

1. Record Nr.	UNINA9910961432403321
Titolo	Dynamics with friction [[electronic resource]] : modeling, analysis and experiment . Part II / / editors, Ardesir Guran, Friedrich Pfeiffer, Karl Popp
Pubbl/distr/stampa	River Edge, NJ, : World Scientific Pub., 2001
ISBN	9786611956721 9781281956729 1281956724 9789812811271 9812811273
Edizione	[1st ed.]
Descrizione fisica	1 online resource (329 p.)
Collana	Series on stability, vibration and control of systems. Series B ; ; 7
Altri autori (Persone)	GuranA (Ardesir) PfeifferFriedrich <1935-> PoppKarl
Disciplina	531.1134
Soggetti	Friction Dynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface; Contributors; Contents; DYNAMICS WITH FRICTION: MODELING ANALYSIS AND EXPERIMENTS PART II; Chapter 1: Interaction of Vibration and Friction at Dry Sliding Contacts; 1. Introduction; 2. Normal Vibration and Friction at Hertzian Contacts; 3. Normal Vibration and Friction at Rough Planar Contacts; 4. Normal and Angular Vibrations at Rough Planar Contacts; 5. Stability Analysis; 6. Chaotic Vibration and Friction; 7. Conclusions; 8. References; Chapter 2: Vibrations and Friction-Induced Instability in Discs; 1. Introduction; 2. Disc Vibrations and Critical Speeds 3. Excitation by a Transverse-Spring-Damper System 4. Follower Force Friction Models; 5. Friction-Induced Parametric Resonances; 6. Parametric Excitation by a Frictional Follower Force with a Negative u-Velocity Characteristic; 7. Closure; Acknowledgment; References; Chapter 3: Dynamics of Flexible Links in Kinematic Chains; 1. Introduction; 2. Kinematics and Kinetics of Flexible Bodies in General

Motion; 3. Equations of Motion for Small Deformations in Rectilinear Elastic Links; 4. Equations of Motion for Large Deformations in Rectilinear Elastic Links; 5. The Dynamics of Viscoelastic Links 6. The Vibrations of a Flexible Link with a Lubricated Slider Joint 7. References; Chapter 4: Solitons Chaos and Modal Interactions in Periodic Structures; 1. Introduction; 2. Experiment; 3. Numerical Model; 4. Forced Vibrations and Modal Interactions; 5. Impact Response; 6. Conclusions; 7. Acknowledgments; 8. References; Chapter 5: Analysis and Modeling of an Experimental Frictionally Excited Beam; 1. Introduction; 2. Experimental Setup; 3. Friction Measurement; 4. Displacement Measurement; 5. Dynamical Responses; 6. Proper Orthogonal Modes; 7. Mathematical Model 8. Numerical Simulations and Validation 9. Discussion and Elaboration; 10. Conclusions; 11. Acknowledgments; References; Chapter 6: Transient Waves in Linear Viscoelastic Media; Introduction; 1. Statement of the Problem by Laplace Transform; 2. The Structure of Wave Equations in the Space-Time Domain; 3. The Complex Index of Refraction: Dispersion and Attenuation; 4. The Signal Velocity and the Saddle-Point Approximation; 5. The Regular Wave-Front Expansion; 6. The Singular Wave-Front Expansion; Conclusions; Acknowledgments; References Chapter 7: Dynamic Stability and Nonlinear Parametric Vibrations of Rectangular Plates 1. Introduction; 2. Theoretical Analysis; 3. Solution of the Temporal Equations of Motion; 4. Stationary Response; 5. Nonstationary Responses; 6. Results and Discussion; Acknowledgments; References; Chapter 8: Friction Modelling and Dynamic Computation; 1. Introduction; 2. Phenomenological Models; 3. Analysis of Systems of Several Rigid Bodies; References; Chapter 9: Damping through Use of Passive and Semi-Active Dry Friction Forces; 1. Introduction; 2. Passive Mechanisms; 3. Semi-Active Friction 4. Conclusions

Sommario/riassunto

The dynamics of dissipative mechanical and structural systems is being investigated at various institutions and laboratories worldwide with ever-increasing sophistication of modeling, analysis and experiments. This book offers a collection of contributions from these research centers that represent the state-of-the-art in the study of friction oscillators. It provides the reader with the fruits of a team effort by leaders in this fascinating field. The present part II of this volume on Dynamics with Friction is a continuation of the previous part I, and is designed to help synthesize our current
