

1. Record Nr.	UNINA9910452699103321
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Titolo	Mathematical models in contact mechanics // M. Sofonea, A. Matei [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2012
ISBN	1-139-88985-0 1-139-57982-7 1-139-10416-0 1-139-57367-5 1-139-57125-7 1-139-57300-4 1-139-56944-9 1-283-63880-0 1-139-57034-X
Descrizione fisica	1 online resource (xiv, 280 pages) : digital, PDF file(s)
Collana	London Mathematical Society lecture note series ; ; 398
Disciplina	620.1/05
Soggetti	Contact mechanics - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preliminaries on functional analysis -- Elliptic variational inequalities -- History-dependent variational inequalities -- Modelling of contact problems -- Analysis of elastic contact problems -- Analysis of elastic-visco plastic contact problems -- Analysis of piezoelectric contact problems.
Sommario/riassunto	This text provides a complete introduction to the theory of variational inequalities with emphasis on contact mechanics. It covers existence, uniqueness and convergence results for variational inequalities, including the modelling and variational analysis of specific frictional contact problems with elastic, viscoelastic and viscoplastic materials. New models of contact are presented, including contact of piezoelectric materials. Particular attention is paid to the study of history-dependent quasivariational inequalities and to their applications in the study of contact problems with unilateral constraints. The book fully illustrates the cross-fertilisation between modelling and applications on the one

hand and nonlinear mathematical analysis on the other. Indeed, the reader will gain an understanding of how new and nonstandard models in contact mechanics lead to new types of variational inequalities and, conversely, how abstract results concerning variational inequalities can be applied to prove the unique solvability of the corresponding contact problems.

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