

## Synthesis and Characterization of Zr and V Co-Doped BaTiO<sub>3</sub> Ceramic

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**Abstract :** BaZrTiO<sub>3</sub> ceramics having high dielectric constant and low dielectric loss are interesting material for being used as commercial capacitor applications. BZT (BaZrTiO<sub>3</sub>) has attracted attentions for their many applications for the microwave technology as the doping of Zr<sup>4+</sup> on Ti<sup>4+</sup> has advantage to the stability of the system. In the present work, co-doping of Zr and V with BaTiO<sub>3</sub> ceramics was synthesized by the conventional solid state reaction technique and sintered at 1200 K for 6 hours, and their structural and ferroelectric properties were studied. The XRD (x-ray diffraction) pattern of BZT (BaZrTiO<sub>3</sub>) ceramics shows that the crystalline sample is single phase tetragonal structure with P4mm space group. The result revealed that Zr ion enters the unit cell maintaining the perovskite structure of BZT ceramics and the impedance spectroscopy of the sample performed in selected frequency and temperature range.

**Keywords :** ferroelectric, impedance spectroscopy, space group, tetragonal

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