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Structural and magnetic properties of inverse Heusler alloys Mn_2CoZ ($Z= Ga,Ge,Sb$) SAID BAKKAR, ANIL ARYAL, STEPHEN HOFER, DIPANJAN MAZUMDAR, Southern IL Univ-Carbondale — Heusler compounds are probably the single biggest family of half-metals (100% spin-polarized at the Fermi Level) and most promising for spintronic device applications. Many newer half-metallic full Heusler compounds in their L21 form are predicted from ab-initio calculations. The inverse Heusler alloys (Y_2XZ) are interesting in this respect, and also predicted to be stable. Experimentally, we successfully prepared arc-melt samples of Mn_2CoZ ($Z=Ga,Ge,Sb$). We study the structural and magnetic properties of inverse Heusler alloys using X-ray diffraction (XRD) and SQUID and VSM magnetometry. We found that these alloys are single phase after annealing at 500 C⁰ for 48 hours with single-grain microstructure. Energy dispersive spectroscopy measurements is also conducted to verify the composition of these alloys. Their ordering properties with respect to L21 structure and other possible orientations (C1b for instance) will be discussed in this presentation.

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