1. Record Nr. UNINA9910830933003321

Autore	Bain Ashim Kumar
Titolo	Pyroelectric materials : physics and applications / / Ashim Kumar Bain, Prem Chand
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH, , [2023] ©2023
ISBN	3-527-83974-7 3-527-83972-0
Descrizione fisica	1 online resource (257 pages)
Disciplina	537.2446
Soggetti	Piezoelectric materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Preface -- Chapter 1 Fundamentals of Dielectrics -- 1.1 Dielectrics -- 1.1.1 Polarization of Dielectrics -- 1.1.2 Dispersion of Dielectric Polarization -- 1.1.2.1 Electronic Polarization -- 1.1.2.2 Ionic Polarization -- 1.1.2.3 Orientation Polarization -- 1.1.2.4 Space Charge Polarization -- 1.1.3 Dielectric Relaxation -- 1.1.4 Debye Relaxation -- 1.1.5 Molecular Theory of Induced Charges in a Dielectric -- 1.1.6 Capacitance of a Parallel Plate Capacitor -- 1.1.7 Electric Displacement Field, Dielectric Constant, and Electric Susceptibility -- 1.1.8 Local Field in a Dielectric -- 1.1.8.1 Lorentz Field, E2 -- 1.1.8.2 Field of Dipoles Inside Cavity, E3 -- 1.1.9 Dielectrics Losses -- 1.1.9.1 Dielectric Loss Angle -- 1.1.9.2 Total and Specific Dielectric Losses -- 1.1.10 Dielectrics Breakdown -- References -- Chapter 2 Pyroelectricity -- 2.1 Introduction -- 2.2 History of Pyroelectricity -- 2.3 Theory of Pyroelectricity -- 2.4 Simple Model of Pyroelectric Effect -- 2.5 Pyroelectric Crystal Symmetry -- 2.6 Piezoelectricity -- 2.7 Ferroelectricity -- 2.7.1 Ferroelectric Phase Transitions -- 2.7.2 Ferroelectric Domains -- 2.7.3 Ferroelectric Domain Wall Motion -- 2.7.4 Soft Mode -- 2.7.4.1 Zonecenter Phonons -- 2.7.4.2 Zoneboundary Phonons -- References -- Chapter 3 Pyroelectric Materials and Applications -- 3.1 Introduction -- 3.2 Theory of Pyroelectric Detectors -- 3.3 Material FigureofMerits -- 3.4 Classification of Pyroelectric Materials -- 3.4.1 Single Crystals --