

**AC magnetic susceptibility studies of spin-glass phase
in $\text{Ge}_{1-x-y}\text{Sn}_x\text{Mn}_y\text{Te}$ mixed crystals**

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We present studies of magnetic and transport properties of $\text{Ge}_{1-x-y}\text{Sn}_x\text{Mn}_y\text{Te}$ mixed crystals with $0.083 \leq x \leq 0.142$ and $0.012 \leq y \leq 0.119$. Magnetic investigations consisted of AC magnetic susceptibility measurements including linear and harmonic susceptibilities measured as a function of temperature and of applied magnetic field amplitude and frequency. Qualitative analysis of experimental results showed appearance of a spin-glass phase at $T < 80$ K. Moreover, measurements of AC magnetic moment m as a function of magnetic field showed hysteretic behavior characteristic of spin-glass systems. Via alloying we are able to tune spin freezing temperature in the range of 10-50 K. Transport characterization (resistivity and Hall effect measurements) of our samples was performed for temperatures between 4.2-300 K. The results showed semimetallic p-type conductivity with large carrier concentrations ($p > 10^{21} \text{ cm}^{-3}$) and relatively low mobilities ($\mu < 100 \text{ cm}^2\text{V}^{-1}\text{s}^{-1}$). We have also observed the dependence of transport properties on the chemical composition of the sample. Thus, both magnetic and electrical properties in the investigated compound can be tuned via alloying in a wide range.

9.7 cm

13.4 cm

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