

Abstract Submitted  
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**Effect of annealing on the magnetic and magnetocaloric properties of Ni-Mn-In-B alloys as solidified ribbons** SUDIP PANDEY, ABDIEL QUETZ, ANIL ARYAL, IGOR DUBENKO, DIPANJAN MAZUMDAR, NAUSHAD ALI, Southern Illinois University Carbondale, JOSE LUIS SANCHEZ LLAMAZARES, Instituto Potosino de Investigaci3n Cientfica y Tecnol3gica A.C., Camino a la Presa San Jose , SHANE STADLER, Louisiana State University, Baton Rouge — The structural, thermal, magnetic, and magnetocaloric properties of  $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{14.5}\text{B}_{0.5}$  melt-spun ribbons have been investigated using room-temperature x-ray diffraction (XRD), differential scanning calorimetry (DSC), and magnetization measurements. Magnetic and structural transitions were found to coincide in temperature leading to large magnetocaloric effects associated with the first-order magnetostructural phase transition. In comparison to the bulk and as-spun ribbon, both the martensitic transition temperature ( $T_M$ ) and Curie temperature ( $T_C$ ) shifted to lower temperatures on annealed  $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{14.5}\text{B}_{0.5}$  ribbons. Significant increase in magnetocaloric effect has been observed between the as-spun and the annealed ribbons. A comparison of magnetic properties and magnetocaloric effects in  $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{14.5}\text{B}_{0.5}$  as-spun ribbon, bulk, and annealed ribbon have been shown in detail. Acknowledgement: This work was supported by the Office of Basic Energy Sciences, Material Science Division of the U.S. Department of Energy, DOE Grant No. DE-FG02-06ER46291 (SIU) and DE-FG02-13ER46946 (LSU).

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