

Energy Conversion and Power Generation in New Non-Pb Based Piezoelectric Oxide Materials: Synthesis, Characterization, and Structure-Property Relationships

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New Piezoelectric Materials: Piezoelectric materials are used in a variety of technologically important applications, such as solid-state batteries, sensors, and acoustic applications. Two major issues are associated with piezoelectrics. First, the material in question must be crystallographically non-centrosymmetric (NCS), i.e., no center of symmetry is allowed. Second, commercially viable piezoelectrics contain lead. We have developed a design and synthesis methodology wherein the incidence of NCS is increased to nearly 50%. This methodology does not require the use of lead.

Non-Centrosymmetric Crystal Classes

