

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Structure and magnetism of Ni₅₀Mn₅₀ monolayers on Cu₃Au(001)¹ WALDEMAR MACEDO, REINALDO OLIVEIRA JR., MAXIMILIANO MARTINS, MANOEL PIRES, CDTN — The growth, structure and magnetism of equiatomic NiMn ultrathin films on Cu₃Au(100) and the magnetism of Fe/FeMn bilayers on this substrate were investigated. NiMn alloys in a concentration range around 50-50% have an L1₀ structure with lattice constants a and c of 3,74 e 3,52 Å, respectively. This NiMn-phase is antiferromagnetic (AFM), with high Néel temperature (~ 1070 K), being very interesting for ferromagnetic / antiferromagnet systems with exchange bias effect and, therefore, for magneto-electronic devices. Cu₃Au is an ordered fcc phase with lattice parameter of 3,75 Å, a substrate with very good epitaxial relationship with L1₀ NiMn. The NiMn monolayers were grown by coevaporation, under molecular beam epitaxy conditions, and characterized in situ by RHEED, LEED, XPS, AES and MOKE. Structural analysis revealed the epitaxy and layer-by layer growth at room temperature. MOKE measurements suggest that the Fe/Ni₅₀Mn₅₀ bilayers present exchange bias, indicating that equiatomic NiMn films, as grown on Cu₃Au(100) at room temperature, is AFM, as expected for the L1₀.

¹Financial support: CNPq, CAPES and CNPq/Millennium Institute of Nanotechnology

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Date submitted: 26 Nov 2007

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