
- Mass spectrometry
- Infrared and Raman spectrometry
- Nuclear magnetic resonance spectrometry

A how-to, hands-on teaching manual with considerably expanded NMR coverage—NMR spectra can now be interpreted in exquisite detail.

- Spectroscopy
- Infrared and Raman Spectra of Inorganic and Coordination Compounds

Originally published in 1962, this was the first book to explore the identification of organic compounds using spectroscopy. It provides a thorough introduction to the three areas of spectrometry most widely used in spectrometric identification: mass spectrometry, infrared spectrometry, and nuclear magnetic resonance spectrometry. A how-to, hands-on teaching manual with considerably expanded NMR coverage—NMR spectra can now be interpreted in exquisite detail.


- Mass spectrometry
- Infrared and Raman spectrometry
- Nuclear magnetic resonance spectrometry

A how-to, hands-on teaching manual with considerably expanded NMR coverage—NMR spectra can now be interpreted in exquisite detail.


- Mass spectrometry
- Infrared and Raman spectrometry
- Nuclear magnetic resonance spectrometry

A how-to, hands-on teaching manual with considerably expanded NMR coverage—NMR spectra can now be interpreted in exquisite detail.
Elementary Organic Spectroscopy

Organic Structures from Spectra, Sixth Edition will prove invaluable for students of Chemistry, Pharmacy and Biochemistry taking a first course in Organic Chemistry. The book builds on the very successful teaching philosophy of learning by hands-on problem solving; carefully graded examples build confidence and develop and consolidate a student’s understanding of organic spectroscopy. Organic Structures from Spectra, Sixth Edition will be an integral part of Organic Chemistry courses at all Universities. The book has been updated and expanded to reflect the new developments in NMR spectroscopy; has an additional 40 carefully selected basic problems; provides a set of problems dealing specifically with the quantitative analysis of mixtures using NMR spectroscopy; features proton NMR spectra obtained at 200, 400 and 600 MHz and 13C NMR spectra including routine 2D C–H correlation, HMBC spectra and DEPT spectra; contains a selection of problems in the style of the experimental section of a research paper; includes examples of fully worked solutions in the appendix; has a complete set of solutions available to instructors and teachers from the authors.

Organic Spectroscopy presents the derivation of structural information from UV, IR, Raman, 1H NMR, 13C NMR, Mass and ESR spectral data in such a way that stimulates interest of students and researchers alike. The application of spectroscopy for structure determination and analysis has seen phenomenal growth and is now an integral part of Organic Chemistry courses. This book provides: -A logical, comprehensive, lucid and accurate presentation, thus making it easy to understand even through self-study; -Theoretical aspects of spectral techniques necessary for the interpretation of spectra; -Salient features of instrumentation involved in spectroscopic methods; -Useful spectral data in the form of tables, charts and figures; -Examples of spectra to familiarize the reader; -Many varied problems to help build competence and confidence; -A separate chapter on ‘spectroscopic solutions of structural problems’ to emphasize the utility of spectroscopy. Organic Spectroscopy is an invaluable reference for the interpretation of various spectra. It can be used as a basic text for undergraduate and postgraduate students of spectroscopy as well as a practical resource by research chemists. The book will be of interest to chemists and analysts in academia and industry, especially those engaged in the synthesis and analysis of organic compounds including drugs, drug intermediates, agrochemicals, polymers and dyes.

