

**MULTIFERROIC AND FERROIC STRUCTURES**

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BaBi<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub> - promising candidate for high-temperature piezoelectric applications, memory application and ferroelectric nonvolatile memories (Fe-RAM). BaTiO<sub>3</sub> - as capacitors, multilayer capacitors, PTCR thermistors, piezoelectric devices, optoelectronic devices, sensors, actuators, heaters, etc..

The equilibrium composition of two phases such as ferrite and ferroelectric are known as a multiferroic (MF) composites. It is said that a material has a magnetoelectricity or ME effect when there is induction of magnetization by an electric field or polarization by a magnetic field.

Saturation magnetization moment of NF was lower than for N<sub>0.7</sub>Z<sub>0.3</sub>F and N<sub>0.5</sub>Z<sub>0.5</sub>F, but slightly higher than for N<sub>0.3</sub>Z<sub>0.7</sub>F Curves are typical for a soft magnetic materials. Formed spinel cubic structure. Grain size: NF-820 nm, NZF-650 nm, ZF-900 nm.