

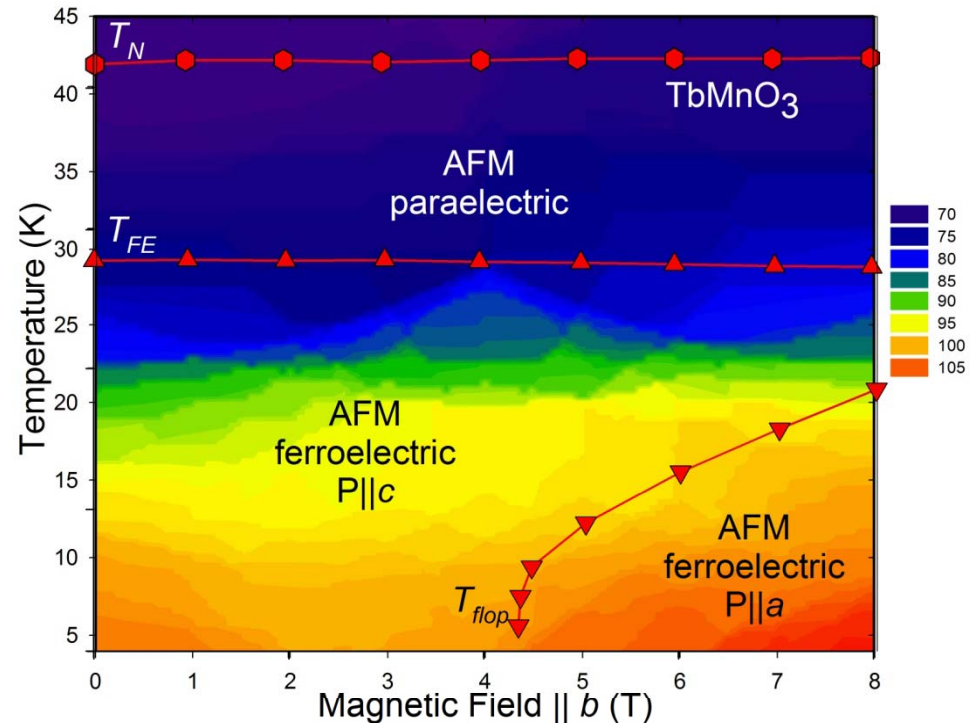
University of Maryland NSF-MRSEC Highlight:

Electromagnons in multiferroics

A B Sushkov, M Mostovoy, R Valdes Aguilar, S-W Cheong and H D Drew,
J. Phys.: Condensed Matter, in press.

The coupling of the magnetic and ferroelectric order in multiferroics produces new excitations of mixed magnetic (magnons) and lattice (phonons) character ; electro-magnons. The investigation of these novel excitations as has revealed that they are activated only through symmetric Heisenberg exchange, even in systems in which the static polarization arises from the relativistic antisymmetric exchange. This observation may lead to the development of materials with colossal magneto-capacitance or magneto-electric switching effects.

Electromagnon, $H \parallel b$ phase diagram for TbMnO_3



Electromagnon spectral weight as function of magnetic field and temperature.