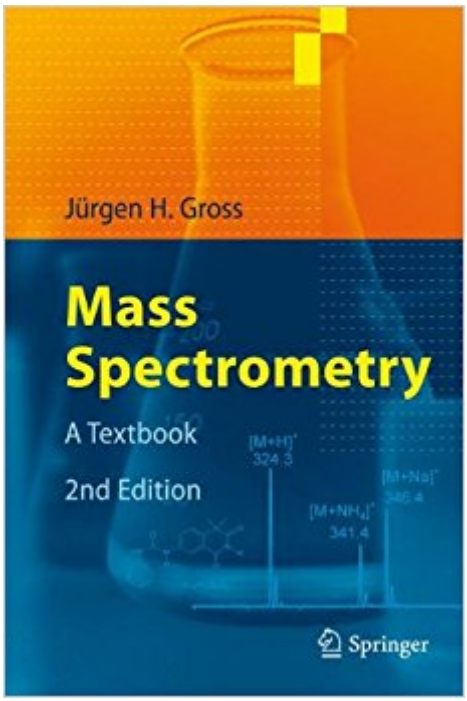
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Mass Spectrometry: A Textbook



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Synopsis

This book offers a balanced mixture of practice-oriented information and theoretical background as well as numerous references, clear illustrations, and useful data tables. Problems and solutions are accessible via a special website. This new edition has been completely revised and extended; it now includes three new chapters on tandem mass spectrometry, interfaces for sampling at atmospheric pressure, and inorganic mass spectrometry.

Book Information

Hardcover: 753 pages

Publisher: Springer; 2nd ed. 2011 edition (April 6, 2011)

Language: English

ISBN-10: 3642107095

ISBN-13: 978-3642107092

Product Dimensions: 6.1 x 1.6 x 9.2 inches

Shipping Weight: 2.8 pounds

Average Customer Review: 4.2 out of 5 stars 10 customer reviews

Best Sellers Rank: #569,675 in Books (See Top 100 in Books) #138 inÃ Â Books > Textbooks > Medicine & Health Sciences > Medicine > Clinical > Forensic Medicine #175 inÃ Â Books > Science & Math > Chemistry > Industrial & Technical #276 inÃ Â Books > Medical Books > Medicine > Internal Medicine > Pathology > Forensic Medicine

Customer Reviews

From the reviews of the second edition:Ã¢â ¬Å“The expansive range of topics in mass spectrometry is well surveyed in this large volume. Gross Ã¢â ¬Â¦ manages extraordinary breadth and adequate depth, delving into classical and current topics in theory, instrumentation, and applications. This work serves as a useful reference for those in the field Ã¢â ¬Â¦ but also functions effectively as a textbook, with Ã¢â ¬ËœLearning ObjectivesÃ¢â ¬â„¢ for each chapter and several appendixes outlining step-by-step approaches for students to solve problems. Ã¢â ¬Â¦ Summing Up: Recommended. Upper-division undergraduates and above.Ã¢â ¬Â•Ã Â-Ã Â-Ã Â- (E. J. Chang, Choice, Vol. 49 (3), November, 2011)Ã¢â ¬Å“Mass Spectrometry by JÃƒÂ rgen Gross is aimed at all mass spectrometrists and MS data users who practice their profession beyond routine and wish to better understand the basics and gimmicks of modern mass spectrometry. Ã¢â ¬Â¦ gains a vivid impression of the innovative energy and creativity of the field. Ã¢â ¬Â¦ a highly useful guide to the technical world of analytical mass spectrometry. It is unique, as it is a condensed

source of numerous details that are rarely discussed at the expert level in one place.Ã¢â ¬Â• (Wolf Dieter Lehmann, Analytical and Bioanalytical Chemistry, Vol. 401 (10), December, 2011)Ã¢â ¬Å“This is a serious and substantial textbook, which will be invaluable for established users of mass spectrometry wanting to revise their knowledge, as well as newcomers wishing to learn the subject from an historical and extremely thorough viewpoint. The text explains in detail, with excellent figures and photographs, the principles of mass spectrometry from ionisation techniques (starting with electron impact) through to instrumental designs (finishing with travelling wave stacked ring ion guides and orbitrap technologies).Ã¢â ¬Â• (Alison Ashcroft, Chemistry World, December, 2011)Ã¢â ¬Å“While undergraduates might find the exemplary explanations of the many varieties of mass spectrometry helpful, this text is really aimed at researchers who wish to better understand their equipment or look into alternative approaches for analysing samples. It is a fantastic reference guide, with many schematics and photographs of equipment. It also contains useful guides on how to search reference libraries. The layout is perfectly functional, and a detailed table of contents and index make the text a delight to use.Ã¢â ¬Â• (Rebecca Ingle, The Times Higher Education, November, 2011)

