

1. Record Nr.	UNINA9910254245303321
Autore	Flores Paulo
Titolo	Contact force models for multibody dynamics // by Paulo Flores, Hamid M. Lankarani
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-30897-1
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (177 p.)
Collana	Solid Mechanics and Its Applications, , 0925-0042 ; ; 226
Disciplina	620
Soggetti	Mechanical engineering Vibration Dynamics Mechatronics Biomedical engineering Mechanical Engineering Vibration, Dynamical Systems, Control Biomedical Engineering and Bioengineering
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. Introduction,- 2. Pure Elastic Contact Force Models -- 3. Dissipative Contact Force Models -- 4. Multibody Systems Formulation -- 5. Numerical Methods in Multibody Systems -- 6. Demonstrative Examples of Application.
Sommario/riassunto	This book analyzes several compliant contact force models within the context of multibody dynamics, while also revisiting the main issues associated with fundamental contact mechanics. In particular, it presents various contact force models, from linear to nonlinear, from purely elastic to dissipative, and describes their parameters. Addressing the different numerical methods and algorithms for contact problems in multibody systems, the book describes the gross motion of multibody systems by using a two-dimensional formulation based on the absolute coordinates and employs different contact models to represent contact-impact events. Results for selected planar multibody mechanical systems are presented and utilized to discuss the main

assumptions and procedures adopted throughout this work. The material provided here indicates that the prediction of the dynamic behavior of mechanical systems involving contact-impact strongly depends on the choice of contact force model. In short, the book provides a comprehensive resource for the multibody dynamics community and beyond on modeling contact forces and the dynamics of mechanical systems undergoing contact-impact events.
