Electrical Properties of $Ba(Zr_{0.07}Ti_{0.93})O_3$/ Co Composites

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ABSTRACT

Effects of Co nanoparticles on the magnetic, ferroelectric and dielectric properties of $Ba(Zr_{0.07}Ti_{0.93})O_3$/ Co composites were investigated. The composites were fabricated by a solid-state reaction technique. The additive suppressed grain growth, resulting in an approximately 12-fold decrease in average grain size. M-H hysteresis loops showed an improvement in the magnetic behavior for higher Co content samples plus modified ferroelectric properties. However, the 2 vol. % samples showed the optimum ferroelectric and ferromagnetic properties. Examination of the dielectric spectra showed that the additive promoted a board dielectric –temperature curves with a frequency dispersion. Heterogeneous conduction in the composite was proposed to explain the observed dielectric behavior.

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