This highly successful textbook, acclaimed for its comprehensiveness, Ã Â accuracy, and its many excellent illustrations and photographs now comes in its second edition. Completely revised and substantially extended it Ã Â offers:Ã¢â ¬â œ New chapter on Tandem Mass Spectrometry covering instrumentation, methods for ion activation (CID, ECD, ETD, IRMPD), and applicationsÃ¢â ¬â œ New chapter on Ambient Mass Spectrometry (DART, DESI, and more)Ã¢â ¬â œ New chapter on Inorganic Mass Spectrometry including element speciation and imagingÃ¢â ¬â œ Learning Objectives for all chaptersÃ¢â ¬â œ Advanced Instrumentation such as orbitraps, linear ion traps, tandem TOFs, FT-ICR and the highly variable hybrid instrumentsÃ¢â ¬â œ Updated Problems and Solutions website (www.ms-textbook.com)Ã Â JÃƒÂ rgen H. Gross provides in-depth explanations of concepts, methods, and techniques. Students and professionals alike are guided step-by-step from the basics to the successful application of mass spectrometry. Starting from the very principles of gas-phase ion chemistry, isotopic composition, and accurate mass, JÃƒÂ rgen H. Gross leads through the design of all types of mass analyzers and ionization methods to mass spectral interpretation and coupling techniques. His book offers a balanced mixture of practice-oriented information and theoretical background supported by a wealth of references.From reviews of the previous edition:Ã¢â ¬Å“Ã¢â ¬Â¦one of the best textbooks on mass spectrometry I have seen so

far.Ã¢â ¬Â• International Journal of Mass SpectrometryÃ¢â ¬Å“Ã¢â ¬Â¦can be recommended unreservedly as a textbook and reference sourceÃ¢â ¬Â¦Ã¢â ¬Â• Angewandte Chemie, International Edition

Very interesting and well written. A must have for your collection!

Second edition is excellent and an improvement upon the first in many ways.

Concise, has the scientific information necessary for a complete understanding of what mass specometry entails from the practicing scientist’s view. This book is a graduate level requiring an understanding of the physics involved and the associated mathematics. Would be a good reference for any laboratory using mass spectrometry on a daily basis.

In the preface the reader is warned. If you know nothing about MS, you’ll need to read it cover to cover, skipping the details of no interest to you. If you know some MS, just go to the chapter(s) that are interesting to you.Used that way, it is an excellent book. Having some experience in GC, this book was to me a first choice because most books on GC-MS are pretty outdated.

This is a great textbook for learning about mass spectrometry.

hope i can get an A in this course!

Although many books dealing with organic mass spectrometry (the present oeuvre is restricted to this field in a broad sense) have appeared over the years, since Beynons 1960 classic publication no single author has attempted to compile such a comprehensive treatise. The book comprises twelve chapters including basic principles (quasi-equilibrium theory, energy considerations--for example bond strengths, ionization energies, gas-phase basicities, etc., gas-phase ion chemistry, isotopes), instrumentation (ion separation in time-of-flight, sector-field, quadrupole, ion-trap, and ICR instruments), specifically electron ionization and in detail subsequent fragmentation of organic ions (specific processes, for example -cleavage or McLafferty rearrangement, are grouped together), alternative ionization techniques (chemical ionization, field ionization and desorption, fast atom bombardment and related techniques, MALDI, electrospray), and, in the closing chapter, so-called hyphenated methods (combinations of mass spectrometry with chromatographic methods and

tandem mass spectrometry). Each chapter ends with an ample reference list comprising books and review articles and original publications. An appendix contains lists of elements and their isotopic composition, isotope patterns, characteristic fragments observed in electron-ionization spectra, and frequently encountered impurities.Each chapter offers a detailed discussion with many illustrations facilitating understanding. Reference is always given to the original literature (as recent as 2003, as checks showed). The text is, however, occasionally somewhat verbose. In general the treatment of the various topics is of a thoroughness that it can be used also by advanced users of mass spectrometry for reference and deeper understanding. There are only few exceptions: thus the discussion of chemical ionization is essentially restricted to proton transfer, charge exchange, and electron capture whereas other reagent gases are just mentioned en passant.Although many practical hints are interspersed in the text, a beginner in the field may be overawed by the wealth of information and ask, What should I do now? For example, in the over-detailed discussion of isotopes and accurate mass measurements there is no indication how to approach the list of elemental compositions obtained in daily practice (e.g. the nitrogen rule is discussed only many chapters later without any reference here).H. Budzikiewicz

Content and organization of this book is decent. The English translation just isn't quite right though.

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