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Disciplina	621.38152
Soggetti	Materials science Physical measurements Measurement Materials—Surfaces Thin films Ceramics Glass Composites (Materials) Composite materials Characterization and Evaluation of Materials Measurement Science and Instrumentation Surfaces and Interfaces, Thin Films Ceramics, Glass, Composites, Natural Materials
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Electrical Measurement of Ferroelectric Properties -- Piezoelectric Resonance -- Direct Piezoelectric Measurement - The Berlincourt Method -- Characterisation of Pyroelectric Materials -- Interferometry for Piezoelectric Materials and Thin Films -- Temperature Dependence of Ferroelectric and Piezoelectric Properties of PZT Ceramics -- Measurement and Modelling of Self-Heating in Piezoelectric Materials and Devices -- Piezoresponse Force Microscopy -- Indentation Stiffness Analysis of Ferroelectric Thin Films -- Losses in Piezoelectrics

via Complex Resonance Analysis -- Dielectric Breakdown in Dielectrics and Ferroelectric Ceramics -- Standards for Piezoelectric and Ferroelectric Ceramics.

Sommario/riassunto

This book presents a comprehensive review of the most important methods used in the characterisation of piezoelectric, ferroelectric and pyroelectric materials. It covers techniques for the analysis of bulk materials and thick and thin film materials and devices. There is a growing demand by industry to adapt and integrate piezoelectric materials into ever smaller devices and structures. Such applications development requires the joint development of reliable, robust, accurate and – most importantly – relevant and applicable measurement and characterisation methods and models. In the past few years there has been a rapid development of new techniques to model and measure the variety of properties that are deemed important for applications development engineers and scientists. The book has been written by the leaders in the field and many chapters represent established measurement best practice, with a strong emphasis on application of the methods via worked examples and detailed experimental procedural descriptions. Each chapter contains numerous diagrams, images, and measurement data, all of which are fully referenced and indexed. The book is intended to occupy space in the research or technical lab, and will be a valuable and practical resource for students, materials scientists, engineers, and lab technicians.
