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k-dependent electronic structure of NiNmSb single-crystal surfaces JULIET CORREA, CHRISTIAN EIBL, JÜRGEN BRAUN, GEORGI RANGELOV, MARKUS DONATH, Westfälische Wilhelms-Universität Münster — The half-Heusler alloy NiMnSb is believed to be a half-metallic ferromagnet with 100% spin polarization at the Fermi level. This property makes it an interesting material for spintronic applications. Detailed understanding of the band structure of NiMnSb, not only in the bulk but also at surfaces and interfaces, is essential to developing spintronic applications. To date, however, the only data available are of the density of states, specifically from polycrystalline samples. We present angle-resolved photoemission results from both the $\bar{\Gamma}\bar{X}$ and $\bar{\Gamma}\bar{K}$ directions of a carefully prepared and surface-characterized NiMnSb(100) single crystal. We observed clear energy dispersion of occupied bulk states as a function of the wave vector parallel to the surface. We distinguish between bulk and surface states in our one-step-model calculations. Our results are discussed along with band structure calculations.

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