1.	Record Nr.	UNINA9910973857603321
	Autore	Sluzalec Andrzej
	Titolo	Introduction to Nonlinear Thermomechanics : Theory and Finite-Element Solutions / / by Andrzej Sluzalec
	Pubbl/distr/stampa	London : , : Springer London : , : Imprint : Springer, , 1992
	ISBN	1-4471-1906-1
	Edizione	[1st ed. 1992.]
	Descrizione fisica	1 online resource (X, 187 p.)
	Disciplina	536.7
	Soggetti	Thermodynamics
		Construction industry - Management
		Continuum mechanics
		Mechanics
		System theory
		Mathematical physics
		Construction Management
		Continuum Mechanics
		Classical Mechanics
		Complex Systems
		Theoretical, Mathematical and Computational Physics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	"With 78 figures."
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	I. Basic Considerations and Notions -- 1 A State of Stress and Strain -- 2 Finite Strains -- 3 Temperature -- 4 Thermodynamical Considerations -- II. Fundamentals of Elasticity and Plasticity Theory -- 5 Stress-Strain Curve -- 6 Elasticity -- 7 Plasticity -- 8 Work-Hardening Equation -- III. Small Strain Thermo-Elasto-Plasticity -- 9 Equations for Thermo-Elasto-Plasticity -- 10 Finite-Element Solution -- IV. Creep -- 11 Theoretical Background to Creep -- 12 Creep Rupture -- 13 Constitutive Equations for Thermo-Elasto-Plastic and Creep Analysis -- 14 Finite-Element Formulation -- V. Finite Strains -- 15 Finite Strain Models -- 16 Constitutive Equations -- 17 Finite-Element Formulation for Non-Isothermal Plastic Flow -- VI. Coupled Thermo-Plasticity -- 18 Equations of Coupled Thermo-Plasticity --

References and Further Reading.

Sommario/riassunto	Professor Sluzalec is a well-known and respected authority in the field of Computational Mechanics, and his personal experience forms the basis of the book. Introduction to Nonlinear Thermomechanics provides both an elementary and advanced exposition of nonlinear thermomechanics. The scope includes theoretical aspects and their rational application in thermal problems, thermo-elastoplasticity, finite strain thermoplasticity and coupled thermoplasticity. The use of numerical techniques for the solution of problems and implementation of basic theory is included. Engineers, technicians, researchers, and advanced students will find the book an extremely useful compendium of solutions to problems. The scope is such that it would also be an effective teaching aid.