1. Record Nr. UNINA9910298603003321

Titolo	CFD Modeling and Simulation in Materials Processing 2018 [[electronic resource] /] / edited by Laurentiu Nastac, Koulis Pericleous, Adrian S. Sabau, Lifeng Zhang, Brian G. Thomas
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-72059-7
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XIV, 241 p. 144 illus.)
Collana	The Minerals, Metals & Materials Series, , 2367-1181
Disciplina	621.4023
Soggetti	Metals Materials science Tribology Corrosion and anti-corrosives Coatings Sociophysics Econophysics Metallic Materials Characterization and Evaluation of Materials Tribology, Corrosion and Coatings Data-driven Science, Modeling and Theory Building
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Part 1. Casting and Solidification: I -- Numerical Simulation on Solidification Structure of 30Cr2Ni4MoV Steel Under Different Temperature Gradient Using Procast Software -- The Influence of Coil Configuration on Fluid Flow and Solidification of Electromagnetically Stirred Aluminum Alloys -- Effect of Hook Formation during Initial Solidification on Distribution of Subsurface Inclusions in Ultralow Carbon Steel Slabs -- Part 2. Casting and Solidification: II -- Numerical Investigation on the Effect of Steel Strip Feeding on Solidification in Continuous Casting -- Numerical Modeling and Experimental Verification of Macrosegregation and CET Predictions in Large Steel Roll Ingots -- Numerical Simulation of Electromagnetic and Heat Transfer

Sommario/riassunto

This collection presents contributions on computational fluid dynamics (CFD) modeling and simulation of engineering processes from researchers and engineers involved in the modeling of multiscale and multiphase phenomena in material processing systems. The following processes are covered: Additive Manufacturing (Selective Laser Melting and Laser Powder Bed Fusion); Ironmaking and Steelmaking (Ladle Metallurgical Furnace, EAF, Continuous Casting, Blown Converter, Reheating Furnace, Rotary Hearth Furnace); Degassing; High Pressure Gas Atomization of Liquid Metals; Electroslag Remelting; Electrokinetic Deposition; Friction Stir Welding; Quenching; High Pressure Die Casting; Core Injection Molding; Evaporation of Metals; Investment Casting; Electromagnetic Levitation; Ingot Casting; Casting and Solidification with External Field (electromagnetic stirring and ultrasonic cavitation) Interaction and Microstructure Evolution The collection also covers applications of CFD to engineering processes, and demonstrates how CFD can help scientists and engineers to better understand the fundamentals of engineering processes.