

---

# The Effect on Microstructure And Electrical Properties of NB Doped BZT Ceramics

Manoj Kumar<sup>1</sup> and Amar Pal<sup>2</sup>

## ABSTRACT

The aim of this paper is, to determination of the effect of the Nb<sup>5+</sup> doping in BZT (65/35) based bulk materials in their micro-structural & electrical properties. The Nb content was chosen in the range 0-10% mol. These materials were prepared using the conventional way. The calcined mixture was found to be monophasis perovskite powder. The characteristics of the formed powder were described and related to the sintered material, namely the grain size and the porosity elimination. Nb addition was found to alter significantly the dielectric and ferroelectric properties. The electrical properties were compared with those of common BZT and BLZT materials; As in the case of BZTN (65/35/x), several Nb containing compositions show diffuse phase transition (DPT) characteristics. The Nb content is also leading to softening of the BZT. However, the ferroelectric and dielectric behaviour kept strongly dependent on the micro structural characteristics.

**Keywords:** Dielectric properties, DPT, Ferroelectric properties, Perovskites, BZT, Sintering