

## Laboratoire Léon Brillouin



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Origin of multiferroic behavior in  $\text{RMn}_2\text{O}_5$  (R=rare-earth, Y) systems

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Salle de conférence 15 – Bâtiment 563

Multiferroic materials have recently attracted a considerable interest, in particular with the discovery of large magnetoelectric coupling in a variety of frustrated magnetic systems such as  $\text{TbMnO}_3$ , the Kagome staircase compound  $\text{Ni}_3\text{V}_2\text{O}_8$  or  $\text{RMn}_2\text{O}_5$  (R=rare earth). All these systems are improper ferroelectric, and the onset of an electric polarization (P) is strongly coupled to the development of complex magnetic order, often incommensurate. The spin-lattice coupling mechanism can involve antisymmetric exchange term  $S_i \times S_j$  or symmetric exchange ("exchange-striction"), each of them imposing constraints in the direction of P and leading to different behavior under magnetic field. I will review recent results on these systems and discuss further the origin of ferroelectricity in  $\text{RMn}_2\text{O}_5$  (R=Tb,Y), in the light of neutron diffraction results

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