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Dynamics of Materials
Introduction to Adiabatic Shear Localization
Adiabatic Shear in Remco Iron and Quenched and Tempered 4340 Steel
Occurrence, Theories, and Applications
Adiabatic Shear Localization
Mechanical Behavior of Materials

Computational Methods for Predicting Material Processing Defects
in English, Russian, French, Spanish and German
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Audio Engineer's Reference Book

Adiabatic Shear Localization
The Physics and Mathematics of Adiabatic Shear Bands
Cold Gas Dynamic Spray
Experiments, Models and Applications
Crystal Plasticity Finite Element Methods

FREDERICK EATON

Revised
Elsevier
During the last two decades rock mechanics in Europe has been undergoing some major transformation . The reduction of mining activities in Europe affects heavily on rock mechanics teaching and research at universities and institutes. At the same time, new emerging activities, notably, underground infrastructure construction, geothermal energy develo

Chemistry and Physics of Fracture
Elsevier
This book comprehensiv ely discusses essential aspects of terminal ballistics, combining experimental data, numerical simulations and analytical modeling. This new, 3rd edition reflects a number of recent advances in materials science, such as the use of polyurea layers on metallic plates in order to improve their ballistics. In addition, more data and

analyses are now available on dwell and interface defeat in ceramic tiles coated with polymers, and are presented here. Lastly, the new edition includes new results, numerical and empirical, concerning the DIF issue in brittle solids, as well as the “upturn” phenomenon in the stress–strain curves of ductile solids.The author also added a new analysis of concrete penetration experiments which accounts for the scaling issue in this field. This is a new,and important, addition which we are happy to announce. They also added some new insights into the interaction of EEP’s and FSP projectiles with metallic plates. Throughout the book, the authors demonstrate the advantages of the simulation approach in terms of understanding the basic physics behind the phenomena investigated, making it a must-read for all professionals who need to understand terminal ballistics.

Spatial Evolution of Adiabatic Shear Localization in Stainless Steel, Titanium, and Ti-6A1-4V Alloy

Cambridge University Press

The Army Materials and Mechanics Research Center in coopera tion with the

Materials Science Group of the Department of Chemical Engineering and Materials Science of Syracuse University has been conducting the Annual Sagamore Army Materials Research Conference since 1954. The specific purpose of these conferences has been to bring together scientists and engineers from academic institutions, industry, and government who are uniquely qualified to explore in depth a subject of importance to the Department of Defense, the Army, and the scientific community. The proceedings of this conference, entitled MATERIAL BEHAVIOR UNDER HIGH STRESS AND ULTRAHIGH LOADING RATES, will be published in two parts. The topics covered in the present volume include dynamic plasticity, adiabatic shear/localized deformation, and dynamic fracture mechanics. Papers dealing with ordnance applica tions, projectile launch environment, and recent work-in-progress will appear as an AMMRC Technical Report and will have more limited distribution in accordance with recent Army guidelines. The Conference Chairmen are particularly grateful to the

members of the Program Committee. We wish also to acknowledge the assistance of Mr. Charles Polley of the Army Materials and Mechanics Research Center, Mr. Robert Sell, Ms. Helen Brown DeMascio, and Ms. Mary Ann Holmquist of Syracuse University throughout the con ference planning stages and the publication of the text. The continued active interest in and support of these confer ences by Dr. E. Wright and Col. George Sibert, Direct and Deputy Director/Com mander, respectively, of the Army Materials and Mechan ics Research Center, is appreciated. Localization and Fracture Phenomena in Inelastic Solids CRC Press High-Pressure Rheology for Quantitative Elastohydrody namics, Second Edition, contains updated sections on scaling laws and thermal effects, including new sections on the importance of the pressure dependence of viscosity, the role of the localization limit of stress, and new material on the shear dependence of viscosity and temperature dependence viscosity. Since publication of the original edition, the experimental methods, the resulting property data and new

correlations have resulted in a revolution in understanding of the mechanisms of film formation and the mechanical dissipation. Describes lubricant rheology and dependence of lubricant viscosity and density on pressure and temperature Provides a detailed description of the relationship of lubricant properties on pressure, temperature and shear stress Includes data for many more liquids, including the recently characterized reference liquids

