1. Record Nr. UNINA9910786505703321

Titolo	Energy harvesting with piezoelectric and pyroelectric materials / / edited by Nantakan Muensit
Pubbl/distr/stampa	Stafa-Zuerich, Switzerland ; ; Enfield, New Hampshire : , : Trans Tech Publications, , [2011] ©2011
ISBN	3-03813-658-1
Descrizione fisica	1 online resource (230 p.)
Collana	Materials science foundations, , 1422-3597 ; ; volume 72
Disciplina	621.31/24
Soggetti	Energy harvesting Energy harvesting - Materials Thermoelectric materials Piezoelectricity Piezoelectrical materials Pyroelectricity Electromechanical devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Energy Harvesting with Piezoelectric and Pyroelectric Materials; Preface; Names and Affiliations of all the Contributors; Table of Contents; Table of Contents; Part I: Fundamentals; CHAPTER 1: ENERGY HARVESTING MATERIALS; 1. Brief History of Energy Harvesting; 2. Basics of Piezo- , Pyro-, and Ferroelectricity; 3. Materials for Energy Harvesting; 4. Analysis for the Harvested Power; 5. Summary; References; CHAPTER 2: ELECTROMECHANICAL MODELS FOR ENERGY HARVESTING SYSTEMS; 1. Introduction 2. Modeling of Mechanical Structures with Piezoceramics 3. Equivalent Circuit Model for Piezoelectric Systems4. Modeling the Electromechanical Coupling of Piezoelectric Bimorphs; 5. Experimental Parameter Identification; 6. Conclusions, References; Chapter 3: VIBRATION THEORY AND DESIGN OF PIEOELECTRIC ENERGY HARVESTING STRUCTURES; 1. Introduction, 2. Design of Piezoelectric Energy Harvesting Devices; 3. Theory of Piezoelectric Structural Vibration; 4. System Governing Equations of the Cantilever Structure; 5.

Results and Analysis for the Piezoelectric Cantilever; 6. Conclusions; References
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Part II: Applications and Case Studies.CHAPTER 6: ENERGY HARVESTING FOR SMART MINIATURIZED SYSTEMS; 1. Introduction 2. Principles of Harvesting from Vibrations; 3. Designs for the Piezoelectric Microharvesting; 4. Nanomaterials for Piezoelectric Microharvesting; 5. Examples of Piezoelectrically Powered Smart Systems; 6. Conclusions References; CHAPTER 7: ENERGY HARVESTING FROM A LOW FRQUENCY POWER SOURCE; 1. Background; 2. Approaches for Low Frequency Energy Harvesting; 3. Low Frequency Energy Harvesting with PVDF; 4. Conclusions References; CHAPTER 8: WASTE HEAT TO HIGH VOLTAGE ELECTRICITY
1. Introduction2. Pyroelectric Copolymers; 3. Principle of Pyroelectric Conversion; 4. Experimental Work; 5. Economics and Technologies Comparison; 6. Conclusions; 7. Appendix; References; CHAPTER 9: ENERGY HARVESTING PRODUCTS AND FORECAST; 1. Introduction 2. Review of Commercial Devices; 3. Piezoelectric Energy Harvesters in Research; 4. Conclusions; 5. Future of Piezoelectric Energy Harvesting; References

Sommario/riassunto

The purpose of this book is to present the current state of knowledge in the field of energy harvesting using piezoelectric and pyroelectric materials. The book is addressed to students and academics engaged in research in the fields of energy harvesting, material sciences and engineering. Scientists and engineers who are working in the area of energy conservation and renewable energy resources should find it useful as well. Explanations of fundamental physical properties such as piezoelectricity and pyroelectricity are included to aid the understanding of the non-specialist. Specific technolo