

The Cubic to Trigonal Phase Transition in HoB_6 Measured on the New Powder Neutron Diffractometer HRPT at SINQ

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The new flexible high-resolution powder neutron diffractometer HRPT at the continuous spallation neutron source SINQ at the Paul Scherrer Institute (PSI) in Villigen, Switzerland, is introduced together with results of an early proposal experiment on HoB_6 . Below the ferro-quadrupolar ordering temperature $T_Q = 6.1$ K, the cubic crystal structure of HoB_6 (space group $Pm\bar{3}m$) is found to be rhombohedrically distorted (space group $R\bar{3}m$) with the angle α increasing from the cubic 90° to 90.264° at 2.1 K.

KEYWORDS: spallation neutron source SINQ, powder neutron diffractometer HRPT, germanium wafer monochromator, HoB_6 , Jahn Teller effect