

# **FERROELECTRIC – PARAELECTRIC PHASES TRANSITIONS AND DIELECTRIC RELAXATIONS IN (Ba, M) (Ti, Li) (O, F)<sub>3</sub> CERAMICS (M = Ca, Pb).**

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Ferroelectric perovskite type ceramics are making news across industry, right around the world because they are of great interest for several applications. Barium titanate (BaTiO<sub>3</sub>) has a couple of properties that make it attractive for electronic devices. Its relatively simple structure allows the control and the modifications of the properties in a wide range varying only ionic substitutions in Ba – site or Ti – site.

Appropriate amounts of the fluorides CaF<sub>2</sub> and LiF or PbF<sub>2</sub> and LiF were added to BaTiO<sub>3</sub>. The mixtures were dry-ground then cold-pressed to pellets which were air-fired. The sintering conditions were optimized. The X-ray diffraction measurements indicated the formation of oxyfluoride compounds with the general formula (Ba, M)(Ti, Li)(O, F)<sub>3</sub> and showed that the structural properties remained almost the same. The grains' size was followed by scanning electron microscopy observations. Measurements of the relative dielectric constants and the dielectric losses were systematically investigated from 123 K up to 473 K in the frequency range  $10^2 \leq f \leq 4.10^7$  Hz. A diffuse phase transition was observed for each sample. The ferroelectric Curie temperature and the relaxation frequency shifted to lower values. Such ceramics are of substantial interest for multilayer capacitors of class II, type Z5U.