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**Heat Capacity and Magnetic Properties of NiMnIn, NiCoMnIn and NiCoMnSn Metamagnetic Materials** JING-HAN CHEN, JOSEPH H. ROSS, JR., Department of Physics and Astronomy and Materials Science and Engineering Program, Texas A&M University, N. BRUNO, J. MONROE, I. KARAMAN, Department of Mechanical Engineering and Materials Science and Engineering Program, Texas A&M University, JIANGUO LI, Department of Materials Science and Engineering, Shanghai Jiaotong University — NiMnIn and NiMnSn Heusler materials feature coupled glassy magnetic and martensitic structural transformations. Co substitution can induce a large magnetocaloric effect near room temperature with little hysteresis, leading to interest for solid-state refrigeration as well as energy recovery. Recent work has also identified NiMnIn compositions with extremely sharp coupled magnetic-structural transformations. We report thermodynamic measurements for a number of these systems. NiMnCoSn melt-spun tapes can be processed to exhibit more well-defined martensitic transformations, however we find the magnetic contributions to the heat capacity to be similar to that of bulk materials. In both cases the magnetic entropy agrees with what is expected for $J = 2$ Mn ions according to the alloy composition. A significant difference in electronic $\gamma$ points to electronic differences despite the same $e/a$ ratio. NiMnIn alloys include compositions exhibiting sharp $\lambda$-like transitions, while in bulk NiCoMnIn compositions the magnetic contribution is increased over the Mn-only value. The kinetic arrest behavior reduces the total magnetic entropy in these materials, and we also examine low-temperature anomalies as further indications of the glassy properties of these materials.

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