

Preface

This volume contains selected papers presented at the Energy Technologies Symposium organized in conjunction with the TMS 2017 Annual Meeting & Exhibition in San Diego, CA, USA, and organized by the TMS Energy Committee. The papers in this volume intend to address the issues, intricacies, and challenges related to energy and environmental science. This volume also contains selected papers from the Solar Cell Silicon Symposium, Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session Symposium, and Advances in Environmental Technologies: Recycling and Sustainability Joint Session Symposium.

The Energy Technologies Symposium was open to the participants from both industry and academia and focused on energy-efficient technologies, including innovative ore beneficiation, smelting technologies, recycling, and waste heat recovery. This volume also covers various technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal emissions, and reduce carbon dioxide and other greenhouse emissions. Papers addressing renewable energy resources for metals and materials production, waste heat recovery and other industrial energy efficient technologies, new concepts or devices for energy generation and conversion, energy efficiency improvement in process engineering, sustainability and life cycle assessment of energy systems, as well as the thermodynamics and modeling for sustainable metallurgical processes are included. This volume also includes topics on CO₂ sequestration and reduction in greenhouse gas emissions from process engineering, sustainable technologies in extractive metallurgy, as well as the materials processing and manufacturing industries with reduced energy consumption and CO₂ emission. Contributions from all areas of non-nuclear and non-traditional energy sources, such as solar, wind, and biomass, are also included in this volume.

We hope this volume will provide a reference for the materials scientists and engineers as well as metallurgists for exploring innovative energy technologies and novel energy materials processing.

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Carbon Dioxide Management and Other Technologies

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