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| Collana | Ultrasound and Sonochemistry, , 2511-123X |
| Disciplina | 543.2-543.8 532.597 |
| Soggetti | Spectroscopy Acoustics Physical chemistry Spectroscopy/Spectrometry Physical Chemistry |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
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| Nota di contenuto | Chapter 1: Single Bubble Dynamics, Multi-Bubble Dynamics and Interactions, Object Interaction, Collapse Geometries and Consequences -- Chapter 2: MBSL Spectra Including Metal and C2 Emission, Bubble size Measurements etc -- Chapter 3: Relevance of Chapters 1 and 2 in Sonochemistry, Sonochemiluminescence, etc. |
| Sommario/riassunto | This book presents the latest research on fundamental aspects of acoustic bubbles, and in particular on various complementary ways to characterize them. It starts with the dynamics of a single bubble under ultrasound, and then addresses few-bubble systems and the formation and development of bubble structures, before briefly reviewing work on isolated bubbles in standing acoustic waves (bubble traps) and multibubble systems where translation and interaction of bubbles play a major role. Further, it explores the interaction of bubbles with objects, and highlights non-spherical bubble dynamics and the respective collapse geometries. It also discusses the important link between bubble dynamics and energy focusing in the bubble, leading to sonochemistry and sonoluminescence. The second chapter focuses |

on the emission of light by cavitation bubbles at collapse (sonoluminescence) and on the information that can be gained by sonoluminescence (SL) spectroscopy, e.g. the conditions reached inside the bubbles or the nature of the excited species formed. This chapter also includes a section on the use of SL intensity measurement under pulsed ultrasound as an indirect way to estimate bubble size and size distribution. Lastly, since one very important feature of cavitation systems is their sonochemical activity, the final chapter presents chemical characterizations, the care that should be taken in using them, and the possible visualization of chemical activity. It also explores the links between bubble dynamics, SL spectroscopy and sonochemical activity. This book provides a fundamental basis for other books in the Molecular Science: Ultrasound and Sonochemistry series that are more focused on applied aspects of sonochemistry. A basic knowledge of the characterization of cavitation bubbles is indispensable for the optimization of sonochemical processes, and as such the book is useful for specialists (researchers, engineers, PhD students etc.) working in the wide area of ultrasonic processing.