Understanding NMR Spectroscopy

The derivation of structural information from spectroscopic data is now an integral part of organic chemistry courses at all Universities. Over recent years, a number of powerful two-dimensional NMR techniques (e.g. HSQC, HMBC, TOCSY, COSY and NOESY) have been developed and these have vastly expanded the amount of structural information that can be obtained by NMR spectroscopy. Improvements in NMR instrumentation now mean that 2D NMR spectra are routine (and sometimes automatically) acquired during the identification and characterisation of organic compounds. Organic Structures from 2D NMR Spectra is a carefully chosen set of more than 60 structural problems employing 2D-NMR spectroscopy. The problems are graded to develop and consolidate a student’s understanding of 2D NMR spectroscopy. There are many easy problems at the beginning of the collection, to build confidence and demonstrate the basic principles from which structural information can be extracted using 2D NMR. The accompanying text is very descriptive and focussed on explaining the underlying theory at the most appropriate level to sufficiently tackle the problems. Organic Structures from 2D NMR Spectra Is a graded series of about 60 problems in 2D NMR spectroscopy that assumes a basic knowledge of organic chemistry and a basic knowledge of one-dimensional NMR spectroscopy. Incorporates several examples containing the heterocycle 31P, 15N and 19F. Organic Structures from 2D NMR Spectra is a logical follow-on from the highly successful “Organic Structures from Spectra” which is now in its fifth edition. The book will be invaluable for students of Chemistry, Pharmacy, Biochemistry and those taking courses in Organic Chemistry. Also available: Instructors Guide and Solutions Manual to Organic Structures from 2D NMR Spectra.
Spectra Interpretation of Organic Compounds

A unique advanced textbook on spectroscopy. This interactive tutorial presents text, software and data in a state-of-the-art introduction to the interpretation of 13C- and 1H-nuclear magnetic resonance, infrared, mass and UV/VIS spectra. Designed as a hands-on guide, the newcomer or student learns not only by reading but by experimenting, using the powerful software tools and data provided on the accompanying CD-ROM. The software, based on the outstanding SpecTool product, enables you to learn how to interpret molecular spectra correctly, rapidly and easily. Moreover, you can check your progress by working through the examples embedded in this self-study course that demonstrate how to identify an organic compound and to elucidate its structure. All the material and software presented are the essence of the two authors’ longstanding teaching experience.

One and Two Dimensional NMR Spectroscopy

The Sixth Edition of this classic work comprises the most comprehensive and current guide to infrared and Raman spectra of inorganic, organometallic, bioinorganic, and coordination compounds. From fundamental theories of vibrational spectroscopy to applications in a variety of compound types, this book has been extensively updated. New topics include the theoretical calculations of vibrational frequencies (DFT method), chemical synthesis by matrix co-condensation reactions, time-resolved Raman spectroscopy, and more. This volume is a core reference for chemists and medical professionals working with infrared or Raman spectroscopies and an excellent textbook for graduate courses.

Tables of Spectral Data for Structure Determination of Organic Compounds

The two-part, fifth edition of Advanced Organic Chemistry has been substantially revised and reorganized for greater clarity. The material has been updated to reflect advances in the field since the previous edition, especially in computational chemistry. Part B describes the most general and useful synthetic reactions, organized on the basis of reaction type. It can stand-alone; together, with Part A: Structure and Mechanisms, the two volumes provide a comprehensive foundation for the study in organic chemistry. Companion websites provide digital models for students and exercise solutions for instructors.

Introduction to Spectroscopy

First published over 40 years ago, this was the first text on the identification of organic compounds using spectroscopy. This text is now considered to be a classic. This text presents a unified approach to the structure determination of organic compounds based largely on mass spectrometry, infrared (IR) spectroscopy, and multinuclear and multidimensional nuclear magnetic resonance (NMR) spectroscopy. The key strength of this text is the extensive set of practice and real-data problems (in Chapters 7 and 8). Even professional chemists use these spectra as reference data. Spectrometric Identification of Organic Compounds is written by and for organic chemists, and emphasizes the synergistic effect resulting from the interplay of the spectra. This book is characterized by its problem-solving approach with extensive reference charts and tables. The 8th edition of this text maintains its student-friendly writing style - wording throughout has been updated for consistency and to be more reflective of modern usage and methods. Chapter 3 on proton NMR spectroscopy has been overhauled and updated. Also, new information on polymers and phosphorus functional groups has been added to Chapter 2 on IR spectroscopy.

