

Dielectric and Ferroelectric Analysis of Nanoparticle/Nanocrystalline Barium Titanate and PLZT

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Attractive for numerous technological applications, ferroelectronic oxides constitute an important class of multifunctional compounds. Intense experimental efforts have been made recently in synthesizing, processing and understanding ferroelectric nanostructures. This work will present the systematic characterization and optimization of barium titanate and lead lanthanum zirconate titanate nanoparticle based ceramics. The nanoparticles have been synthesized using several solution and pH-based synthesis processing routes and employed to fabricate polycrystalline ceramic and nanocomposite based components. The dielectric and ferroelectric properties of these various components have been gauged by impedance analysis and electromechanical response and will be discussed.

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