



## On the crystal structure and magnetic properties of the $\text{Mn}_{0.94}\text{Ti}_{0.06}\text{CoGe}$ alloy

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Structural and magnetic properties of  $\text{Mn}_{0.94}\text{Ti}_{0.06}\text{CoGe}$  have been studied by a combination of bulk magnetisation and neutron diffraction measurements over the temperature range of 5 K–350 K. The crystal structural transition occurs at  $T_{\text{str}}$  ( $\sim 235$  K) with a change in symmetry from the low temperature orthorhombic  $\text{TiNiSi}$ -type structure (space group  $\text{Pnma}$ ) to the high temperature hexagonal  $\text{Ni}_2\text{In}$ -type structure (space group  $\text{P63/mmc}$ ) and the magnetic phase transition takes place around  $T_{\text{C}} = 270$  K. It is found that the structural transition around  $T_{\text{str}}$  is incomplete and there is a co-existence of the orthorhombic and hexagonal structures between  $T_{\text{str}}$  and  $T_{\text{C}}$  ( $\sim 270$  K). These results are discussed in connection with the magnetic and magnetocaloric behaviours in  $\text{Mn}_{0.94}\text{Ti}_{0.06}\text{CoGe}$ . © 2013 AIP Publishing LLC [<http://dx.doi.org/10.1063/1.4801523>]