1. Record Nr. UNINA9911019381003321

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Titolo	Understanding lightning and lightning protection : a multimedia teaching guide / / Tibor Horvath
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, NJ, : Wiley Baldock [England], : Research Studies Press, c2006
ISBN	9786610648825 9780470030875 0470030879 9781280648823 1280648821 9780470030882 0470030887
Descrizione fisica	1 online resource (221 p.)
Collana	RSP series in electrostatics and electrostatic applications
Disciplina	693.8/98
Soggetti	Lightning protection
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [185]-187) and index.
Nota di contenuto	Understanding Lightning and Lightning Protection; Contents; PREFACE; INTRODUCTION; Guide to use the program; 1. CLOUD, CYCLONE AND FRONTS; Development of a cloud; Growth of a thunderstorm cloud; Development of a cyclone; Warm and cold fronts; Distribution of thunderstorms; 2. ELECTRIC CHARGES IN CLOUDS; Processes of charge separation; Charging process in the liquid phase; Charging process during freezing; Final distribution of charges; Static electric field; Relation to the ionosphere; 3. DISCHARGE PROCESSES IN AIR; Photon processes; Excitation by photon; Ionisation and absorption RecombinationElectron collisions; Excitation by electron; Ionisation by collision; Discharges; Electron avalanche; Streamer discharge; Klydonograph; Leader discharge; 4. DEVELOPMENT OF THE LIGHTNING FLASH; Start on drops in the cloud; From leader to main stroke; Multiple stroke; Upward leader; The Boys-camera: Principle and construction; The Boys-camera: Operation; Boys-record of ideal lightning; Real Boys-records; 5. PHYSICS OF THE LIGHTNING

DISCHARGE; Properties of a downward leader; Condition of connecting leader; Striking process; Development of main stroke; Multiple and upward stroke
The current waveLightning parameters; Distribution functions; 6. CURIOUS LIGHTNING PHENOMENA; Properties of ball lightning; Ball lightning-theories; Resonance theory; Quantum-theory; Theory of magnetic vortex; Photos of ball lightning; Beaded lightning; Stroke from clear sky; Discharge to the ionosphere; 7. INDUCED VOLTAGE; Ampere's law; Rectangular loop + infinite conductor; Rectangular loop + cut conductor; Reduction to basic components; Triangular loop; Polygonal loop; Induced voltage due to direct stroke; Induced current due to direct stroke; Induced voltage due to distant stroke
Induced current due to distant stroke8. DYNAMIC FORCES DUE TO LIGHTNING; Parallel wires; Force due to lightning on a rod struck at the top; Force due to lightning on a horizontal wire; Force due to lightning on a metal plate; Force of leaded current at inversion of wire; Force of leaded current on a tube; Dynamic force on a console; Slit effect; Damage on tree; 9. HEAT EFFECTS ON METAL OBJECTS; Heating a metal plate; Change of temperature in a metal plate; Equations of melting a metal plate; Crater and droplets; Melting a wire at contact spot; Melting a wire leading current
Probability of melting10. LIGHTNING ATTACHMENT; Point of orientation; The striking distance; Distribution and density functions; The expected frequency of stroke; The principle of calculation; Collection space; 11. COLLECTION SPACES OF STRUCTURES; The principle of collection space; Dividing the collection space; Two conductors; Lightning rod on tower; Air terminations of block-house; The collection space of one mesh; 12. PROTECTIVE EFFECT ON FLAT ROOF; Air termination systems on blockhouse; Diagrams related to several air terminations; Application of rolling sphere method
13. PROTECTION OF INCLINED ROOF

Sommario/riassunto

The advent of complex intelligent structures and low-voltage electronic installations within buildings requires increasingly sophisticated lightning protections techniques. As a multimedia book, Understanding Lightning and Lightning Protection is a unique, interactive self-teaching tool that provides an in-depth understanding of lightning protection. Understanding Lightning and Lightning Protection helps the reader to understand the propagation of waves within complex intelligent structures within buildings, and the operation of systems designed to protect these structures. It

2. Record Nr. UNINA9910682589803321

Autore	Jiang Dazhi
Titolo	Continuum Micromechanics : Theory and Application to Multiscale Tectonics / / by Dazhi Jiang
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	9783031233135 9783031233128
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (431 pages)
Collana	Springer Geophysics, , 2364-9127
Disciplina	929.605
Soggetti	Geophysics Rheology Mathematics - Data processing Petrology Computational Mathematics and Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1. Background, Mathematic Preliminaries and Notations -- Chapter 2. Orientation of Fabric Elements -- Chapter 3. Stress, Strain, and Elasticity -- Chapter 4. Deformation: Strain and Rotation -- Chapter 5. Flow: Strain Rate and Vorticity -- Chapter 6. Flow and Finite Deformation in Tabular Zones -- Chapter 7. Constitutive Equations -- Chapter 8. Rotation of Rigid Objects in Homogeneous Flows -- Chapter 9. Further Analysis of Spheroids in Simple Shearing Flows -- Chapter 10. Eshelby’s Inclusion and Inhomogeneity Problem -- Chapter 11. Viscous Inclusions in Anisotropic Materials -- Chapter 12. Two-Dimensional Inclusion Problems -- Chapter 13. Effective Stiffnesses of Heterogeneous Materials -- Chapter 14. Application Example 1: An Elastic Prolate Object in a Viscous Matrix -- Chapter 15. Application Example 2: A Penny-Shaped Viscous Inclusion in an Elastic Matrix -- Chapter 16. Application Example 3: Deformation around a Heterogeneity: Flanking Structures -- Chapter 17. Generalization of Eshelby's Formalism and a Self-Consistent Model for Multiscale Rock Deformation.

Sommario/riassunto

The book integrates theory, numerical methods, and practical applications seamlessly. MATLAB and MathCad programs are provided for readers to master the theory, understand the approach, and to further develop and apply the methods to geological problems. Multiscale and multi-physics investigations of Earth and planetary processes have been an active trend of research in Earth Sciences, thanks to the development of scientific computation and computer software and hardware. Based on the author's research and teaching over the past 15 years, the book stands alone as the first comprehensive text in unifying fundamental continuum micromechanics theory, geometric/kinematic analysis, and applications. The book should appeal to a broad audience of students and researchers, particularly those in the fields of structural geology, tectonics, (natural and experimental) rock deformation, mineral physics and rheology, and numerical modeling of multiscale and coupling processes.