Physics and Technology

CRC Press

The papers in this book deal with computational methods for predicting material processing defects. Using recent advances in finite strain plasticity and viscoplasticity, damage modelling, bifurcation and instability theory, fracture mechanics and computer numerical techniques, new approaches to mechanical defect analysis are proposed. Appropriate methods for explaining and avoiding the defects leading to fracture, high porosity, strain localization or undesirable geometrical imperfections are presented. In addition, some papers are devoted to new formulations and new calculation algorithms to be used for

solving the forming problems. Finally, two papers deal with physical description of defects occurring in forming and cutting operations, focusing on the academic and practical interest of these topics. This is the first book to deal with the prediction of defects occurring in material forming processes; it contains much of interest from both a theoretical and a practical viewpoint.

Bulk Metallic Glasses

Springer Science & Business Media

Adiabatic shear localization is a mode of failure that occurs in dynamic loading. It is characterized by thermal softening occurring over a very narrow region of a material and is usually a precursor to ductile fracture and catastrophic failure. This reference source is the revised and updated version of the first detailed study of the mechanics and modes of adiabatic shear localization in solids. Building on the success of the first edition, the book provides a systematic description of a number of aspects of adiabatic shear banding. The concepts and techniques described in this work can usefully be applied to solve a multitude of problems encountered by those

investigating fracture and damage in materials, impact dynamics, metal working and other areas. Specific chapters focus on energetic materials, polymers, bulk metal glasses, and the mathematics of shear banding as well as the numerical modeling of them. With its detailed coverage of the subject, this book is of great interest to academics and researchers into materials performance as well as professionals. Up-to-date coverage of the subject and research that has occurred over the past 20 years Each chapter is written on a different sub-field of adiabatic shear by an acknowledged expert in the field Detailed and clear discussions of each aspect

Rock Mechanics in Civil and Environmental Engineering

Elsevier

A balanced mechanics-materials approach and coverage of the latest developments in biomaterials and electronic materials, the new edition of this popular text is the most thorough and modern book available for upper-level undergraduate courses on the mechanical behavior of materials. To ensure that the student gains a thorough understanding the authors present the fundamental mechanisms that operate at micro- and

nano-meter level across a wide-range of materials, in a way that is mathematicall y simple and requires no extensive knowledge of materials. This integrated approach provides a conceptual presentation that shows how the microstructure of a material controls its mechanical behavior, and this is reinforced through extensive use of micrographs and illustrations. New worked examples and exercises help the student test their understanding . Further resources for this title, including lecture slides of select illustrations and solutions for exercises, are available online at www.cambrid ge.org/978005 21866758.

Fundamental s and Applications : Proceedings of the Third International Conference Held in Barcelona, Spain, 6th-10th April, 1992

Cambridge University Press

Your Guide to Advanced Cold Spray Technology

Cold Gas Dynamic Spray

centers on cold gas dynamic spray (or cold spray—CS) technology, one of the most versatile thermal spray coating methods in materials engineering, and effectively describes and analyzes the main trends and developments behind the spray (coating) techniques.

The book combines theory with practice to enable the reader to deeper understand the CS coatings as well as their structures and properties, and describes the state of the art in CS technology with an emphasis on all major components of the cold spray process. This book begins with an introduction to CS spray and goes on to thoroughly explain the process. It describes the different powder synthesis methods and equipment currently used, and defines the CS coating microstructure , characterizati on methods, and properties of CS coatings. The authors present a comprehensiv e approach that highlights grit blasting and cold spraying as well as the hybrid CS-sintering technology that offers integrity of microstructure , compositional homogeneity, and mechanical property levels equal to (and frequently better than) those of the wrought counterpart. The book largely covers the basic principles of CS technology and also includes: A brief survey of thermal spray methods The basic principles of plasticity theory A description of the CS equipment, the nozzle design, and the geometry

of a CS gun Coverage of the microstructural and mechanical properties of CS metals and alloys A detailed analysis of aircraft component repair using GS An overview of the economic aspects of CS applications. Cold Gas Dynamic Spray explains how cold gas dynamic spray works and what it can do, and is intended for engineering professionals working with sprays and coatings in the industry as well as graduate student specializing in material science, mechanical, automotive, aerospace, and chemical engineering. *Dynamics of Materials* Woodhead Publishing Adiabatic shear localization is a mode of failure that occurs in dynamic loading. It is characterized by thermal softening occurring over a very narrow region of a material and is usually a precursor to ductile fracture and catastrophic failure. This reference source is the revised and updated version of the first detailed study of the mechanics and modes of adiabatic shear localization in solids. Building on the success of the first edition, the book provides a systematic description of a number of aspects of adiabatic shear banding. The concepts and

