

The Polarization of Sb Overlayers on NiMnSb(100)

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Introduction: We have investigated the induced polarization of paramagnetic Sb overlayers on the Heusler alloy NiMnSb. From combined X-ray absorption spectroscopy (XAS) and spin-polarized inverse photoemission spectroscopy (SPIPES), we can assign some of the unoccupied states of the Heusler alloy NiMnSb. With increasing thickness of the Sb overlayer, there is a decline in the density of states near the Fermi energy, as expected for a semimetal overlayer on a metallic substrate. While the Sb is polarized by the ferromagnetic NiMnSb substrate, consistent with the expectations of mean field theory, the polarization at the center of the surface/overlayer Brillouin zone cannot be easily related to the induced magnetization.

Key words: NiMnSb Heusler alloys, inverse photoemission, angle resolved XPS, surfaces

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