

# Contemporary Dielectric Materials

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Handbook

This book deals with experimental results of the physical characterization of several important, dielectric materials of great current interest. The experimental tools used for the analysis of these materials include X-ray diffraction, dielectric measurements, magnetic measurements using a vibrating sample magnetometer, optical measurements using a UV-Visible spectrometer etc.

*Keywords:* Materials Science, Dielectric Materials, Nanocrystalline NiO, GaO Powders, Multiferroic Material, ZnO Nanoparticles, ZnO Ceramics

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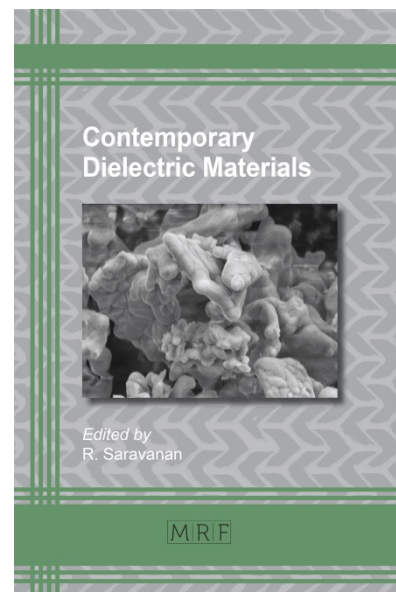
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## Summary:

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The materials studied and reported in this book are as follows; the impedance analysis of nanocrystalline NiO prepared using the combustion method; PL (photoluminescence, IR (Infra-red, Raman, and X-ray characterization of GaO powders prepared using the chemical method; X-ray, SEM (Scanning Electron Microscopy), VSM (Vibrating Sample Magnetometer), UV-Vis (UltraViolet-Visible) characterization of the multiferroic material  $\text{Ga}_{2-x}\text{Fe}_x\text{O}_3$  prepared using the SSR (Solid State Reaction) method; XRD and optical studies on sol-gel prepared samarium and manganese substituted calcium hydroxyapatite; defect studies and positron annihilation studies on ZnO nano particles prepared using the sol-gel and combustion methods; Bonding in  $\text{La}_{0.9}\text{Zn}_{0.1}\text{FeO}_3$  multiferroic material prepared using the chemical method; effect of temperature on the magnetic phase transition in  $\text{Co}_{0.5}\text{Zn}_{0.5}\text{Fe}_2\text{O}_4$  prepared using the mechanical alloying method; effect of sintering temperature on the micro structure and optical properties of ZnO ceramics.