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Introduction to Adiabatic Shear Localization Springer Science & Business Media Geography is a system of highly developed sciences about the environment. Geographical science embracing the study of the Earth's physical phenomena, people and their economic activities has always been in need of an extensive terminology. Geographical terms are

related to the terms of natural sciences (physics, chemistry, biology, geology, etc.) and humanities (history, economics, sociology, etc.) since geography is based on these fundamental subjects. Geography includes a number of disciplines and subdivisions which appeared along with the development of the science In spite of being very different geographical disciplines have some common tools of investigation which is maps, comparative method of exploration, remote sensing, geoinformatio n systems. Today very well developed terminologies of all the specialist fields of geography and related subjects exist in the main world languages. However, they are not always well-correlated. Nowadays geographical terminology requires unification and international correlation more than ever before. Hence the idea of compiling a multilingual polydisciplinar y dictionary. The Dictionary consists of the basic table of terms arranged according to the order of the English alphabet with each term numbered. Each entry consists of the term in English and its equivalents in Russian,

French, German, Spanish. Short definitions of terms are given in English and in Russian. The terms are supplied with the necessary grammar labels, such as gender of nouns, plural number, etc. The Dictionary combines two functions: that of a defining dictionary and that of a bilingual dictionary. These two functions are basically contradictory because usually the defining dictionary is aimed at giving one meaning of the word which is the main and essential one, while the bilingual dictionary tries to give different equivalents of a given word in the other language in order to supply the user with maximum possible translations, differing in the shades of meanings, thus giving him the possibility to choose the appropriate word. But in our Dictionary we intentionally decided to combine the two functions – defining and multilingual, because a short definition of the term and equivalents in other languages help to achieve our main aim which consists in showing the basic geographical terminology and harmonizing it in several languages. Having this into consideration we deliberately mixed two

types of dictionaries in one. Organized alphabetically via English Provides short definition of geographical terms in English and Russian Includes multilingual translation of terms from English to Russian, French, German, Spanish

Adiabatic Shear in Remco Iron and Quenched and Tempered 4340 Steel

Cambridge University Press

Hot Working Guide: A Compendium of Processing Maps, Second Edition is a unique source book with flow stress data for hot working, processing maps with metallurgical interpretation and optimum processing conditions for metals, alloys, intermetallics, and metal matrix composites. The use of this book replaces the expensive and time consuming trial and error methods in process design and product development.

Occurrence, Theories, and Applications

DIANE Publishing Inc.

About the Book: Minimalistic and simplified approach to the subject. Entire book is designed in a tabulated manner.Very useful to learn many parasites in a short period of time during exams. Comaprative design helps students to retain knowledge more effectively. Concise, bulleted format and to-the-point text-easy to read

during examination. Simple and lucid language makes the understanding easy. Supplement video tutorial link: https://www.youtube.com/watch?v=QNIoIvWIJH8&list=PLMi9x80kI97O43-Qp5E0chbaLEmLzAGTM

