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Titolo	An Introduction to the Theory of Piezoelectricity [[electronic resource] /] / by Jiashi Yang
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Edizione	[2nd ed. 2018.]
Descrizione fisica	1 online resource (IX, 287 p. 83 illus., 1 illus. in color.)
Collana	Advances in Mechanics and Mathematics, , 1571-8689 ; ; 9
Disciplina	537.2446
Soggetti	Materials science Force and energy Energy harvesting Mechanics Mechanics, Applied Ceramics Glass Composites (Materials) Composite materials Energy Materials Energy Harvesting Solid Mechanics Ceramics, Glass, Composites, Natural Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Nonlinear theory of electroelasticity -- Linear theory of piezoelectricity -- Static problems -- Waves in unbounded regions -- Vibrations of finite bodies -- Linear theory for small fields on a finite bias -- Other Effects -- Piezoelectric devices.
Sommario/riassunto	This textbook introduces theoretical piezoelectricity. The second edition updates a classical, seminal reference on a fundamental topic that is addressed in every materials science curriculum. It presents a concise treatment of the basic theoretical aspects of continuum modeling of electroelastic interactions in solids. The general nonlinear

theory for large deformations and strong fields is established and specialized to the linear theory for small deformations and weak fields, i.e., the theory of piezoelectricity. Relatively simple and useful solutions of many static and dynamic problems of piezoelectricity that are useful in device applications are given. Emphasis is on the formulation of solutions to problems rather than advanced mathematical solution techniques. This book includes many examples to assist and enhance students' understanding of piezoelectricity and piezoelastics. Broad, systematic coverage of theoretical piezoelectricity, ideal for graduate courses on piezoelectric materials, ferroelectricity, and mechanics of materials; Contains over 30% updated content, reflecting thirteen years of burgeoning developments in the field; Establishes the general nonlinear theory for large deformations and strong fields and follows with simple and useful solutions of many static and dynamic problems of piezoelectricity that are useful in device applications. .
