

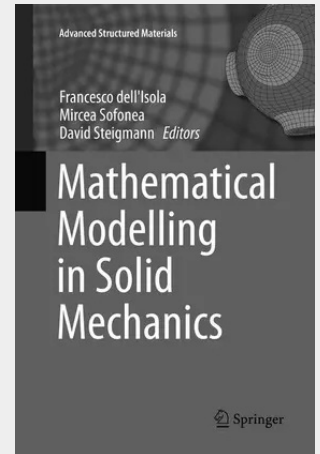
## Mathematical Modelling in Solid Mechanics

This book presents new research results in multidisciplinary fields of mathematical and numerical modelling in mechanics. The chapters treat the topics:

- mathematical modelling in solid, fluid and contact mechanics
- nonconvex variational analysis with emphasis to nonlinear solid and structural mechanics
- numerical modelling of problems with non-smooth constitutive laws, approximation of variational and hemivariational inequalities, numerical analysis of discrete schemes, numerical methods and the corresponding algorithms, applications to mechanical engineering
- numerical aspects of non-smooth mechanics, with emphasis on developing accurate and reliable computational tools
- mechanics of fibre-reinforced materials
- behaviour of elasto-plastic materials accounting for the microstructural defects
- definition of structural defects based on the differential geometry concepts or on the atomistic basis
- interaction between phase transformation and dislocations at nano-scale
- energetic arguments
- bifurcation and post-buckling analysis of elasto-plastic structures
- engineering optimization and design, global optimization and related algorithms

The book presents selected papers presented at ETAMM 2016. It includes new and original results written by internationally recognized specialists.

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**181,89 €**

169,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

**Artikelnummer:** 9789811099618

**Medium:** Buch

**ISBN:** 978-981-10-9961-8

**Verlag:** Springer

**Erscheinungstermin:** 29.07.2018

**Sprache(n):** Englisch

**Auflage:** Softcover Nachdruck of the original 1. Auflage 2017

**Serie:** Advanced Structured Materials

**Produktform:** Kartoniert

**Gewicht:** 505 g

**Seiten:** 316

**Format (B x H):** 155 x 235 mm

