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Autore	Mooney, Christopher Z.
Titolo	Bootstrapping : a nonparametric approach to statistical inference / Christopher Z. Moonet, Robert D. Duval
Pubbl/distr/stampa	Newbury Park : Sage publ., c 1993
Descrizione fisica	VI, 74 p. ; 21 cm
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Autore	Dormieux Luc
Titolo	Microporomechanics / / Luc Dormieux, Djimedo Kondo, Franz-Josef Ulm
Pubbl/distr/stampa	Chichester, West Sussex, England ; ; Hoboken, NJ, : Wiley, c2006
ISBN	9786610648832 9781280648830 128064883X 9780470032008 0470032006 9780470031995 0470031999
Descrizione fisica	1 online resource (346 p.)
Altri autori (Persone)	KondoDjimedo UlmF.-J (Franz-Josef)
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [319]-322) and index.
Nota di contenuto	Microporomechanics; Contents; Preface; Notation; 1 A Mathematical Framework for Upscaling Operations; 1.1 Representative Elementary Volume (rev); 1.2 Averaging Operations; 1.2.1 Apparent and Intrinsic Averages; 1.2.2 Spatial Derivatives of an Average; 1.2.3 Time Derivative of an Average; 1.2.4 Spatial and Time Derivatives of e; 1.3 Application to Balance Laws; 1.3.1 Mass Balance; 1.3.2 Momentum Balance; 1.4 The Periodic Cell Assumption; 1.4.1 Introduction; 1.4.2 Spatial and Time Derivative of e in the Periodic Case; 1.4.3 Spatial and Time Derivative of e of in the Periodic Case 1.4.4 Application: Micro- versus Macroscopic CompatibilityPart I Modeling of Transport Phenomena; 2 Micro(fluid)mechanics of Darcy's Law; 2.1 Darcy's Law; 2.2 Microscopic Derivation of Darcy's Law; 2.2.1 Thought Model: Viscous Flow in a Cylinder; 2.2.2 Homogenization of the Stokes System; 2.2.3 Lower Bound Estimate of the Permeability Tensor; 2.2.4 Upper Bound Estimate of the Permeability Tensor; 2.3 Training Set: Upper and Lower Bounds of the Permeability of a 2-D Microstructure; 2.3.1 Lower Bound; 2.3.2 Upper Bound; 2.3.3 Comparison 2.4 Generalization: Periodic Homogenization Based on Double-Scale Expansion2.4.1 Double-Scale Expansion Technique; 2.4.2 Extension of Darcy's Law to the Case of Deformable Porous Media; 2.5 Interaction Between Fluid and Solid Phase; 2.5.1 Macroscopic Representation of the Solid-Fluid Interaction; 2.5.2 Microscopic Representation of the Solid-Fluid Interaction; 2.6 Beyond Darcy's (Linear) Law; 2.6.1 Bingham Fluid; 2.6.2 Power-Law Fluids; 2.7 Appendix: Convexity of (d); 3 Micro-to-Macro Diffusive Transport of a Fluid Component; 3.1 Fick's Law 3.2 Diffusion without Advection in Steady State Conditions3.2.1 Periodic Homogenization of Diffusive Properties; 3.2.2 The Tortuosity Tensor; 3.2.3 Variational Approach to Periodic Homogenization; 3.2.4 The Geometrical Meaning of Tortuosity; 3.3 Double-Scale Expansion Technique; 3.3.1 Steady State Diffusion without Advection; 3.3.2 Steady State Diffusion Coupled with Advection; 3.3.3 Transient Conditions; 3.4 Training Set: Multilayer Porous Medium; 3.5 Concluding Remarks; Part II Microporoelasticity; 4 Drained Microelasticity; 4.1 The 1-D Thought Model: The Hollow Sphere 4.1.1 Macroscopic Bulk Modulus and Compressibility4.1.2 Model Extension to the Cavity; 4.1.3 Energy Point of View; 4.1.4 Displacement Boundary Conditions; 4.2 Generalization; 4.2.1 Macroscopic and Microscopic Scales; 4.2.2 Formulation of the Local Problem on the rev; 4.2.3 Uniform Stress Boundary Condition; 4.2.4 An Instructive Exercise: Capillary Pressure Effect; 4.2.5 Uniform Strain Boundary Condition; 4.2.6 The Hill Lemma; 4.2.7 The Homogenized Compliance Tensor and Stress Concentration 4.2.8 An Instructive Exercise: Example of an rev for an Isotropic Porous Medium. Hashin's Composite Sphere Assemblage
Sommario/riassunto	Intended as a first introduction to the micromechanics of porous media, this book entitled "Microporomechanics" deals with the mechanics and physics of multiphase porous materials at nano and micro scales. It is composed of a logical and didactic build up from fundamental concepts to state-of-the-art theories. It features four parts: following a brief introduction to the mathematical rules for upscaling operations, the first part deals with the homogenization of transport properties of porous media within the context of asymptotic

expansion techniques. The second part deals with linear micropo