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Nota di contenuto	Intro -- Preface -- Contents -- About the Editors -- Part I Renewable Energy and Combustion Technologies -- 1 Analysis of Environmental Impact of Vertical Axis Wind Turbine Using Circular Economy Approach -- 2 Corrosion and Erosion Protection to Accelerate Deployment of Sustainable Biomass -- 3 Development of Indium-Tin Oxide Thin Films on PAMAM Dendrimer Layers for Perovskite Solar Cells Application -- 4 DFT Study of CuS-ZnS Heterostructures -- 5 Effect of H Enrichment on CO/N/H-air Turbulence Partial Premixed Flame Combustion Characteristics -- Part II Energy Efficiency, Decarbonization and CO Management -- 6 CO Mineralization

and Critical Battery Metals Recovery from Olivine and Nickel Laterites -- 7 Decarbonization Pathways for an Aluminum Rolling Mill and Downstream Processes -- 8 Rethinking the Decomposition of Refractory Lithium Aluminosilicates: Opportunities for Energy-Efficient Li Recovery from LCT Pegmatites -- 9 Energy-Saving Green Technologies in the Mining and Mineral Processing Industry -- 10 Extraction of Valuable Metals from Luanshya Copper Smelting Slag with Minimal Waste Generation -- 11 Carbon Footprint Assessment of Waste PCB Recycling Through Black Copper Smelting in Australia -- 12 Screening High-Entropy Alloys for Carbon Dioxide Reduction Reaction Using Alchemical Perturbation Density Functional Theory -- Part III Thermal Management, Environmental and Energy Technologies -- 13 Novel Thermal Conductivity Measurement Technique Utilizing a Transient Multilayer Analytical Model of a Line Heat Source Probe for Extreme Environments -- 14 The Effect of Reduced Flue Gas Suctioning on Superstructure and Gas Temperatures -- 15 Assessing the Environmental Footprints of Gold Production in Nevada -- 16 Polymeric Composite Dense Membranes Applied for the Flue Gas Treatment. 17 Molten Salt Mg-Air Battery Improvement and Recharging -- 18 Superconductor Busbar Systems in the Light of Increased Energy Costs -- 19 Critical Metals for Clean Energy: Extraction of Rare Earth Elements from Coal Ash -- Part IV Energy Technologies -- 20 Investigation of Slag and Condensate from the Charge Top in a FeSi75 Furnace -- 21 Lithium Extraction from Natural Resources to Meet the High Demand in EV and Energy Storage -- Part V Poster Session -- 22 Hydrogen Storage Properties of Graphitic Carbon Nitride Nanotube Synthesized by Mix-Grind Technique -- 23 Study on Preparation and Electrocatalytic Performance of Self-supported Carbon Transition Metal Catalysts -- 24 Modification and Evaluation of Energy Saving and Consumption for Reduction Technology of 500 t/d Beckenbach Annular Lime Kiln -- 25 Research on the Gasification Characteristic of Cokes of BIOC-HPC Extracted from the Mixture of Low-Rank Coal and Biomass -- 26 Thermodynamic Examination of Selected Phases in the Ag-Co-Sn-S System at T < 600 K by the Solid-State EMF Method -- Author Index -- Subject Index.

Sommario/riassunto

Clean and sustainable energy is of paramount importance for industrial activities, economic development, environment, and public welfare. Aiming to reach NetZero, researchers in both academia and industry as well as policymakers are now putting tremendous efforts into the generation, storage, and applications of clean energy. This collection focuses on new and efficient energy technologies including innovative ore beneficiation, smelting technologies, recycling and waste heat recovery, and emerging novel energy solutions. The volume also covers a broad range of mature and new technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal intensity and pollutants, and reduce carbon dioxide and other greenhouse emissions. Topics include, but are not limited to:

- Energy efficient technologies for minerals, metals & materials processing
- Clean energy technologies, such as biomass, solar, wind, geothermal, nuclear including SMRs, hydrogen, etc.
- Renewable energy resources to reduce the consumption of traditional fossil fuels
- Emerging technologies for renewable energy harvesting, conversion, and storage
- New concepts or devices for energy generation, conversion, and distribution
- Waste heat recovery and other industrial energy efficient technologies
- Energy education and energy regulation
- Scale-up, stability, and life-cycle analysis of energy technologies and improvement of existing energy-intensive processes
- Theory and

simulation in energy harvesting, conversion, and storage • Design, operation, and optimization of processes for energy generation (e.g., carbon capture) and conversion of energy carriers • Energy efficiency improvement in process engineering (e.g., for biomass conversion and improved combustion) and electrical engineering (e.g., for power conversion and developing smart grids) • Thermo-electric/electrolysis/photo-electrolysis/fundamentals of PV • Emission control, CO₂ capture, and conversion • Carbon sequestration techniques • CO₂ and other greenhouse gas reduction metallurgy in ferrous (iron & steel making and forming), non-ferrous and reactive metals including critical rare-earth metals • Sustainability and life cycle assessment of energy systems • Thermodynamics and modelling for sustainable metallurgical processes • 'Smart cool materials' for urban heat island mitigation (such as cool roof infrared reflecting material, and low-temperature heat absorbers for use in air conditioner condensers - like 'endothermic materials') • Methodologies for reducing the cost of energy materials production • Circular economy and developing resource efficiency model for cutting down the transport from remote places • Materials extraction and processing steps for enhancing energy efficiencies in batteries, supercapacitors, and energy efficient cells • Foundational industry (metals-alloys, chemicals, refractories, cement) and energy economy and role of mineral extraction.
