

Multiferroics materials

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Our group is mainly interested in using optical and Raman spectroscopy to investigate vibrational properties and electrodynamics of strongly correlated, **multiferroic materials**.

Materials combining different ferroic properties have recently attracted a lot of attention because of their puzzling physics and potential novel applications. Indeed, in these few systems, both ferroelectric and magnetic orderings are coupled. Hexagonal manganites RMnO_3 (R is a rare earth) belong to this class of materials. When the ionic radius of R is small enough (R=Ho, Er, Tm, Yb, Lu, Y, and Sc), rare-earth manganites RMnO_3 crystallize in hexagonal structure with space group $P6_3cm$. These compounds become ferroelectric below 590-1000 K and strongly frustrated antiferromagnets below 100 K.