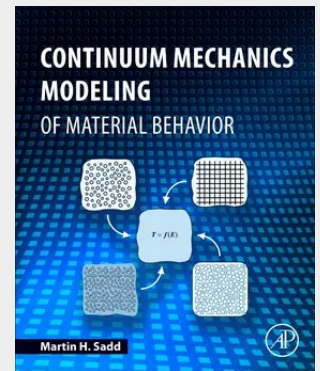


Continuum Mechanics Modeling of Material Behavior

Continuum Mechanics Modeling of Material Behavior offers a uniquely comprehensive introduction to topics like RVE theory, fabric tensor models, micropolar elasticity, elasticity with voids, nonlocal higher gradient elasticity and damage mechanics. Contemporary continuum mechanics research has been moving into areas of complex material microstructural behavior. Graduate students who are expected to do this type of research need a fundamental background beyond classical continuum theories. The book begins with several chapters that carefully and rigorously present mathematical preliminaries: kinematics of motion and deformation; force and stress measures; and general principles of mass, momentum and energy balance. The book then moves beyond other books by dedicating several chapters to constitutive equation development, exploring a wide collection of constitutive relations and developing the corresponding material model formulations. Such material behavior models include classical linear theories of elasticity, fluid mechanics, viscoelasticity and plasticity. Linear multiple field problems of thermoelasticity, poroelasticity and electroelasticity are also presented. Discussion of nonlinear theories of solids and fluids, including finite elasticity, nonlinear/non-Newtonian viscous fluids, and nonlinear viscoelastic materials are also given. Finally, several relatively new continuum theories based on incorporation of material microstructure are presented including: fabric tensor theories, micropolar elasticity, elasticity with voids, nonlocal higher gradient elasticity and damage mechanics.



116,50 €

108,88 € (zzgl. MwSt.)

Nicht mehr lieferbar

Artikelnummer: 9780128114742

Medium: Buch

ISBN: 978-0-12-811474-2

Verlag: ACADEMIC PRESS

Erscheinungstermin: 28.03.2018

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2018

Produktform: Kartoniert

Gewicht: 904 g

Seiten: 432

Format (B x H): 191 x 236 mm