Structure Determination of Organic Compounds

Spectrometric Identification of Organic Compounds

Spectrometric Identification of Organic Compounds

Organic Spectroscopy

Featuring new experiments unique to this lab textbook, as well as new and revised essays and updated techniques, this Sixth Edition provides the up-to-date coverage students need to succeed in their coursework and future careers. From biofuels, green chemistry, and nanotechnology, the book’s experiments, designed to utilize microscale glassware and equipment, demonstrate the relationship between organic chemistry and everyday life, with project- and biological or health science focused experiments. As they move through the book, students will experience traditional organic reactions and syntheses, the isolation of natural products, and molecular modeling. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Introduction to Spectroscopy

The derivation of structural information from spectroscopic data is now an integral part of organic chemistry courses at all Universities. Over recent years, a number of powerful two-dimensional NMR techniques (e.g. HSQC, HMBC, TOCSY, COSY and NOESY) have been developed and these have vastly expanded the amount of structural information that can be obtained by NMR spectroscopy. Improvements in NMR instrumentation now mean that 2D NMR spectra are routinely (and sometimes automatically) acquired during the identification and characterisation of organic compounds. Organic Structures from 2D NMR Spectra is a carefully chosen set of more than 60 structural problems employing 2D-NMR spectroscopy. The problems are graded to develop and consolidate students understanding of 2D NMR spectroscopy. There are many easy problems at the beginning of the collection, to build confidence and demonstrate the basic principles from which structural information can be extracted using 2D NMR. The accompanying text is very descriptive and focussed on explaining the underlying theory at the most appropriate level to sufficiently tackle the problems. Organic Structures from 2D NMR Spectra: - is a graded series of about 60 problems in 2D NMR spectroscopy that assumes a basic knowledge of organic chemistry and a basic knowledge of one-dimensional NMR spectroscopy - Incorporates the basic theory behind 2D NMR and those common 2D NMR experiments that have proved most useful in solving structural problems in organic chemistry - Focuses on the most common 2D NMR techniques including COSY, NOESY, HMBC, TOCSY, CH-Correlation and multiplicity-edited C-H Correlation. - Incorporates several examples containing the heteronuclei 31P, 15N and 19F Organic Structures from 2D NMR Spectra is a logical follow-on from the highly successful Organic Structures from Spectra which is now in its fifth edition. The book will be invaluable for students of Chemistry, Pharmacy, Biochemistry and those taking courses in Organic Chemistry. Organic Structures from 2D NMR Spectra is
complimented by the Instructors Guide and Solutions Manual to Organic Structures from 2D NMR Spectra which is a set of step-by-step worked solutions to every problem in the book. While it is absolutely clear that there are many ways to get to the correct solution of any of the problems, the instructors guide contains at least one complete pathway to every one of the questions. In addition, the instructors guide carefully rationalises every peak in every spectrum in relation to the correct structure. The Instructors Guide and Solutions Manual to Organic Structures from 2D NMR Spectra: - Is a complete set of worked solutions to the problems contained in Organic Structures from 2D NMR Spectra. - Provides a step-by-step description of the process to derive structures from spectra as well as annotated 2D spectra indicating the origin of every cross peak. - Highlights common artefacts and re-enforces the important characteristics of the most common techniques 2D NMR techniques including COSY, NOESY, HMQC, TOCSY, CH-Correlation and multiplicity-edited C-H Correlation. This guide is an essential aid to those teachers, lecturers and instructors who use Organic Structures from 2D NMR as a text to teach students of Chemistry, Pharmacy, Biochemistry and those taking courses in Organic Chemistry.

Greene's Protective Groups in Organic Synthesis

Filtration and characterization of secondary metabolites Stereochernistry of organic Compounds The first fully referenced, comprehensive book on this subject in more than thirty years, Stereochernistry of organic Compounds contains up-to-date coverage and insightful exposition of all important new concepts, developments, and tools in the rapidly advancing field of stereochernistry, including: * Asymmetric and diastereoselective synthesis * Conformational analysis * Properties of enantiomers and racemates * Separation and analysis of enantiomers and diastereoisomers * Developments in spectroscopy (including NMR), chromatography, and molecular mechanics as applied to stereochernistry * Friostereoisomerism * Conceptual foundations of stereochernistry, including terminology and symmetry concepts * Chiroptical properties Written by the leading authorities in the field, the text includes more than 4,000 references, 1,000 illustrations, and a glossary of stereochernical terms.

