

1. Record Nr.	UNISA996418250803316
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Titolo	Analysis of Piezoelectric Semiconductor Structures [[electronic resource] /] / by Jiashi Yang
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-48206-5
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (233 pages)
Disciplina	621.38152
Soggetti	Semiconductors Mechatronics Optical materials Electronic materials Mechanics Mechanics, Applied Civil engineering Electronics Microelectronics Optical and Electronic Materials Solid Mechanics Civil Engineering Electronics and Microelectronics, Instrumentation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Macroscopic Theory -- Chapter 2. Exact Solutions -- Chapter 3. Extension of Rods -- Chapter 4. Bending of Beams -- Chapter 5. Extension and Bending of Plates -- Chapter 6. Composite Structures -- Chapter 7. Thermal Effects.
Sommario/riassunto	This book presents the mechanics of piezoelectric semiconductor structures where the main electromechanical coupling of interest is the interaction between mechanical fields and semiconduction. This volume stands as the first full book treatment of this multi-physical subject from the mechanics angle. The analysis of piezoelectric semiconductor

structures and devices is an emerging and rapidly growing interdisciplinary area involving materials, electronics, and solid mechanics. It has direct applications in the new area of piezotronics and piezo-phototronics. The book is theoretical, beginning with a phenomenological framework and progressing to include solutions to problems fundamental to the theory and application. Dr. Yang illustrates how in piezoelectric semiconductors, mechanical fields interact with semiconduction through the piezoelectrically produced electric fields by mechanical loads. This provides the foundation of piezotronic and piezo-phototronic devices in which semiconduction is induced, affected, manipulated, or controlled by mechanical fields. Also discussing composite structures of piezoelectric dielectrics and nonpiezoelectric semiconductors as well as thermal effects, the book is an ideal basic reference on the topic for researchers. Examines for the first time the mechanics of piezoelectric semiconductors Features a systematic and concise treatment of the three-dimensional general theory, the one-dimensional theories for extension of rods and bending of beams, and the two-dimensional theories for extension and bending of plates and shells Includes many static, time-harmonic, and transient dynamic solutions.
