1. Record Nr. UNINA9910595071103321

Autore	Chen Zhitong
Titolo	Advances in Plasma Diagnostics and Applications
Pubbl/distr/stampa	Basel, 2022
Descrizione fisica	1 online resource (124 p.)
Soggetti	History of engineering & technology Technology: general issues
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	Plasma can be generated via the combination of energy-inducing fragmentation, ionization, and excitation of molecular. Such processes occur throughout the life of the plasma, resulting in a wide variety of atomic and molecular species, which can be electrically charged, energetically excited, highly reactive, or any combination of these states. Plasma diagnostics can demonstrate important discharge characteristics and the mechanisms of plasma-induced processes. Parameter's dynamic range spans many orders of magnitude, and spatial/temporal scales significantly vary during plasma source configurations. Many diagnostic techniques have been developed to characterize plasma, including scattering techniques, intensified charge-coupled device cameras, laser-based methods, optical emission spectroscopy, mass spectrometry, electron paramagnetic resonance spectroscopy, gas chromatography, etc. Although various mature diagnostic technologies for plasma discharges have been developed, there are still many challenges. The measurement precision is not only affected by the diagnostic equipment/ techniques, but also by the plasma discharge itself. In many applications, direct measurements of the parameters of interest are still not possible. In addition, the plasma environments in application processes are unusually complex, and their reactions are still not fully understood. Plasma can exist in a variety of forms due to discharge modes resulting from different means of

creation, resulting in a wide range of applications. This brings together many research fields, including physics, engineering, chemistry, biology, and medicine.