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Soggetti	Materials—Analysis Physical chemistry Analytical chemistry Chemical engineering Materials science Characterization and Analytical Technique Physical Chemistry Analytical Chemistry Chemical Engineering Materials Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di contenuto	Overview -- Gas chromatography/Mass spectrometry -- Thermal Analysis Methods -- Gas Potentiometry: Oxygen-Based Redox Process Diagnostics in High Temperature Environments -- Raman Scattering Diagnostics -- CARS Spectroscopy -- Laser-Induced Fluorescence -- Nuclear Magnetic Resonance.
Sommario/riassunto	This textbook, supported by the Textbook Publishing Center of University of Chinese Academy of Sciences, provides a fundamental introduction to advanced diagnostics techniques for graduate students majoring in combustion science, chemistry, and chemical engineering-related subjects. The textbook provides an overview with respect to the spectroscopic methods in advanced diagnostics techniques such as gas chromatography/mass spectrometry, thermochemical analysis, Raman scattering, and nuclear magnetic resonance. It then describes the

comprehensive basic theory, equipment structure, and testing methods of diagnostic techniques and summarizes the analysis methods commonly used in combustion chemical reaction processes. This can provide graduate students with important guidance and comprehensive understanding of diagnostics techniques before performing physics and chemistry experiments. In addition, it provides an introduction into using common mathematical and graphics packages for students to acquire and practice the tools to comply with international standards. The textbook is concise and illustrative and includes hot issues and current progress of diagnostics. In addition, exercises and questions are included at the end of each chapter for students to practice and gain hands-on experience. Given its scope, the textbook is of great benefit to graduate students in combustion chemistry and engineering and other related areas such as environmental science, optical engineering, and thermal science and is also beneficial for researchers with interdisciplinary backgrounds.