Structure and magnetism of epitaxial NiMn single layers and Co/NiMn bilayers on Cu$_3$Au(100)$^1$ WALDEMAR MACEDO, (1), WOLFGANG KUCH, (2), PEDRO GASTELOIS, (1), JORGE MIGUEL$^2$, (2), MAXIMILIANO MARTINS, (1), YAQOOB KHAN, (2), 1- NANOTECNOLOGIA, CENTRO DESENV. TECNOL. NUCLEAR, BELO HORIZONTE, MG, BRAZIL TEAM, 2- EXPERIMENTALPHYSIK, FREIE UNIV. BERLIN, GERMANY TEAM — The structure of single-crystalline Ni$_x$Mn$_{100-x}$ (NiMn) ultrathin films on Cu$_3$Au(100) and also the magnetic properties of Co films on the NiMn/Cu$_3$Au(100) films have been investigated by multiple techniques. For $10 \leq x \leq 77$, our results revealed good epitaxial, layer-by-layer growth at a substrate temperature of 300 K for all NiMn films with near equiatomic composition. The results indicate a face-centered tetragonal (fct) structure for NiMn, as expected for the L10 phase, and with the c-axis along the film normal. For the Co/NiMn bilayers, MOKE hysteresis loops show a thickness independent coercivity, suggesting no magnetic coupling at the Co/NiMn interface. Although the structural results indicate the formation of fct NiMn in the equiatomic concentration range, we have no indication of antiferromagnetism for NiMn on Cu$_3$Au(100) at room temperature. This is contrary to the observations for Co/NiMn on Cu(100).

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$^2$Present address: Diamond Light Source, UK