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Titolo	Coal and Biomass Gasification : Recent Advances and Future Challenges / / edited by Santanu De, Avinash Kumar Agarwal, V. S. Moholkar, Bhaskar Thallada
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Soggetti	Fossil fuels Energy policy Energy systems Fossil Fuels (incl. Carbon Capture) Energy Policy, Economics and Management Energy Systems
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Part I Fundamentals of Gasification -- Feedstock Characterization for Gasification and Pyrolysis -- Thermodynamics and Kinetics of Gasification -- Gasifiers: Types, Operational Principles and Commercial -- Hydrodynamics of Circulating Fluidized Bed Systems -- Investigation of Biomass Gasifier Product Gas Composition and its Characterization -- Gas Cleaning and Tar Conversion in Biomass Gasification -- Part II – Experiments, Modeling and Numerical Simulations of Gasification -- Measurement Techniques: Cold Flow Studies -- Cavity Models for Underground Coal Gasification -- Gasification of Mixed Biomass: Analysis Using Equilibrium, Semi-Equilibrium And Kinetic Models -- Numerical Modelling of Fluidized Bed Gasification: An Overview -- Entrained Flow Gasification: Current Status and Numerical Simulations -- Advanced Numerical Methods for the Assessment of Integrated Gasification and CHP Generation Technologies -- Transient Cold Flow Simulation of a Fast Fluidized Bed Fuel Reactor for Chemical Looping Combustion -- Part III - Integration of Renewable Energy and

Utilization of Wastes -- Sustainability Assessment of the Biomass Gasification Process for Production of Ammonia -- Recent Advances in Power Generation through Biomass and Municipal Solid Wastes Gasification -- Solar Assisted Gasification-Based Cook Stoves -- Part IV Advanced Technologies of Gasification -- Dual Fluidized Bed Gasification of Solid Fuels -- New Pathways in Clean Combustion of Biomass and Coal Via Partial -- Synergistic Effects in Gasification of Coal/Biomass Blends: Analysis and Review -- Chemical Looping and Plasma Technologies for Gasification of Coal and Biomass.

Sommario/riassunto

This book addresses the science and technology of the gasification process and the production of electricity, synthetic fuels and other useful chemicals. Pursuing a holistic approach, it covers the fundamentals of gasification and its various applications. In addition to discussing recent advances and outlining future directions, it covers advanced topics such as underground coal gasification and chemical looping combustion, and describes the state-of-the-art experimental techniques, modeling and numerical simulations, environmentally friendly approaches, and technological challenges involved. Written in an easy-to-understand format with a comprehensive glossary and bibliography, the book offers an ideal reference guide to coal and biomass gasification for beginners, engineers and researchers involved in designing or operating gasification plants.