1. Record Nr. UNINA9910683350503321

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Titolo	Multiscale Multibody Dynamics : Motion Formalism Implementation / / by Jielong Wang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789811984419 9789811984402
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (366 pages)
Disciplina	621.811
Soggetti	Multibody systems Vibration Mechanics, Applied Solids Topological groups Lie groups Multibody Systems and Mechanical Vibrations Solid Mechanics Topological Groups and Lie Groups
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Vector and motion -- Motion and deformation -- Cosserat continuum -- Multiscale multibody dynamics -- Recursive formula of joints -- Implicit stiff solvers with post-error estimation.
Sommario/riassunto	This book presents a novel theory of multibody dynamics with distinct features, including unified continuum theory, multiscale modeling technology of multibody system, and motion formalism implementation. All these features together with the introductions of fundamental concepts of vector, dual vector, tensor, dual tensor, recursive descriptions of joints, and the higher-order implicit solvers formulate the scope of the book’s content. In this book, a multibody system is defined as a set consisted of flexible and rigid bodies which are connected by any kinds of joints or constraints to achieve the desired motion. Generally, the motion of multibody system includes the

translation and rotation; it is more efficient to describe the motion by using the dual vector or dual tensor directly instead of defining two types of variables, the translation and rotation separately. Furthermore, this book addresses the detail of motion formalism and its finite element implementation of the solid, shell-like, and beam-like structures. It also introduces the fundamental concepts of mechanics, such as the definition of vector, dual vector, tensor, and dual tensor, briefly. Without following the Einstein summation convention, the first- and second-order tensor operations in this book are depicted by linear algebraic operation symbols of row array, column array, and two-dimensional matrix, making these operations easier to understand. In addition, for the integral of governing equations of motion, a set of ordinary differential equations for the finite element-based discrete system, the book discussed the implementation of implicit solvers in detail and introduced the well-developed RADAU IIA algorithms based on post-error estimation to make the contents of the book complete. The intended readers of this book are senior engineers and graduate students in related engineering fields.