

Continuum Mechanics using Mathematica®

Fundamentals, Methods, and Applications

This textbook's methodological approach familiarizes readers with the mathematical tools required to correctly define and solve problems in continuum mechanics. Covering essential principles and fundamental applications, this second edition of Continuum Mechanics using Mathematica® provides a solid basis for a deeper study of more challenging and specialized problems related to nonlinear elasticity, polar continua, mixtures, piezoelectricity, ferroelectricity, magneto-fluid mechanics and state changes (see A. Romano, A. Marasco, Continuum Mechanics: Advanced Topics and Research Trends, Springer (Birkhäuser), 2010, ISBN 978-0-8176-4869-5). Key topics and features:

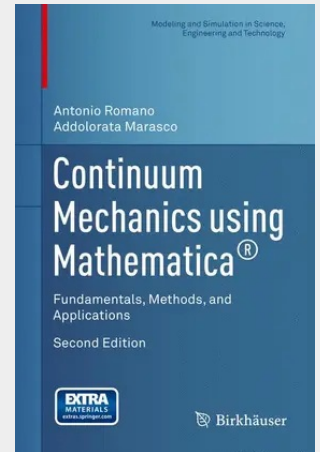
- * Concise presentation strikes a balance between fundamentals and applications *
- Requisite mathematical background carefully collected in two introductory chapters and one appendix *
- Recent developments highlighted through coverage of more significant applications to areas such as wave propagation, fluid mechanics, porous media, linear elasticity. This second edition expands the key topics and features to include:
- * Two new applications of fluid dynamics: meteorology and navigation *
- New exercises at the end of the existing chapters *
- The packages are rewritten for Mathematica 9

Continuum Mechanics using Mathematica®: Fundamentals, Applications and Scientific Computing is aimed at advanced undergraduates, graduate students and researchers in applied mathematics, mathematical physics and engineering. It may serve as a course textbook or self-study reference for anyone seeking a solid foundation in continuum mechanics.

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96,29 €

89,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781493916030

Medium: Buch

ISBN: 978-1-4939-1603-0

Verlag: Springer

Erscheinungstermin: 15.10.2014

Sprache(n): Englisch

Auflage: 2. Auflage 2014

Serie: Modeling and Simulation in Science, Engineering and Technology

Produktform: Gebunden

Gewicht: 9529 g

Seiten: 480

Format (B x H): 160 x 241 mm

