Synthesis and physical properties of transition metal binary compounds T_xSn (T=Fe, Mn, Co, Ni)

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Hexagonal structural transition metal binary compounds T_XSn (T = Mn, Fe, Co, Ni) were successfully synthesized in single crystalline form. This talk focuses on the physical properties of Fe_5Sn_3. Additionally, a magnetic phase diagram is presented for Co-doped FeSn, which exhibits a kagome structure. The magnetic ordering in this system undergoes a transition from a planar to an axial direction depending on the degree of Co-doping. We investigate the evolution of the easy axis under the influence of external magnetic fields and identify critical fields for magnetic response. Furthermore, we provide an inventory of available single crystals to offer opportunities for collaborative research.