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Magnetism of frustrated $Tb_2CuIn_3$by μSR MICHAEL KALVIUS, Technical University Munich, ROGER WAEPPLING, Uppsala University, DAVID NOAKES, Virginia State University, OLA HARTMANN, Uppsala University, NOELIA MARCANO, University of Cantabria, WOLFGANG SCHAEFER, Research Centre Juelich, JIKO YAKINTHOS, Democritus University of Thrace —
The magnetic properties of Tb_2CuIn_3 differ markedly form those of other R_2CuIn_3 alloys. Neutron scattering data were interpreted in terms of the formation of a spin-glass-like state at 45K which coexists below T_N= 33K with long-range antiferromagnetic order. The origin of this unusual magnetic behaviour is thought to arise from frustration due to competing antiferromagnetic nearest neighbour and ferromagnetic next-nearest neighbour exchange together with structural disorder. The present μSR data definitely confirm spin glass magnetism below 45K. At 33K a second μSR signal appears which is compatible with long-range magnetic order. It shows, however, that the antiferromagnetic state is characterized by strong short range (over a few lattice distances) spin disorder.

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