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Titolo	Models and Analysis of Quasistatic Contact : Variational Methods / / by Meir Shillor, Mircea Sofonea, Józef Joachim Telega
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Descrizione fisica	1 online resource (XI, 263 p.)
Collana	Lecture Notes in Physics, , 1616-6361 ; ; 655
Disciplina	620.1/05
Soggetti	Mathematical physics Mechanics Engineering Mechanics, Applied Solids Mathematical Methods in Physics Theoretical, Mathematical and Computational Physics Classical Mechanics Technology and Engineering Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Modelling: Evolution Equations, Contact and Friction -- Additional Effects Involved in Contact -- Thermodynamic Derivation -- A Detailed Representative Problem -- Models and Their Variational Analysis: Mathematical Preliminaries -- Elastic Contact -- Viscoelastic Contact -- Viscoplastic Contact -- Slip or Temperature Dependent Frictional Contact -- Contact with Wear or Adhesion -- Contact with Damage -- Miscellaneous Problems and Conclusions: Dynamic, One-Dimensional and Miscellaneous Problems -- Conclusions, Remarks and Future Directions -- References -- Index.
Sommario/riassunto	The mathematical theory of contact mechanics is a growing field in engineering and scientific computing. This book is intended as a unified and readily accessible source for mathematicians, applied

mathematicians, mechanics, engineers and scientists, as well as advanced students. The first part describes models of the processes involved like friction, heat generation and thermal effects, wear, adhesion and damage. The second part presents many mathematical models of practical interest and demonstrates the close interaction and cross-fertilization between contact mechanics and the theory of variational inequalities. The last part reviews further results, gives many references to current research and discusses open problems and future developments. The book can be read by mechanical engineers interested in applications. In addition, some theorems and their proofs are given as examples for the mathematical tools used in the models.

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