

Preface

The thesis addressing the present work is arranged in six chapters. The **first chapter** gives a general introduction and a brief review of the perovskite and layered perovskite ferroelectric ceramics and objective of the thesis. The **second chapter** describes the dielectric diffuseness and impedance spectroscopy study of CuNb_2O_6 incorporated BaTiO_3 synthesized by chemical route. **Chapter three** elaborates the influence of Ba^{2+} substitution by Bi^{3+} on dielectric, impedance and conductivity behavior of $\text{BaBi}_2\text{Nb}_2\text{O}_9$ ceramics prepared by chemical precursor decomposition method. **Fourth chapter** presents the detail of the influence of substitution on dielectric and impedance spectroscopy of $\text{Sr}_{1-x}\text{Bi}_{2+y}\text{Nb}_2\text{O}_9$ ferroelectric ceramics synthesized by chemical route. Studies of structural and electrical properties of $\text{Ca}_{1-x}\text{Bi}_{2+y}\text{Nb}_2\text{O}_9$ ferroelectric ceramics prepared by organic precursor decomposition method have been described in the **fifth chapter**. Each chapter from **second** to **fifth** describes the details of the synthesis by chemical route, materials characterization and electrical characterization. Materials characterizations include the studies of thermo gravimetric-differential thermal analysis (TG-DTA), X-ray diffraction (XRD), transmission electron microscopy (TEM), scanning electron microscopy (SEM), and relative density etc.; while the electrical characterizations studies the dielectric constant, loss tangent, impedance, ac and dc conductivity, and modulus etc. The last chapter i.e., **sixth chapter** summarizes the important data obtained from **second** to **fifth chapter**. The last chapter also describes a conclusion of the whole investigations carried out throughout the thesis work.