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Nota di contenuto	Chapter 1. Growth of Biofuels Sector: Opportunities, Challenges and Outlook -- Chapter 2. Bioconversion of Agro-Industrial Residues to Second-Generation Bioethanol -- Chapter 3. Catalytic Transformation of Ethanol to Industrially Relevant Fine Chemicals -- Chapter 4. Selective Bioethanol Conversion to Chemicals and Fuels via Advanced Catalytic Approaches -- Chapter 5. A Spotlight on Butanol and Propanol as Next-Generation Synthetic Fuels -- Chapter 6. Technological Advancements in the Production and Application of Biomethanol -- Chapter 7. Biorefinery Approaches for Production of Fuels and Chemicals from Lignocellulosic and Algal Feedstocks -- Chapter 8.

Conversion of Rice Husk and Nutshells into Gaseous, Liquid and Solid Biofuels -- Chapter 9. A Review of Thermochemical and Biochemical Conversion of Miscanthus to Biofuels -- Chapter 10. Process Improvements and Techno-Economic Feasibility of Hydrothermal Liquefaction and Pyrolysis of Biomass for Bio-Crude Oil Production -- Chapter 11. Biocrude Oil Production via Hydrothermal Liquefaction of Algae and Upgradation Techniques to Liquid Transportation Fuels -- Chapter 12. Co-pyrolysis of Lignocellulosic Biomass and Polymeric Wastes for Liquid Oil Production -- Chapter 13. Conversion of Waste Biomass to Bio-oils and Upgradation by Hydrothermal Liquefaction, Gasification and Hydrodeoxygenation -- Chapter 14. Upgrading of Bio-oil from Biomass Pyrolysis: Current Status and Future Development -- Chapter 15. Heterogeneous catalysis in Hydroxymethylfurfural Conversion to Fuels and Chemicals -- Chapter 16. Conversion of Glycerol to Value-added Products -- Chapter 17. Recent Advances in Steam Reforming of Glycerol for Syngas Production -- Chapter 18. Conversion of Biogas to Syngas via Catalytic Carbon Dioxide Reforming Reaction: An Overview of Thermodynamic Aspects, Catalytic Design and Reaction Kinetics -- Chapter 19. Opportunities of Biodiesel Compatibility as a Modern Combustion Engine Fuel -- Chapter 20. Current Advancements in Microbial Fuel Cell Technologies.

Sommario/riassunto

This book summarizes recent advances in the processing of waste biomass resources to produce biofuels and biochemicals. Worldwide interest in clean energy sources, environmental protection, and mitigating global warming is rapidly gaining momentum and spurring on the search for alternative energy sources, especially for the transportation and industrial sectors. This book reviews the opportunities presented by low-cost organic waste materials, discussing their suitability for alternative fuel and fine chemical production, physicochemical characterization, conversion technologies, feedstock and fuel chemistry, refining technologies, fuel upgrading, residue management, and the circular economy. In addition, it explores applied aspects of biomass conversion by highlighting several significant thermochemical, hydrothermal and biological technologies. In summary, the book offers comprehensive and representative descriptions of key fuel processing technologies, energy conversion and management, waste valorization, eco-friendly waste remediation, biomass supply chain, lifecycle assessment, techno-economic analysis and the circular bioeconomy.