Adiabatic Shear Localization

Q world Adiabatic shear bands are found in a variety of metals and other materials; they cause rapid weakening due to energy concentration into narrow regions of the material. This is the very first book on this important topic and the only true introduction to the subject. An enhanced and updated student-friendly edition of the authors' 1992 book Adiabatic Shear Localization: Occurrence, Theories and Applications, this seminal text now includes essential Further Reading sections in some chapters. It explains adiabatic shear bands in a descriptive rather than a mathematical way, with a 'quick reference' section for readers wanting a more rapid introduction. Entirely comprehensive, the reader can dip into the chapters as suits his or her course material or research. If you are a postgraduate materials scientist, engineer, physicist, metallurgist, or indeed any

researcher in materials that undergo rapid deformation and failure, this text is not to be missed.
Mechanical Behavior of Materials
Taylor & Francis
Adiabatic Shear LocalizationFrontiers and AdvancesElsevier
Computational Methods for Predicting Material Processing Defects
Elsevier
This is a textbook on the mechanical behavior of materials for mechanical and materials engineering. It emphasizes quantitative problem solving. This new edition includes treatment of the effects of texture on properties and microstructure in Chapter 7, a new chapter (12) on discontinuous and inhomogeneous deformation, and treatment of foams in Chapter 21.
in English, Russian, French, Spanish and German
Springer
An authoritative reference on all aspects of audio engineering and technology including basic mathematics and formulae, acoustics and psychoacoustics, microphones, loudspeakers and studio installations. Compiled by an international team of experts, the second edition was updated to keep abreast of fast-moving areas such as digital audio and transmission

technology. Much of the material has been revised, updated and expanded to cover the very latest techniques. This is a new paperback version.

Proceedings of PLASTICITY '91: The Third International Symposium on Plasticity and Its Current Applications Springer Nature

Adiabatic shear localization is a mode of failure that occurs in dynamic loading. It is characterized by thermal softening occurring over a very narrow region of a material and is usually a precursor to ductile fracture and catastrophic failure. This reference source is the first detailed study of the mechanics and modes of adiabatic shear localization in solids, and provides a systematic description of a number of aspects of adiabatic shear banding. The inclusion of the appendices which provide a quick reference section and a comprehensive collection of thermomechanical data allows rapid access and understanding of the subject and its phenomena. The concepts and techniques described in this work can usefully be applied to solve a multitude of problems encountered by those investigating fracture and damage in materials, impact dynamics,

metal working and other areas. This reference book has come about in response to the pressing demand of mechanical and metallurgical engineers for a high quality summary of the knowledge gained over the last twenty years. While fulfilling this requirement, the book is also of great interest to academics and researchers into materials performance.

Material Behavior Under High Stress and Ultrahigh Loading Rates

John Wiley & Sons

This book is an interdisciplinary review of the effect of fracture on life, following the development of the understanding of fracture written from a historical perspective. After a short introduction to fracture, the first section of the book covers the effects of fracture on the evolution of the Earth, plants and animals, and man. The second section of the book covers the largely empirical control of fracture from ancient times to the end of the nineteenth century. The final section reviews the development of fracture theory as a discipline and its application during the twentieth century through to the present time.

Mechanics and Metallurgy

John Wiley & Sons

Excellent bridge

between general solid-state physics textbook and research articles packed with providing detailed explanations of the electronic, vibrational, transport, and optical properties of semiconductors "The most striking feature of the book is its modern outlook ... provides a wonderful foundation. The most wonderful feature is its efficient style of exposition ... an excellent book." Physics Today "Presents the theoretical derivations carefully and in detail and gives thorough discussions of the experimental results it presents. This makes it an excellent textbook both for learners and for more experienced researchers wishing to check facts. I have enjoyed reading it and strongly recommend it as a text for anyone working with semiconductors ... I know of no better text ... I am sure most semiconductor physicists will find this book useful and I recommend it to them." Contemporary Physics Offers much new material: an extensive appendix about the important and by now well-established, deep center known as the DX center, additional problems and the solutions to over fifty of the problems at the end of the various chapters. Introduction to Low Pressure

Gas Dynamic Spray
Springer
This textbook concentrates on modern topics in statistical physics with an emphasis on strongly interacting condensed matter systems. The book is self-contained and is suitable for beginning graduate students in physics and materials science or undergraduates who have taken an introductory course in statistical mechanics. Phase transitions and critical phenomena are discussed in detail including mean field and Landau theories and the renormalization group approach. The theories are applied to a number of interesting systems such as magnets, liquid crystals, polymers, membranes, interacting Bose and Fermi fluids; disordered systems, percolation and spin of equilibrium concepts are also discussed. Computer simulations of condensed matter systems by Monte Carlo-based and molecular dynamics methods are treated.

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