konstanz — Physical properties of thin films play an increasingly important role in technical applications. With controlled growth and the production of layered systems, interesting and novel mechanical, optical, electrical and chemical characteristics can be obtained. Here we present studies of structural and magnetic propterties of Gd-Ni bilayers. Temperature-dependent SQUID magnetization measurements show antiferromagnetic coupling between Gd and Ni films, with compensation temperature determined for various bilayer structures. They were complemented by field-dependent magnetization measurements by SQUID and XMCD, revealing the typical switching behavior of an artificial ferrimagnet with two exchange-coupled layers. Structural investigations have been performed using STM, XRD and XRR to determine crystallinity and morphology of the system.

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