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Nota di contenuto	Part 1. Steelmaking – Processing -- The Effect of a Sulfur Addition on the Formation and Behavior of CaS Inclusions in a Steel Melt during a Secondary Refining Process without a Ca-treatment -- Desulfurization of Copper-iron Reduced from Copper Slag -- Part 2. Steelmaking – Properties -- Effects of aging treatment on the microstructure and mechanical properties of a nanoprecipitates-strengthened ferritic steel -- Part 3. Multiphysics - Process Modeling and Sensing -- Convection-Diffusion Model of Lithium-Bismuth Liquid Metal Batteries -- Study on Emulsion Phenomena and Field Flow Pattern in Side-blown Copper Smelting Process -- Study on Minimum Starting Energy of Self-stirring Reactor Driven by Pressure Energy -- Part 4. Alloy Processing and Properties Modeling -- Yield Strength Prediction in 3D during Local

Heat Treatment of Structural A356 Alloy Components in Combination with Thermal-stress Analysis -- Thermodynamic properties of magnetic semiconductors Ag2FeSn3S8 and Ag2FeSnS4 determined by the EMF method -- Effects of Heat Treatment on the Electrochemical Performance of Al Based Anode Materials for Air-battery -- Part 5. Extractive and Recovery Processing -- A current efficiency prediction model based on electrode kinetics for iron and copper during copper electrowinning -- The KSO4-CaSO4 System and Its Role in Fouling and Slagging During High-Temperature Processes -- Waste Lithium-ion Battery Recycling in JX Nippon Mining & Metals Corporation -- Recovery of Platinum Group Metals Out of Automotive Catalytic Converters Scrap: A Review on Australian Trends and Challenges -- Leaching Recovery of Silver from Used Radiographic Films -- The Study of Copper Leaching from Conichalcite and Chalcopyrite Using Alternative Lixiviants -- Effect of Chloride Ions on the Copper Extraction Using LIX 984N and Acorga M5910 -- CaCl2-O2 Roasting of Stibnite and a Complex Copper Concentrate at 500-650°C -- Research on Sulfur Conversion Behavior in the Oxygen Pressure Acid Leaching Process for the HighIndium Sphalerite -- Part 6. Poster Session -- Hybrid Modeling for Endpoint Carbon Content Prediction in EAF Steelmaking -- DEM Simulation of Dispersion of Cohesive Particles by Spontaneous Inter-particle Percolation in a 3D Random Packed Bed.

Sommario/riassunto

This book includes contributions from the Materials Processing Fundamentals Symposium held at the TMS 2019 Annual Meeting & Exhibition in San Antonio, Texas. Presented in this volume are contributions on the theoretical and numerical modeling of minerals, metals, and materials processing. Authors present models and results related the basics of processing such as extraction, joining, separation, and casting. The corresponding fundamentals of mass and heat transport as well as physical and thermodynamics properties are addressed, allowing for a cross-disciplinary vision of materials processing.