

Abstract Submitted  
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**Magnetocaloric properties of  $\text{Ni}_2\text{Mn}_{0.55}\text{Cr}_{1-x}\text{Co}_x\text{Ga}$  Heusler alloys** JEFFREY BROCK, RAMAKANTA CHAPAI, MAHMUD KHAN, Miami Univ — Since the discovery of the giant magnetocaloric effect in  $\text{Gd}_5(\text{Si}_{1-x}\text{Ge}_x)_4$  near room temperature [V. K. Pecharsky, et al., Phys. Rev. Lett. 78, 4494 (1997)], the research activities in search for materials exhibiting similar effects have been continuously accelerating. Although many materials exhibiting large magnetocaloric effects have been discovered [K. A. Gschneidner, Jr., et al., Rep. Prog. Phys. 68, 1479 (2005)], only a few have been reported to exhibit such effects in the vicinity of room temperature [O. Tegus, et al., Nature (London) 415, 150 (2002)][M. Khan, et al., J. Appl. Phys. 101, 053919 (2007)]. Here, we present an experimental study on the magnetic properties of  $\text{Ni}_2\text{Mn}_{0.55}\text{Cr}_{1-x}\text{Co}_x\text{Ga}$  Heusler alloys. The alloys have been investigated by magnetization. It is shown that by partial substitution of Cr by Co the ferromagnetic ordering temperature of  $\text{Ni}_2\text{Mn}_{0.55}\text{Cr}_{1-x}\text{Co}_x\text{Ga}$  can be tuned over a wide range of temperatures, that is from 265 K ( $x=0$ ) to 306 K ( $x=0.2$ ). Over the entire temperature range the alloy system exhibits large magnetocaloric effect.

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