

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**EuPd<sub>3</sub> ultrathin layers on MgO(001)**<sup>1</sup> PAWEL MASLANKIEWICZ, A. Chelkowski Inst. of Phys., Univ. of Silesia, Katowice, Poland and Center for Magnetism and Magnetic Nanostructures, UCCS, Colorado Springs, USA, ZBIGNIEW CELINSKI, Center for Magnetism and Magnetic Nanostructures, UCCS, Colorado Springs, USA, JACEK SZADE, A. Chelkowski Inst. of Phys., Univ. of Silesia, Katowice, Poland — Ultrathin layers (0.8 – 4 nm thick) of EuPd<sub>3</sub> intermetallic compound were grown on MgO(001) substrates by molecular beam epitaxy from elemental sources. In-situ X-ray photoelectron spectroscopy studies revealed a dominant trivalent europium component, in agreement with available data on bulk EuPd<sub>3</sub> (e.g. [1, 2]). As demonstrated by reflection high energy electron diffraction and X-ray photoelectron spectroscopy, growth by co-deposition at elevated temperature (~500 °C) or post-growth annealing of Pd/Eu/Pd layers resulted in formation of islands. Formation of EuPd<sub>3</sub> occurs at lower temperatures. Trivalent europium at Pd layers interface was observed even at room temperature. 250 °C is sufficient to form EuPd<sub>3</sub> from individual Pd and Eu layers. [1] I.R. Harris, G.V. Raynor, J. Less-Common Met. **9**, 263 (1965). [2] W.-D. Schneider, C. Laubschat, I. Nowik, G. Kaindl, Phys. Rev. B, Condens. Matter **24**, 5422 (1981).

<sup>1</sup>We acknowledge financial support from the NSF (grant DMR-0605629) and the Polish-U.S. Fulbright Commission.

Zbigniew Celinski  
Center for Magnetism and Magnetic Nanostructures,  
University of Colorado at Colorado Springs

Date submitted: 29 Dec 2006

Electronic form version 1.4