Phase transitions in $HoVO_3$

In the last years the structural and magnetic properties of RVO_3 compounds (R = Y, La - Lu) were intensively studied by single-crystal neutron diffraction. These vanadates undergo multiple orbital and magnetic transitions as a function of temperature. Recently we have investigated the structural and magnetic phase transitions of $HoVO_3$. This vanadate shows a *C*-type order below T_N = 113 K. The nonzero intensity of the (001) reflection confirms the presence of a weak G_z component in the *C*-type phase. The onset of noncollinear, ferromagnetic order of the Ho moments nearly coincides with the structural phase transition from the monoclinic to the low-temperature orthorhombic structure. This transition is characterized by an extended hysteresis between 24 and 36 K. During the cooling process the intensity of the (011) reflection increases spontaneously at 26.6 K and reaches a plateau of width ΔT = 1.4(2) K. *Reehuis, M., et al.*, Phys. Rev. B **83** (2011) 064404.

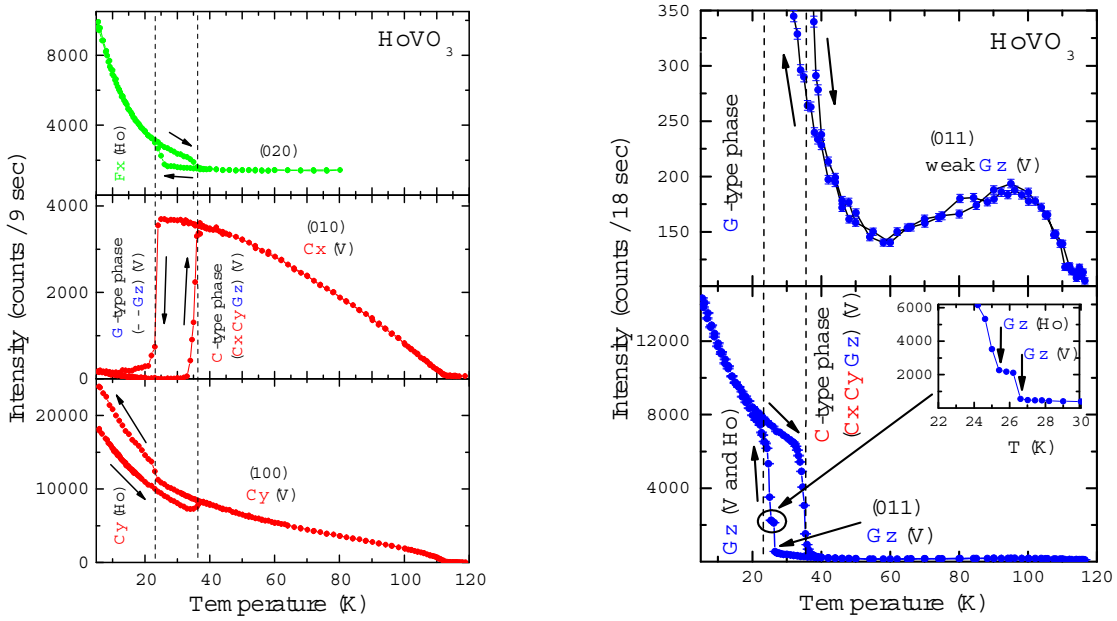

Fig. 2. Temperature dependence of the reflections (020), (010), (100) and (011) of $HoVO_3$.