

# Giant Dielectric Constant Response in Li and Ti Co-doped NiO Prepared by Polymerized Complex Method

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## Abstract

Nanosized powders of Li and Ti co-doped NiO (crystallite size 50 nm) have been synthesized using polymerized complex method. Synthesized powders were characterized by XRD, Raman Spectroscopy, BET surface area, SEM, and TEM. The powders were uniaxially pressed to form the compacted body and sintering of the compact was conducted in air at 1280°C for 4h. The dielectric response of the sintered materials was measured over a frequency range from 100 Hz to 1 MHz and at an oscillation voltage of 1V. The sintered Li and Ti co-doped NiO showed a giant low-frequency dielectric constant (70000) near room temperature. The dielectric constants of this material over the temperature range of -60 - 160°C increased with increasing the temperature, and highest dielectric constant of the material was found to be 110000 (at 160°C, 100 Hz). The giant dielectric constant response potentially would make this lead-free and non-perovskite ceramic particular attractive for practical applications.