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Titolo	Numerical Modeling of Materials Under Extreme Conditions // edited by Nicola Bonora, Eric Brown
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Descrizione fisica	1 online resource (230 p.)
Collana	Advanced Structured Materials, , 1869-8433 ; ; 35
Disciplina	620.11015118
Soggetti	Materials science Mechanics Mechanics, Applied Computer mathematics Characterization and Evaluation of Materials Solid Mechanics Computational Mathematics and Numerical Analysis
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1 Constitutive models of mechanical behaviour of media with stress state dependent material properties -- 2 Particulate Composites under High Strain Rate and Shock Loading -- 3 FEM Modelling of the Continuous Combined Drawing and Rolling Process for Severe Plastic Deformation of Metallic Materials -- 4 The Thermal Shock Resistance and Mechanical Properties at Elevated Temperature of Transparent Ceramics -- 5 Simulation of Thermal and Electrical Transport in Nanotube and Nanowire Composites -- 6 Thermo-mechanical modelling of high energy particle beam impacts -- 7 Modeling of High Velocity Impact in Sandwich Beams with FGM Core -- 8 Multiscale Modeling of the Effect of Very Large Strain on the Microstructure Evolution and Ductility of Micro alloyed Steels -- 9 Mechanical behaviour of Al 6061-T6 aluminium alloy under large strain and failure -- 10 An Improved Finite Element Model for Numerical Simulation of Phase Changes of Iron under Extreme Conditions -- 11 Performance of hyper elastic material laws in simulating biaxial deformation response

of polypropylene and high impact polystyrene.

Sommario/riassunto

The book presents twelve state of the art contributions in the field of numerical modeling of materials subjected to large strain, high strain rates, large pressure and high stress triaxialities, organized into two sections. The first part is focused on high strain rate-high pressures such as those occurring in impact dynamics and shock compression related phenomena, dealing with material response identification, advanced modeling incorporating microstructure and damage, stress waves propagation in solids and structures response under impact. The latter part is focused on large strain-low strain rates applications such as those occurring in technological material processing, dealing with microstructure and texture evolution, material response at elevated temperatures, structural behavior under large strain and multiaxial state of stress.
