

Abstract Submitted  
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**Enhancement of ferromagnetism by Ag doping in Ni-Mn-In-Ag Heusler alloys** SUDIP PANDEY, ABDIEL QUETZ, ANIL ARYAL, IGOR DUBENKO, DIPANJAN MAZUMDAR, Southern Illinois University, SHANE STADLER, Louisiana State University, NAUSHAD ALI, Southern Illinois University — The effect of Ag on the structural, magnetocaloric, and thermomagnetic properties of  $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{15-x}\text{Ag}_x$  ( $x= 0.1, 0.2, 0.5,$  and  $1$ ) Heusler alloys was studied. The magnitude of the magnetization change at martensitic transition temperature ( $T_M$ ) decreases with increasing Ag concentration. A smaller magnetic entropy changes ( $\Delta S_M$ ) for the alloys with higher Ag concentration is observed. A shift of  $T_M$  by about 25 K to a higher temperature was detected for  $P = 6.6$  kbar with respect to ambient pressure. Large drop of resistivity is observed with the increase of Ag concentration. The magnetoresistance is dramatically suppressed with increasing Ag concentration due to the weakening of the antiferromagnetic interactions in the martensitic phase. The experimental results demonstrate that Ag substitution in  $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{15-x}\text{Ag}_x$  Heusler alloys suppresses the AFM interactions and enhances the FM interactions in the alloys. The possible mechanisms responsible for the observed behavior are discussed. 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 and DE-FG02-13ER46946).

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