Basic One- and Two-dimensional NMR Spectroscopy

Solvell Solvent Effects in Organic Chemistry

Organic Structure Determination Using 2-D NMR Spectroscopy Nuclear magnetic resonance (NMR) spectroscopy is one of the most powerful and widely used techniques in chemical research for investigating structures and dynamics of molecules. Advanced methods can even be utilized for structures determinations of biopolymers, for example proteins or nucleic acids. NMR is also used in medicine for magnetic resonance imaging (MRI). The method is based on spectral lines of different atomic nuclei that are excited when a strong magnetic field and a radiofrequency transmitter are applied. The method is very sensitive to the features of molecular structure because also the neighboring atoms influence the signals from individual nuclei and this is important for determining the 3D-structure of molecules. This new edition of the popular classic has a clear style and a highly practical, mostly non-mathematical approach. Many examples are taken from organic and organometallic chemistry, making this book an invaluable guide to undergraduate and graduate students of organic chemistry, biochemistry, spectroscopy or physical chemistry, and to researchers using this well-established and extremely important technique. Problems and solutions are included.

March's Advanced Organic Chemistry The field of nuclear magnetic resonance spectroscopy has undergone explosive development during the last decade with the advent of new one- and two-dimensional techniques. The author has had extensive experience in the use of these techniques for the structure elucidation of complex natural products, and in this book he gives a comprehensive, up-to-date and very readable account of these developments. The book's scope is very wide. It starts from fundamental principles of modern NMR spectroscopy, describing the instrumentation and its optimum use, and extends to the latest developments such as inverse measurements. Emphasis is on problem-solving so as to be useful to a large number of organic chemists, biochemists and medicinal chemists. The problems and worked solutions at the end of the chapters will help students to gain proficiency in the application of these new techniques. Those who are learning how to operate modern NMR spectrometers will find particularly useful the description of such basic aspects as shimming, probe tuning, and methods for improvement of resolution and sensitivity.


Spectroscopic Methods in Organic Chemistry "The second edition of this book comes with a number of new figures, passages, and problems. Increasing the number of figures from 290 to 446 has necessarily added considerable length, weight, and, expense. It is my hope that the book has not lost any of its readability and accessibility. I firmly believe that most of the concepts needed to learn organic structure determination using nuclear magnetic resonance spectroscopy do not require an extensive mathematical background. It is my hope that the manner in which the material contained in this book is presented both reflects and validates this belief"--

Organic Structures from Spectra The derivation of structural information from spectroscopic data is now an integral part of organic chemistry courses at all Universities. A critical part of any such course is a suitable set of problems to develop the student's understanding of how structures are determined from spectra. Organic Structures from Spectra, Fifth Edition is a carefully chosen set of more than 280 structural problems employing the major modern spectroscopic techniques, a selection of 27 problems using 2D-NMR spectroscopy, more than 20 problems specifically dealing with the interpretation of spin-spin coupling in proton NMR spectra and 8 problems based on the quantitative analysis of mixtures using proton and carbon NMR spectroscopy. All of the problems are graded to develop and consolidate the student's understanding of organic spectroscopy. The accompanying
text is descriptive and only explains the underlying theory at a level which is sufficient to tackle the problems. The text includes condensed tables of characteristic spectral properties covering the frequently encountered functional groups. The examples themselves have been selected to include all important common structural features found in organic compounds and to emphasise connectivity arguments. Many of the compounds were synthesised specifically for this purpose. There are many more easy problems, to build confidence and demonstrate basic principles, than in other collections. The fifth edition of this popular textbook: • includes more than 250 new spectra and more than 25 completely new problems; • now incorporates an expanded suite of new problems dealing with the analysis of 2D NMR spectra (COSY, C H Correlation spectroscopy, HMBC, NOESY and TOCSY); • has been expanded and updated to reflect the new developments in NMR and to retire older techniques that are no longer in common use; • provides a set of problems dealing specifically with the quantitative analysis of mixtures using NMR spectroscopy; • features proton NMR spectra obtained at 200, 400 and 600 MHz and 13C NMR spectra include DEPT experiments as well as proton-coupled experiments; • contains 6 problems in the style of the experimental section of a research paper and two examples of fully worked solutions. Organic Structures from Spectra, Fifth Edition will prove invaluable for students of Chemistry, Pharmacy and Biochemistry taking a first course in Organic Chemistry. Contents Preface Introduction Ultraviolet Spectroscopy Infrared Spectroscopy Mass Spectrometry Nuclear Magnetic Resonance Spectroscopy 2D NMR Problems Index Reviews from earlier editions “Your book is becoming one of the “go to” books for teaching structure determination here in the States. Great work!” “I would definitely state that this book is the most useful aid to basic organic spectroscopy teaching in existence and I would strongly recommend every instructor in this area to use it either as a source of examples or as a class textbook”. Magnetic Resonance in Chemistry “Over the past year I have trained many students using problems in your book - they initially find it as a task. But after doing 3-4 problems with all their brains activities working out the rest of the problems become a mania. They get addicted to the problem solving and every time they solve a problem by themselves, their confident level also increases.” “I am reaching the fundamentals of Molecular Spectroscopy and your books represent excellent sources of spectroscopic problems for students.”

