

# NMR Study of Multiferroic Iron Niobate Perovskites

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We present a Nuclear Magnetic Resonance (NMR) study of multiferroic iron niobate systems from series  $\text{Pb}_x\text{Ba}_{1-x}\text{Fe}_{0.5}\text{Nb}_{0.5}\text{O}_3$ , which belong to family of relaxor perovskites exhibiting simultaneous ferroelectric and magnetic ordering. Our aim is to study phase transitions, influence of large cation species (Pb, Ba) and role of Fe/Nb local ordering.

We measured frequency swept NMR spectra and relaxation times of  $^{93}\text{Nb}$ ,  $^{207}\text{Pb}$  and  $^{135,137}\text{Ba}$  in the systems in magnetic field of 9.4 T at various temperatures in range 2.2 – 400 K. Upon cooling  $^{207}\text{Pb}$  line in  $x = 1$  sample broadens severely and vanishes below 30 K.  $^{93}\text{Nb}$  spectrum of the  $x = 1$  sample consist of broad and narrow component, below 6 K it indicates additional transition. Influence of quadrupolar interaction on  $^{135,137}\text{Ba}$  NMR was estimated from comparison of their spectra.

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