

Abstract Submitted
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Phonon Anomalies in the Martensitic Phase of Ni_2MnGa ¹ S.M. SHAPIRO, Brookhaven National Laboratory, Upton, NY, P. VORDERWISCH, Hahn-Meitner Institute, Berlin, Germany, K. HRADIL, H. SCHNEIDER, ICP, U. of Goettingen, Germany — Ni_2MnGa is a cubic ferromagnetic shape memory alloy exhibiting phonon anomalies as precursors to the Martensitic phase transformation. By cooling in a small magnetic field (1.5T) through its transformation temperature it is possible to obtain a single domain of the tetragonal Martensite phase. One can, therefore, measure the phonon dispersion curves in the Martensite phase and compare them to the high temperature cubic phase. The TA branch propagating along the $[\text{qq}0]$, with polarization along $[\text{q-q}0]$, shows an anomaly near the wavevector of the charge density wave (CDW) peak at $q=0.425$, which differs from $q=0.33$ observed in the cubic phase. Most interesting is a new acoustic-like branch emerging from the CDW peak. This will be discussed in relationship to phasons and amplitude modes observed in other incommensurate systems.

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