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Nota di contenuto	Inductively Coupled Plasma Spectrometry and its Applications; Contents; Contributors; Preface; 1 Introduction - A Forward-Looking Perspective; 1.1 Introduction; 1.2 Extrapolation of past and current trends; 1.2.1 Influences from science and technology; 1.2.2 Influences from society, politics, and the economy; 1.2.3 Past and current trends in atomic spectrometry; 1.3 Influence of technology transfer; 1.3.1 Electronics and data manipulation; 1.3.2 Metal-binding structures; 1.3.3 Novel separation methods; 1.3.4 Detector technologies; 1.4 Strengths and weaknesses of ICP-AES and ICP-MS 1.4.1 Strengths and weaknesses of ICP-AES1.4.2 Strengths and weaknesses of ICP-MS; 1.4.3 ICP limitations; 1.5 Potential directions in ICP spectrometry; 1.6 Concluding considerations; References; 2 Fundamental Principles of Inductively Coupled Plasmas; 2.1 Principles to inductively coupled plasma generation; 2.2 Equilibrium in a plasma; 2.3 Line intensities; 2.4 Line profiles; 2.5 Temperature definitions; 2.6 Temperature measurements; 2.6.1 Kinetic temperature measurement; 2.6.2 Rotational temperature measurement; 2.6.3 Excitation

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	temperature; 2.6.3.1 Boltzmann plot; 2.6.3.2 Line pair method 2.6.4 Electron temperature2.7 Electron number density measurement; 2.8 Ionic to atomic line intensity ratio; 2.9 Active methods; 2.9.1 Laser- induced fluorescence; 2.9.2 Light scattering; 2.10 Spatial profiles; 2.11 Temperature and electron number densities observed in analytical ICPs; 2.12 Plasma perturbation; 2.13 Multiline diagnostics; References; 3 Basic Concepts and Instrumentation for Plasma Spectrometry; 3.1 Detection limits and sensitivity; 3.1.1 ICP-Atomic emission spectrometry; 3.1.2 Limits of detection; 3.1.3 Axial systems; 3.1.4 The sample introduction system; 3.1.5 Detectors 3.2 Accuracy and precision3.2.1 Instrumental drift; 3.2.2 Matrix effects; 3.2.3 Plasma effects; 3.2.4 Spectral effects, interferences and background correction; 3.2.5 Dynamic range; 3.2.6 ICP-MS; 3.3 Multi- element capability and selectivity; 3.4 Instrumental overview; 3.5 Radio-frequency generators; 3.6 Torches; 3.7 Spectrometers; 3.7.1 Line isolation; 3.7.2 Monochromators; 3.7.3 Polychromators; 3.8 Detectors; 3.8.1 Photomultiplier tubes; 3.8.2 Solid-state detectors; 3.9 Nebulisers and spray chambers; 3.10 Read-out devices, instrument control and data processing; 3.11 Radial and axial plasmas 3.12 Instrumentation for high-resolution spectrometry3.13 Micro- plasmas and plasma on a chip; References; 4 Aerosol Generation and Sample Transport; 4.1 Introduction; 4.2 Sample introduction characteristics of the ICP source; 4.2.1 Particle size distribution; 4.2.2 Plasma loading; 4.3 Liquid aerosol generatior; 4.3.1.2 Ultrasonic nebulization; 4.3.1.3 Alternative nebulizer designs; 4.3.2 Spray chambers; 4.3.2.1 Mode of operation; 4.3.2 Practical designs of spray chambers; 4.3.2.3 Desolvation; 4.3.3 Chromatographic interfaces 4.4 Vapour generation
Sommario/riassunto	The first edition of Inductively Coupled Plasma Spectrometry and its Applications was written as a handbook for users who wanted a better understanding of the theory augmented by a practical insight of how best to approach a range of applications, and to provide a useful starting point for users trying an approach or technique new to them. These objectives have been retained in the second edition but a slight shift in emphasis gives the volume an overall perspective that is more forward looking.Structured into 11 chapters, the current edition is a thorough revision of the original, cov