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Nota di contenuto	Part 1: Plenary Session -- Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies-Contributions of Professor Ramana Reddy -- Status of the Development of a Novel Flash Ironmaking Technology -- Innovations and Insights in Fluid Flow and Slime Adhesion for Improved Copper Electrorefining -- Molten Flux Design for Solid Oxide Membrane-Based Electrolysis of Aluminum from Alumina -- Effect of Slag Phase on Mixing and Mass Transfer in a Model Creusot Loire Uddeholm (CLU) Converter -- Part 2: Electrometallurgy -- Modeling of Aluminum Electrowinning in Ionic Liquid Electrolytes -- Electrochemical Processing of Rare Earth Alloys -- Effect of Cobalt Concentration on the Potential for Oxygen Evolution from Pb-Ca-Sn Anodes in Synthetic Copper Electrowinning Electrolytes -- Cobalt electrodeposition from cobalt chloride using urea and choline chloride ionic liquid: Effect of temperature, applied Voltage, and cobalt chloride concentration on

current efficiency and energy consumption -- METTOP-BRX Technology -- Eliminating Concerns and Highlighting Potentials of the Concept of Tankhouse Optimization -- Mathematical Modeling of Molten Salt Electrolytic Cells for Sodium and Lithium Production -- Part 3: Hydrometallurgy -- P-CAC, A Unique Separation Technology for PGM Recovery -- The Physical Characteristics of Electrorefined Copper Starter Sheet Material -- Extraction of Copper from Sulfate-Chloride Solutions by Using Hydroxyoxime Extractants -- Hydrometallurgical Processes for the Recovery of Rare Earths, Nickel and Cobalt in Chloride Medium -- A Cr⁶⁺-Free Extraction of Chromium Oxide from Chromite Ores using Carbothermic Reduction in the Presence of Alkali -- Part 4: Pyrometallurgy I -- Market Dynamics, Recycling and Recovery of Magnesium and Its Alloy from Scrap -- Alternative ways of Using Nonferrous Slags as Feed Material in the Ferrous Production Industry -- Insulating or Conductive Refractory Lining Designs for Electric Furnace Smelting? -- The influence of phosphorous additions on phase evolution in molten coal slag -- The Recovery of Copper From Smelting Slag by Flotation Process -- Reaction Mechanisms in the Silicothermic Production of Magnesium -- Influences of CaO/SiO₂/MgO/Al₂O₃ on the Formation Behavior of FeO-bearing Primary-slugs in Blast Furnace -- Desulfurization of high sulfur coal leached with H₂O₂ and NaOH by microwave irradiation -- Part 5: Pyrometallurgy II -- Chloridizing Roasting of Bismuthinite with Sodium Chloride-Oxygen -- Natural Gas Utilization in Blast Furnace Ironmaking: Tuyère Injection, Shaft Injection and Prereduction -- Selective Sulfation Roasting of Rare Earths from NdFeB Magnet Scrap -- Gold solubility in smelting slags for the recycling of industrial and mining wastes -- Solid State Reduction Behavior of Iron, Chromium and Manganese Oxide Ores with Methane -- Stibnite chloridizing with calcium chloride-oxygen at roasting temperatures -- Investigations on Rotary Tool Near-dry Electric Discharge Machining -- Dependence of Ti₂O₃ and Temperatures on Electrical Conductivity of TiO₂-FeO-Ti₂O₃ slags -- Part 6: Materials Processing and Plasma Processing -- PTA Cladding for Wear Application -- Production of SiMn-alloys by natural gas and Carbon black -- Effect of Flux Ratio on the Products of Self Propagating High Temperature Synthesis-Casting in WO₃-Si-Al System -- Synthesis of Chrysin Based Cationic Lipids: Plasmid Delivery and Transgene Expression -- Part 7: Energy Storage and Engineering Issues -- Corrosion Mechanism of Haynes 230 with Ni Crucible in MgCl₂-KCl -- Conceptualization of doped Black P thin films for potential use in photovoltaics with validation from first principle calculations -- Energy Efficiency and Sustainability in Steel Production -- Application of Surface Effect on Metallurgical Processes -- Part 8: Modeling and Simulation -- Metal Silicides for High-Temperature Thermoelectric Application -- CFD Modeling of Slag-Metal Reactions and Sulfur Refining Evolution in an Argon Gas-Stirred Ladle Furnace -- Numerical Study of the Fluid Flow and Temperature Distribution in DC non-transferred Arc Thermal Plasma Reactor -- Part 9: Thermodynamics and Kinetics -- Thermodynamic Studies on the Mg-B System using Solid State Electrochemical Cells -- An Investigation on the Kinetics and Mechanism of Alkali Reduction of Mine Waste containing Titaniferous Minerals for the Recovery of Metals -- Empirical Activation Energies of MnO and SiO₂ Reduction In SiMn Slags between 1500 and 1650°C -- Experimental evaluation of thermodynamic interactions between tellurium and various elements in molten iron -- Thermodynamics of simultaneous desulfurization and dephosphorization of SiMn alloy -- Isothermal Reduction Behavior of CaO-Fe₂O₃-8wt%SiO₂ System at 1123K, 1173K and 1223K with CO-N₂ Gas Mixtures -- A Review of

Some Studies on Impurity Capacity Predictions in Molten Melts -- Part 10: Poster Session -- Application of Sharp Analysis on Reduction Kinetics of Vanadium Titanium Magnetite Sintering Ore -- High Temperature Properties of Molten Nitrate Salt for Solar Thermal Energy Storage Application -- Influence of diluents dosage on the performance of high solid Anti-corrosion Coating by Converter Dust -- Permselectivity study of ion-exchange membranes in the presence of Cu-HEDP complexes from a copper plating wastewater treatment -- Treatment of Blast Furnace Gas Washing Water by Utilization of Coagulation Associated with Microwave. .

Sommario/riassunto

This collection offers new research findings, innovations, and industrial technological developments in extractive metallurgy, energy and environment, and materials processing. Technical topics included in the book are thermodynamics and kinetics of metallurgical reactions, electrochemical processing of materials, plasma processing of materials, composite materials, ionic liquids, thermal energy storage, energy efficient and environmental cleaner technologies and process modeling. These topics are of interest not only to traditional base ferrous and non-ferrous metal industrial processes but also to new and upcoming technologies, and they play important roles in industrial growth and economy worldwide.
