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| | Autore | Gaudenzi Paolo |
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| | Nota di contenuto | Smart Structures; Contents; List of Figures; Preface; 1 Introduction to Smart Structures; 1.1 Smart Structures and Traditional Structures: Definition and Main Constituents; 1.2 Smart Structures and Active Materials; 1.3 The Physical Behaviour of Active Materials for Actuation and Sensing; 1.3.1 Piezoelectric Materials; 1.3.2 Electrostrictive Materials; 1.3.3 Magnetostrictive Materials; 1.3.4 Shape Memory Alloys; 1.4 Motivations for the Use of Smart Structure Technologies; 1.5 Monitoring Structural Integrity; 1.6 Shape Morphing; 1.7 Vibration Control; 1.8 Energy Harvesting; References<br>2 Mathematical Modeling of Piezoelectric Bodies 2.1 Analysis of Piezoelectric Continua; 2.1.1 Constitutive Relations of Piezoelectric Materials; 2.1.2 Energy Coupling Coefficients; 2.1.3 The Equations of Linear Piezoelectricity for a Three-dimensional Continuum; 2.1.4 Energy Considerations; 2.1.5 Governing Equations in Terms of Displacements and Electric Potential; 2.1.6 Analysis of a Two-dimensional Piezoelectric Continuum under Electrical and Mechanical Loading; 2.2 Finite Element Equations for Piezoelectric Problems; 2.2.1 Variational Principles |

| Sommario/riassunto | Synthesizing knowledge acquired as a result of significant research and development over recent years, Smart Structures clearly illustrates why these structures are of such intense current interest. Gaudenzi offers valuable insight into both how they behave and how and at what cost they could be designed and produced for real life applications in cutting edge fields such as vibration control, shape morphing, structural health monitoring and energy transduction.   Smart Structures offers a basic and fundamental description of smart structures from the physical, mathematics, |
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