

THE MAGNETIC PHASE DIAGRAM OF COPPER  
METABORATE IN A MAGNETIC FIELD  
PARALLEL TO THE TETRAGONAL AXIS

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S u m m a r y

Magnetic phase transitions arising in copper metaborate  $\text{CuB}_2\text{O}_4$  in the temperature range from 2 K up to the Neel temperature  $T_N=20$  K at the magnetization along the tetragonal axis are investigated by resonant, magnetic, and magnetostrictive measurements. Sharp anomalies of resonant parameters, the magnetization in the basal plane, and both longitudinal and transversal magnetostrictions are found out at phase transitions. The magnetic phase diagram in the coordinates “temperature-magnetic field along the tetragonal axis” is constructed. It is established that, at  $T < 9.5$  K, the phase transition into a field-induced weak ferromagnetic state is of the first order and, at  $T > 9.5$  K, of the second one. The assumption is made that the nature of the incommensurate—commensurate phase transition at  $T < 9.5$  K is connected with the saturation of the weakly ordered subsystem of copper ions in the strong magnetic field along the tetragonal axis.