NMR Spectroscopy This succinct compilation of essential reference data for the interpretation of NMR, IR, UV/Vis, and mass spectra also provides a hands-on guide for interpreting experimental spectral data and elucidating the structure of the respective compounds behind them. This fourth edition of the highly successful and concise textbook contains about 20% new data.

Infrared and Raman Spectra of Inorganic and Coordination Compounds, Part A

Organic Structures from Spectra

Advanced Organic Chemistry The third edition of the Encyclopedia of Analytical Science is a definitive collection of articles covering the latest technologies in application areas such as medicine, environmental science, food science and geology. Meticulously organized, clearly written and fully interdisciplinary, the Encyclopedia of Analytical Science provides foundational knowledge across the scope of modern analytical chemistry, linking fundamental topics with the latest methodologies. Articles will cover three broad areas; analytical techniques (e.g., mass spectrometry, liquid chromatography, atomic spectrometry); areas of application (e.g., forensic, environmental and clinical); and analytes (e.g., arsenic, nucleic acids and polycyclic aromatic hydrocarbons), providing a one-stop resource for analytical scientists. Offers readers a one-stop resource with access to information across the entire scope of modern analytical science Presents articles split into three broad areas: analytical techniques, areas of application and analytes, creating an ideal resource for students, researchers and professionals Provides concise and accessible information that is ideal for non-specialists and readers from undergraduate levels and higher.

Organic Chemistry Described in this book are the fundamental theories of vibrational spectroscopy in a condensed form. It uses typical examples to illustrate their applications to inorganic, coordination, organometallic and bioinorganic compounds.

A Microscale Approach to Organic Laboratory Techniques Introduce your students to the latest advances in spectroscopy with the text that has set the standard in the field for more than three decades: INTRODUCTION TO SPECTROSCOPY, 5e, by Donald L. Pavia, Gary M. Lampman, George A. Kriz, and James R.Vyvyan. Whether you use the book as a primary text in an upper-level spectroscopy course or as a companion book with an organic chemistry text, your students will receive an unmatched, systematic introduction to spectra and basic theoretical concepts in spectroscopic methods. This acclaimed resource features up-to-date spectra; a modern presentation of one-dimensional nuclear magnetic resonance (NMR) spectroscopy; an introduction to biological molecules in mass spectrometry; and coverage of modern techniques alongside DEPT, COSY, and HECTOR. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Organic Structures from 2D NMR Spectra The derivation of structural information from spectroscopic data is now an integral part of organic chemistry courses at all Universities. Over recent years, a number of powerful two-dimensional NMR techniques (e.g. HSQC, HMBC, TOCSY, COSY and NOESY) have been developed and these have vastly expanded the amount of structural information that can be obtained by NMR spectroscopy. Improvements in NMR instrumentation now mean that 2D NMR spectra are routinely (and sometimes automatically) acquired during the identification and characterisation of organic compounds. Organic Structures from 2D NMR Spectra is a carefully chosen set of more than 60 structural problems employing 2D-NMR spectroscopy. The problems are graded to develop and consolidate a student's understanding of 2D NMR spectroscopy. There are many easy problems at the beginning of the collection, to build confidence and demonstrate the basic principles from which structural information can be extracted using 2D NMR. The accompanying text is very descriptive and focussed on explaining the underlying theory at the most appropriate level to sufficiently tackle the problems. Organic Structures from 2D NMR Spectra Is a graded series of about 60 problems in 2D NMR spectroscopy that assumes a basic knowledge of organic chemistry and a basic knowledge of one-dimensional NMR spectroscopy Incorporates the
basic theory behind 2D NMR and those common 2D NMR experiments that have proved most useful in solving structural problems in organic chemistry. Focuses on the most common 2D NMR techniques - including COSY, NOE, HMQC, TOCSY, CH-Correlation and multiplicity-edited C-H Correlation. Incorporates several examples containing the heteronuclei 31P, 13N and 19F. Organic Structures from 2D NMR Spectra is a logical follow-on from the highly successful “Organic Structures from Spectra” which is now in its fifth edition. The book will be invaluable for students of Chemistry, Pharmacy, Biochemistry and those taking courses in Organic Chemistry. Also available: Instructors Guide and Solutions Manual to Organic Structures from 2D NMR Spectra.

