

1. Record Nr.	UNINA9910254144303321
Titolo	Proceedings of the 4th World Congress on Integrated Computational Materials Engineering (ICME 2017) // edited by Paul Mason, Charles R. Fisher, Ryan Glamm, Michele V. Manuel, Georg J. Schmitz, Amarendra K. Singh, Alejandro Strachan
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-57864-2
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XVI, 381 p. 200 illus.)
Collana	The Minerals, Metals & Materials Series, , 2367-1181
Disciplina	658.5
Soggetti	Materials science Applied mathematics Engineering mathematics Engineering—Materials Characterization and Evaluation of Materials Mathematical and Computational Engineering Materials Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes indexes.
Nota di contenuto	An Attempt to Integrate Software Tools at Microscale and Above Towards an ICME Approach for Heat Treatment of a DP Steel Gear with Reduced Distortion -- Integrated Microstructure based Modelling of Process-Chain for Cold Rolled Dual Phase Steels -- Improving Manufacturing Quality using Integrated Computational Materials Engineering -- ICME Based Hierarchical Design Using Composite Materials for Automotive Structures -- Towards Bridging the Data Exchange Gap Between Atomistic Simulations and Larger Scale Models -- A Flowchart Scheme for Information Retrieval in ICME settings -- An Ontological Framework for Integrated Computational Materials Engineering -- European Materials Modelling Council -- Facilitating ICME through Platformization -- Bridging the Gap between Bulk Properties and Confined Behavior using Finite Element Analysis -- Ontology Dedicated to Knowledge-driven Optimization for ICME

Approach -- Integration of Experiments and Simulations to Build Material Big-Data -- ICME-based Process and Alloy Design for Vacuum Carburized Steel Components with High Potential of Reduced Distortion -- Study of Transient Behavior of Slag Layer in Bottom Purged Ladle: A CFD Approach -- Developing Cemented Carbides through ICME -- CSUDDCC2: An Updated Diffusion Database for Cemented Carbides -- Multi-Scale Modeling of Quasi-Directional Solidification of a Cast Si-rich Eutectic Alloy -- Numerical Simulation of Macrosegregation in a 535 Tons Steel Ingot with a Multicomponent-Multiphase Model -- Validation of CAFE Model with Experimental Macroscopic Grain Structures in a 36-ton Steel Ingot -- Analysis of Localized Plastic Strain in Heterogeneous Cast Iron Microstructures using 3D Finite Element Simulations -- An Integrated Solidification and Heat Treatment Models for Predicting Mechanical Properties of Cast Aluminum Alloy Component -- Linked Heat Treatment and Bending Simulation of Aluminum Tailored Heat Treated Profiles -- Numerical Simulation of Meso-micro structure in Ni-based Superalloy during Liquid Metal Cooling Process -- Multiscale Simulation of γ -Mg dendrite growth via 3D Phase Field Modeling and Ab-initio First Principle Calculations -- Macro- and Micro-simulation and Experiment Study on Microstructure and Mechanical Properties of Squeeze Casting Wheel of Magnesium Alloy -- Solidification Simulation of Fe-Cr-Ni-Mo-C Duplex Stainless Steel using CALPHAD-coupled Multi-phase-field Model with Finite Interface Dissipation -- Phase-field Modeling of ' Precipitation Kinetics in W319 Alloys -- Hybrid Hierarchical Model for Damage and Fracture Analysis in Heterogeneous Material -- Fatigue Performance Prediction of Structural Materials by Multi-Scale Modeling and Machine Learning -- Nano Simulation Study of Mechanical Property Parameter for Microstructure-based Multiscale Simulation -- Multiscale, Coupled Chemo-mechanical Modeling of Bainitic Transformation during Press Hardening -- Development of Microstructure-based Multiscale Simulation Process for Hot Rolling of Duplex Stainless Steel -- A Decision-Based Design Method to Explore the Solution Space for Microstructure after Cooling Stage to Realize the End Mechanical Properties of the Rolled Product -- Influence of Computational Grid and Deposit Volume on Residual Stress and Distortion Prediction Accuracy for Additive Manufacturing Modeling.

Sommario/riassunto

This book represents a collection of papers presented at the 4th World Congress on Integrated Computational Materials Engineering (ICME 2017), a specialty conference organized by The Minerals, Metals & Materials Society (TMS). The contributions offer topics relevant to the global advancement of ICME as an engineering discipline. Topics covered include the following: ICME Success Stories and Applications Verification, Validation, Uncertainty Quantification Issues and Gap Analysis Integration Framework and Usage Additive Manufacturing Phase Field Modeling Microstructure Evolution ICME Design Tools and Application Mechanical Performance Using Multi-Scale Modeling.
