

B. N. J. Persson

Sliding Friction

Physical Principles
and
Applications

Second Edition



Springer

Sliding Friction Physical Principles And Applications Nanoscience And Technology

Bo N.J. Persson



Sliding Friction Physical Principles And Applications Nanoscience And Technology:

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Experimental Rock Deformation - The Brittle Field M.S. Paterson, Teng-fong Wong, 2005-11-11 This monograph deals with the part of the field of experimental rock deformation that is dominated by the phenomena of brittle fracture on one scale or another Thus a distinction has been drawn between the fields of brittle and ductile behaviour in rock corresponding more or less to a distinction between the phenomena of fracture and flow The last chapter deals with the transition between the two fields In this new edition an attempt has been made to take into account new developments of the last two and a half decades To assist in this project the original author greatly appreciates being joined by the second author The scope of the monograph is limited to the mechanical properties of rock viewed as a material on the laboratory scale Thus the topic and approach is of a materials science kind rather than of a structures kind We are dealing with only one part of the wider field of rock mechanics a field which also includes structural or boundary value problems for example those of the stability of slopes the collapse of mine openings earthquakes the folding of stratified rock

and the convective motion of the Earth's mantle. One topic thus excluded is the role of jointing which it is commonly necessary to take into account in applications in engineering and mining and probably often in geology too. Shock phenomena have also not been covered.

Handbook of Nanoscience, Engineering, and Technology William A. Goddard III, Donald Brenner, Sergey Edward Lyshevski, Gerald J Iafrate, 2002-10-29 Nanotechnology science and engineering spearhead the 21st century revolution that is leading to fundamental breakthroughs in the way materials, devices and systems are understood, designed, made and used. With contributions from a host of world class experts and pioneers in the field, this handbook sets forth the fundamentals of nanoelectromechanics.

Fundamentals of Friction and Wear on the Nanoscale Enrico Gnecco, Ernst Meyer, 2024-08-31 This book offers a comprehensive review on the latest developments in the field of nanotribology. With contributed chapters covering instrumental aspects, theoretical models and selected experimental results, this book provides a broad overview of the fundamental issues currently being investigated in the field. The updated third edition includes new topics such as molecular tribology, multiscale structural lubricity, tribofilm growth, nanoscale friction in liquids and nanotribology at insect/plant interfaces. Written by a highly qualified group of international experts, this book aims to be a key reference on the subject for the next five to ten years, highlighting the importance of understanding the atomistic origins of friction and wear in everyday life and in technical applications.

Engineering Metrology for Pedestrian Falls Prevention and Protection In-Ju Kim, 2022-03-25 This book explains how to improve the validity, reliability and repeatability of slip resistance assessments amongst a range of shoes, floors and environments from an engineering metrology viewpoint, covering theoretical and experimental aspects of slip resistance, mechanics and mechanisms. Pedestrian falls resulting from slips or falls are one of the foremost causes of fatal and non-fatal injuries that limit people's functionality. There have been prolonged efforts globally to identify and understand their main causes and reduce their frequency and severity. This book deals with large volumes of information on tribological characteristics such as friction and wear behaviours of the shoes and floors and their interactive impacts on slip resistance performances. Readers are introduced to theoretical concepts and models and collected evidence on slip resistance properties amongst a range of shoe and floor types and materials under various ambulatory settings. These approaches can be used to develop secure design strategies against fall incidents and provide a great step forward to build safer shoes, floors and walking working environments for industries and communities around the world. The book includes many case studies.

Modelling, Simulation and Software Concepts for Scientific-Technological Problems Ernst Stephan, Peter Wriggers, 2011-04-28 The book includes different contributions that cover interdisciplinary research in the areas of error-controlled numerical methods, efficient algorithms and software development. Elastic and inelastic deformation processes, models with multiscales and multi-physics, high performance adaptive numerical methods using finite elements (FEM) and boundary elements (BEM) are described as well as efficient solvers for linear systems and corresponding software components for non-linear coupled field equations of various branches of

mechanics electromagnetics and geosciences *Viscoelastic Interfaces Driven in Disordered Media* François P.

Landes, 2015-07-09 This book offers an in depth study of two well known models of avalanche dynamics modified minimally by the inclusion of relaxation Many complex systems respond to continuous inputs of energy by accumulation of stress over time interrupted by sudden energy releases called avalanches The first model studied is the viscoelastic interface driven over disorder which is shown to display the fundamental features of friction In the mean field limit the friction force derived semi analytically is compatible with laboratory experiments displaying both velocity weakening and contact aging In two dimensions large scale numerical simulations are in good agreement with the basic features of real earthquakes Gutenberg Richter Law aftershock migration The second model is a non Markovian variant of Directed Percolation in which we observe that the universality class is only partly modified by relaxation a promising finding with respect to our first model

Deformation Characteristics of Geomaterials H. DiBenedetto, T. Doanh, H. Geoffroy, C. Sauzéat, 2005-03-03 Solutions for soil engineering and soil structure interaction problems need realistic and pertinent experimental and modelling tools In this work extensive developments proposed by the invited speakers of the Lyon International Symposium held in September 2003 are presented including experimental investigations into deformation properties laboratory in situ and field observation interpretations behaviour characterisation and modelling and case histories The contributions include recent investigations into anisotropy and non linearity the effects of stress strain time history ageing and time effects yielding failure and flow cyclic and dynamic behaviour In addition advanced geotechnical testing is applied to real engineering problems and to ways of synthesising information from a range of sources while engaging in practical site characterisation studies

Sliding Friction Physical Principles And Applications Nanoscience And Technology Book Review: Unveiling the Magic of Language

In a digital era where connections and knowledge reign supreme, the enchanting power of language has been apparent than ever. Its capability to stir emotions, provoke thought, and instigate transformation is truly remarkable. This extraordinary book, aptly titled "**Sliding Friction Physical Principles And Applications Nanoscience And Technology**," written by a highly acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we will delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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