Magnetism of multiferroic materials seen by Mössbauer spectroscopy

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Multiferroic materials containing iron ions attract much attention of scientists due to their unusual magnetic structure, including collinear and non-collinear spin arrangement, and possessing magneto-electric coupling. Magnetism of multiferroics primarily depends on peculiarities of the electronic structure and crystal local environment of iron ions. Thus, ^{57}Fe Mössbauer spectroscopy is one of the most powerful tools for studying multiferroic materials. In the presentation, the examples of Mössbauer studies for ABO_3 perovskite-like oxides (i.e., Aurivillius $Bi_{m+1}Ti_3Fe_{m-3}O_{3m+3}$ compounds, (1-x)$BiFeO_3$–(x)$BaTiO_3$ and $Bi_{1-x}Nd_xFeO_3$ solid solutions) and ABO_2 delafossite-like oxides (i.e., $AgFeO_2$ and $CuFeO_2$) will be shown and discussed.