Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

A One-Dimensional Magnetic System; Terbium Borosilicide
TAKAO MORI[1], National Institute for Materials Science — Boron-rich compounds such as REB_{66} are well known, but the main interest has tended to be of structural or mechanical nature. However, recently interesting magnetic behavior has been discovered in B_{12} icosahedra-containing dilute semiconducting f-electron compounds [1]. For example, the 3D long range order of $GdB_{18}Si_5$ and 2D spin glass behavior of a homologous series of higher borides like $REB_{17}CN$. An interesting aspect of these transitions is the indication that B_{12} icosahedral clusters mediate the magnetic interaction, possibly through a superexchange mechanism. Results obtained for neutron diffraction and doping effects on a TbB_{50}-type compound $TbB_{44}Si_2$ are presented. It is indicated that this is a 1D system with extremely short range interaction. [1] e.g. T. Mori and H. Mamiya, Phys. Rev. B, **68**, 214422 (2003), T. Mori, J. Appl. Phys., **95**, 7204 (2004).

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Date submitted: 25 Oct 2004 Electronic form version 1.4