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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 Phenomena in Inductively Heated Risers -- Part 3. Processing: I -- A

Multiphase CFD Model for the Prediction of Particulate Accumulation in a Laser Powder Bed Fusion Process -- CFD Modelling of High Pressure Gas Atomization of Liquid Metals -- Computational Analysis of Thermo-fluid Dynamics with Metallic Powder in SLM -- Evaporation and Diffusion of Mn in Inert Systems -- Part 4. Processing: II -- Recent Development and Applications of CFD Simulation for Friction Stir Welding -- Modeling of Argon Gas Behavior in Continuous Casting of Steel -- CFD Modeling of Transport Phenomena and Inclusion Removal in a Gas-stirred Ladle -- An Innovative Modeling Approach for Predicting the Desulfurization Kinetics in an Argon-Stirred Ladle Furnace -- Simulation of Non-metallic Inclusion Deposition and Clogging of Nozzle -- Research on the Flow Properties and Erosion Characteristics in Combined Blown Converter at Steelmaking Temperature -- Part 5. Processing: III -- Effect of Carbide Configuration on the Current Distribution in Submerged Arc Furnaces for Silicon Production – A Modelling Approach -- Investigation of Combustion and Heat Transfer in an Industrial Reheating Furnace Using CFD -- Finite Element Modelling of Electrokinetic Deposition of Zinc on Mild Steel with ZnO-Citrus Sinensis as nano-additive -- Implementing CFD Modelling to Address Defect Formation in Core Injection Moulding -- Numerical Simulation of Turbulence Flow and Solidification in a Bloom Continuous Casting Mould with Electromagnetic Stirring -- Numerical Analysis of Heat and Mass Transfer on the Self-densification of Metal Hydride Tank.

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 alsocovers applications of CFD to engineering processes, and demonstrates how CFD can help scientists and engineers to better understand the fundamentals of engineering processes.