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Sommario/riassunto	<p>Irving Langmuir coined the name "plasma" to describe an ionized gas back in 1927. Just over 90 years later, plasma technology is becoming increasingly important in our daily life. For example, in the medical field and dentistry, plasma is used as a method of disinfection and sterilization. Moreover, additional potential novel applications of this technology in different forms of therapy have been proposed. In the agricultural sector, plasma technology could contribute to higher crop yields by enhancing seed germination and the growth of plants, as well as the preservation of foods by disinfection. Plasma technology could also be utilized in environmental applications, including water treatment and remediation, as well as treatment of exhaust gases. Although recent extensive studies have uncovered the broad potential of plasma technology, its mechanisms of action remain unclear. Therefore, further studies aimed at elucidating the molecular mechanisms of plasma technology are required. This book is composed of original articles and reviews investigating the molecular mechanisms of plasma biology. Relevant areas of study include applications in plasma medicine, plasma agriculture, as well as plasma chemistry. Studies on potential therapeutic approaches using plasma itself and plasma-treated solutions are also included.</p>