Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Magneto–Optical Ellipsometry on Ni_2MnIn and NiMnIn Heusler Alloys GERD NEUBER, JAN SCHOLTYSSEK, MARTA BASTJAN, University of Hamburg, RALF RAUER, Chalmers University of Technology, ULRICH MERKT, MICHAEL RÜBHAUSEN, GUIDO MEIER, University of Hamburg — We use generalized magneto-optical ellipsometry [1,2] for measurements of the complete dielectric tensor of Ni_2MnIn [3] and NiMnIn Heusler alloys in the energy range from 1.6 eV to 5.5 eV and in the temperature range from 50 K to 450 K. Generalized magneto-optical ellipsometry allows the investigation of spin-polarized states and to understand the coupling between spin and charge degrees of freedom. We show differences in the metallic behavior of the semi-Heusler alloy NiMnIn and the full-Heusler alloy Ni_2MnIn related to the half-metallic ferromagnetism of the latter one. The polycrystalline Ni_2MnIn and NiMnIn films were co-evaporated from two independent sources of Ni and MnIn on a Si(100) substrate under UHV conditions. The Ni_2MnIn alloy exhibits the ordered $L2_1$ crystalline structure and the NiMnIn alloy has a $C1_b$ structure. [1] A. Berger and M. Pufall, Appl. Phys. Lett. **71**, 965 (1997) [2] R. Rauer, G. Neuber, J. Kunze, J. Bäckström, and M. Rübhausen, Rev. Sci. Instr. **76**, 023910 (2005)} [3] S. von Oehsen, J.M. Scholtyssek, C. Pels, G. Neuber, R. Rauer, M. Rübhausen, and G. Meier et al., JMMM **290**, 1371 (2005)}

Gerd Neuber
University of Hamburg

Date submitted: 28 Nov 2005 Electronic form version 1.4