Organic Structures from 2D NMR Set
In most cases, every chemist must deal with solvent effects, whether voluntarily or otherwise. Since its publication, this has been the standard reference on all topics related to solvents and solvent effects in organic chemistry. Christian Reichardt provides reliable information on the subject, allowing chemists to understand and effectively use these phenomena. 3rd updated and enlarged edition of a classic 35% more contents excellent, proven concept includes current developments, such as ionic liquids indispensable in research and industry. From the reviews of the second edition: "This is an immensely useful book, and the source that I would turn to first when seeking virtually any information about solvent effects." – Organometallics

Spectrometric Identification of Organic Compounds Table -- Combination tables -- 13C NMR spectroscopy -- 1H NMR spectroscopy -- IR spectroscopy -- Mass spectrometry -- UV/Vis spectroscopy.

Interpretation of Mass Spectra of Organic Compounds Table -- Combination tables -- 13C NMR spectroscopy -- 1H NMR spectroscopy -- IR spectroscopy -- Mass spectrometry -- UV/Vis spectroscopy.

Interpretation of Mass Spectra of Organic Compounds Interpretation of Mass Spectra of Organic Compounds outlines the basic instrumentation, sample handling techniques, and procedures used in the interpretation of mass spectra of organic compounds. The fundamental concepts of ionization, fragmentation, and rearrangement of ions as found in mass spectra are covered in some detail, along with the rectangular array and interpretation maps. Computerization of mass spectral data is also discussed. This book consists of nine chapters and begins with a historical overview of mass spectrometry and a discussion on some important developments in the field, along with a summary of interpretation objectives and methods. The following chapters focus on instruments, ion sources, and detectors; recording of the mass spectrum and the instrumental and sample variables affecting the mass spectrum; sample introduction systems; and fragmentation reactions. Correlations as applied to interpretations are also considered, with emphasis on applications of the branching rule as well as beta-bond and alpha-bond cleavages. Example interpretations, calculations, data-processing procedures, and computer programs are included. This monograph is intended for organic chemists, biochemists, mass spectroscopists, technicians, managers, and others concerned with the whys and wherefores of mass spectrometry.

Organic Spectroscopy Strategies and Solutions to Advanced Organic Reaction Mechanisms: A New Perspective on McKillop’s Problems builds upon Alexander (Sandy) McKillop’s popular text, Solutions to McKillop’s Advanced Problems in Organic Reaction Mechanisms, providing a unified methodological approach to dealing with problems of organic reaction mechanism. This unique book outlines the logic, experimental insight and problem-solving strategy approaches available when dealing with problems of organic reaction mechanism. These valuable methods emphasize a structured and widely applicable approach relevant for both students and experts in the field. By using the methods described, advanced students and researchers alike will be able to tackle problems in organic reaction mechanism, from the simple and straightforward to the advanced. Provides strategic methods for solving advanced mechanistic problems and applies those techniques to the 300 original problems in the first publication. Replaces reliance on memorization with the understanding brought by pattern recognition to new problems. Supplements worked examples with synthesis strategy, green metrics analysis and novel research, where available, to help advanced students and researchers in choosing their next research project.

Copyright code: a0d7fee3b6ab1d3acc6d2555ff1b569