

## Dielectric Relaxation in the SrBaNb<sub>2</sub>O<sub>6</sub> ferroelectric ceramic system modified with lanthanum and titanium cations.

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### Abstract

The frequency dependences of permittivity, electric modulus and impedance of undoped and doped Sr<sub>0.3</sub>Ba<sub>0.7</sub>Nb<sub>2</sub>O<sub>6</sub> (SBN) are analyzed in terms of complex planes and Bode diagram. The study of the undoped SBN ceramic system indicates a normal ferroelectric behavior. However, the inclusion of Lanthanum (LSBN) and Titanium (SBNT) cations in different compositions provokes a relaxor character in this system. For both LSBN and SBNT ceramic systems, two relaxation mechanisms are determined : a dipolar relaxation, clearly resolved at temperatures below the transition temperature, and a low frequency dispersion appearing at higher temperatures. The values of the parameters of the equivalent circuit are calculated, while various dielectric models are applied for adjusting the experimental data.