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| Sommario/riassunto | Unconventional reservoirs are usually complex and highly heterogeneous, such as shale, coal, and tight sandstone reservoirs. The strong physical and chemical interactions between fluids and pore surfaces lead to the inapplicability of conventional approaches for characterizing fluid flow in these low-porosity and ultralow-permeability reservoir systems. Therefore, new theories and techniques are urgently needed to characterize petrophysical properties, fluid transport, and their relationships at multiple scales for improving production efficiency from unconventional reservoirs. This book presents fundamental innovations gathered from 21 recent works on novel applications of new techniques and theories in unconventional reservoirs, covering the fields of petrophysical characterization, hydraulic fracturing, fluid transport physics, enhanced oil recovery, and geothermal energy. Clearly, the research covered in this book is helpful to understand and master the latest techniques and theories for unconventional reservoirs, which have important practical significance for the economic and effective development of unconventional oil and gas resources. |