1. Record Nr. UNINA9910300257503321

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Titolo	Rate-Independent Systems : Theory and Application / / by Alexander Mielke, Tomáš Roubíek
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2015
ISBN	1-4939-2706-X
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (677 p.)
Collana	Applied Mathematical Sciences, , 2196-968X
Disciplina	510
Soggetti	Differential equations Mathematical physics Mechanics, Applied Solids Differential Equations Mathematical Methods in Physics Solid Mechanics
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 and index.
Nota di contenuto	1. A general view on rate-independent systems -- 2. Energetic rate-independent systems -- 3. Rate-independent systems in Banach spaces -- 4. Applications in continuum mechanics and physics of solids -- 5. Beyond rate independence -- Appendices -- References -- Index .
Sommario/riassunto	This monograph provides both an introduction to and a thorough exposition of the theory of rate-independent systems, which the authors have worked on with a number of collaborators over many years. The focus is mostly on fully rate-independent systems, first on an abstract level with or without a linear structure, discussing various concepts of solutions with full mathematical rigor. The usefulness of the abstract concepts is then demonstrated on the level of various applications primarily in continuum mechanics of solids, including suitable approximation strategies with guaranteed numerical stability and convergence. Particular applications concern inelastic processes such as plasticity, damage, phase transformations, or adhesive-type contacts both at small strains and at finite strains. Other physical systems such as magnetic or ferroelectric materials, and couplings to

rate-dependent thermodynamic models are also considered. Selected applications are accompanied by numerical simulations illustrating both the models and the efficiency of computational algorithms. This book presents the mathematical framework for a rigorous mathematical treatment of rate-independent systems in a comprehensive form for the first time. Researchers and graduate students in applied mathematics, engineering, and computational physics will find this timely and well-written book useful.