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| Autore | Brogliato Bernard |
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| Descrizione fisica | 1 online resource (XXII, 629 p. 107 illus. in color.) |
| Collana | Communications and Control Engineering, , 2197-7119 |
| Disciplina | 620 |
| Soggetti | Automatic control<br>Microtechnology<br>Microelectromechanical systems<br>Multibody systems<br>Vibration<br>Mechanics, Applied<br>System theory<br>Control theory<br>Control and Systems Theory<br>Microsystems and MEMS<br>Multibody Systems and Mechanical Vibrations<br>Systems Theory, Control |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Bibliographic Level Mode of Issuance: Monograph |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Impulsive Dynamics and Measure Differential Equations -- Visco-Elastic Contact/Impact Models -- Variational Principles -- Two-Body Collisions and Restitution Rules. Lagrangian Complementarity Systems -- Generalized and Multiple Impacts -- Lyapunov Stability -- Trajectory Tracking -- Appendices: Schwartz Distributions; Measures and Integrals; Functions of Bounded Variation in Time. Elements of Convex Analysis. |
| Sommario/riassunto | Now in its third edition, this standard reference is a comprehensive treatment of nonsmooth mechanical systems refocused to give more prominence to control and modelling. It covers Lagrangian and |

Newton–Euler systems, detailing mathematical tools such as convex analysis and complementarity theory. The ways in which nonsmooth mechanics influence and are influenced by well-posedness analysis, numerical analysis and simulation, modelling and control are explained. Contact/impact laws, stability theory and trajectory-tracking control are given in-depth exposition connected by a framework formed from complementarity systems and measure-differential inclusions. Links are established with electrical circuits with set-valued nonsmooth elements and with other nonsmooth dynamical systems like impulsive and piecewise linear systems. Nonsmooth Mechanics (third edition) has been substantially rewritten, edited and updated to account for the significant body of results that have emerged in the twenty-first century—including developments in: the existence and uniqueness of solutions; impact models; extension of the Lagrange–Dirichlet theorem and trajectory tracking; and well-posedness of contact complementarity problems with and without friction. With its improved bibliography of over 1,300 references and wide-ranging coverage, Nonsmooth Mechanics (third edition) is sure to be an invaluable resource for researchers and postgraduates studying the control of mechanical systems, robotics, granular matter and relevant fields of applied mathematics. The book’s two best features, in my view are its detailed survey of the literature… and its detailed presentation of many examples illustrating both the techniques and their limitations… For readers interested in the field, this book will serve as an excellent introductory survey. Andrew Lewis in Automatica It is written with clarity, contains the latest research results in the area of impact problems for rigid bodies and is recommended for both applied mathematicians and engineers. PanagiotisD. Panagiotopoulos in Mathematical Reviews The presentation is excellent in combining rigorous mathematics with a great number of examples… allowing the reader to understand the basic concepts. Hans Troger in Mathematical Abstracts.