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Altri autori (Persone)	XuJinliang XieQian <1956-> GuoJiangfeng
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Soggetti	Renewable energy sources Energy storage Energy policy Thermodynamics Heat engineering Heat - Transmission Mass transfer Electric power-plants Cogeneration of electric power and heat Fossil fuels Renewable Energy Mechanical and Thermal Energy Storage Energy Policy, Economics and Management Engineering Thermodynamics, Heat and Mass Transfer Power Stations Fossil Fuel
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Nota di contenuto	Part 1: Fundamentals of sCO2 fluid nature -- Chapter 1: Analysis of Fluctuations of Supercritical Region CO2 by SANS -- Chapter 2: Preliminary Analysis and Verifications of Supercritical CO2 Complex Phase Behaviors -- Chapter 3: Experimental Study on Critical Flow of

High-Temperature and High-Pressure Supercritical Carbon Dioxide at Transient State -- Chapter 4: Experimental Study on Supercritical Heat Transfer Characteristics of CO2/R134a Mixtures -- Part 2: Heat transfer and flow behaviors of sCO2 -- Chapter 5: Experimental and Simulation Investigation on Heat Transfer Deterioration of sCO2 -- Chapter 6: Characterization of Flow Dynamic Behaviors of Critical Size Nozzle Flow of Supercritical CO2 for Power Systems -- Chapter 7: Dynamic Mode Decomposition Study of Transient Heat Transfer Behavior of Turbulent Boundary Layer in sCO2 Channel -- Chapter 8: Study on the Flow and Heat Transfer Characteristics in Manifold Microchannels with Column-Row Structures -- Chapter 9: Numerical Investigation of Jet Impingement on Concave Cooling of sCO2 under Different Heat Flux -- Part 3: Equipment design and analysis of sCO2 power cycles -- Chapter 10: Investigations of Longitudinal Conduction Effect on Heat Transfer Performance -- Chapter 11: Simulation Analysis of Thermal-hydraulic Performance and Heat Transfer Enhancement Structure -- Chapter 12: Heat Transfer Characteristics and Calculation Method of Supercritical CO2 Boiler -- Chapter 13: Study on Performance Prediction of Supercritical CO2 Compressor -- Chapter 14: Thermal Elasto-Hydrodynamic Lubrication Characteristics Analysis -- Chapter 15: Numerical Investigation of a Novel Gravity-driven Moving Bed Reactor -- Part 4: Performance assessment and multi-energy applications -- Chapter 16: System Simulation on Semi-closed Supercritical CO2-mixture -- Chapter 17: The Economics of Wind Photovoltaic Storage System -- Chapter 18: Off-design Characteristics of Equipment on Optimization -- Chapter 19: Investigation of Trans/supercritical CO2-based Mixed Working Fluids Cycle Performance -- Chapter 20: Dynamic Performance Analysis and Control Strategy of Supercritical CO2 Waste Heat Recovery System -- Chapter 21: Thermodynamic Optimization of Supercritical CO2 Brayton Cycles.

Sommario/riassunto

This book is a comprehensive introduction to supercritical carbon dioxide (sCO2) concepts, including its singular flow and heat transfer characteristics, the basic principles of sCO2 power systems, and related challenges and solutions. It also explores how to expand to multi-energy complementary systems based on CO2's unique properties and introduces the latest research progress. The relevant energy technologies mentioned in this book use CO2 as a medium to reduce carbon emissions in the energy sector, which can help in achieving carbon neutrality worldwide. Supercritical CO2 Power Cycles and Related Energy Systems is an important power and energy engineering reference for students, engineers, and scientists in energy, environmental, and chemical fields. It is also an excellent primer for those in other fields who need a basic understanding of sCO2 power systems. Presents the unique properties of supercritical CO2; Covers novel supercritical CO2 power systems and implementation methods; Explains reducing carbon emissions with carbon dioxide.