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	Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
	Nota di contenuto	Part I Internal variables in thermomechanics -- 2 Introduction -- 3 Thermomechanical single internal variable theory -- 4 Dual internal variables -- Part II Dispersive elastic waves in one dimension -- 5 Internal variables and microinertia -- 6 Dispersive elastic waves -- 7 One-dimensional microelasticity -- 8 Influence of nonlinearity -- Part III Thermal effects -- 9 The role of heterogeneity in heat pulse propagation in a solid with inner structure -- 10 Heat conduction in

microstructured solids -- 11 One-dimensional thermoelasticity with dual internal variables -- 12 Influence of microstructure on thermoelastic wave propagation -- Part IV Weakly nonlocal thermoelasticity for microstructured solids -- 13 Microdeformation and microtemperature -- Appendix A: Sketch of thermostatics -- Appendix B: Finite-volume numerical algorithm -- Index.

Sommario/riassunto	This book describes an effective method for modeling advanced materials like polymers, composite materials and biomaterials, which are, as a rule, inhomogeneous. The thermoelastic theory with internal variables presented here provides a general framework for predicting a material's reaction to external loading. The basic physical principles provide the primary theoretical information, including the evolution equations of the internal variables. The cornerstones of this framework are the material representation of continuum mechanics, a weak nonlocality, a non-zero extra entropy flux, and a consecutive employment of the dissipation inequality. Examples of thermoelastic phenomena are provided, accompanied by detailed procedures demonstrating how to simulate them.