

: P R E F A C E :

In writing this dissertation of five chapters, an attempt has been made to present the subject matter consistent with the development of the topics concerned. Chapter I mainly deals with ferroelectric materials and how theoretical considerations have been utilized to understand them. At the end of this chapter orientation of the work is given. Chapter II is divided into two parts, part one deals with the preparation of the sample and part two deals with dielectric hysteresis studies. Chapter III and Chapter IV include according to the nature of studies to which ferroelectric materials or solid solutions (lead and Strontium titanate and (lead and calcium) titanate were subjected, namely the solid state battery formation and second harmonic generation (TANDEL effect). Chapter V gives the summary of the work.

The theoretical background as well as the experimental results have been illustrated with appropriate figures and tables. Wherever necessary the abbreviations are used. A list of reference is given at the end of each chapter. In case of some references it was not possible to refer to the original work.

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