

INTRODUCTION TO

Spectroscopy

Fifth Edition

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FIFTH EDITION

INTRODUCTION TO SPECTROSCOPY

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**Introduction to Spectroscopy,
Fifth Edition**Donald L. Pavia, Gary M. Lampman,
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INTRO TO SPECTROSCOPY FIFTH EDITION SUMMARY OF CHANGES

The order of the chapters was rearranged to better reflect the requests and practices of our users. Mass Spectroscopy was moved to an earlier position, causing the renumbering.

Fourth edition chapter number/title	Fifth edition chapter number/title	Notes
1 Molecular Formulas and What Can Be Learned from Them	1 Molecular Formulas and What Can Be Learned from Them	Section 1.6, A Quick Look Ahead to Simple Uses of Mass Spectra, was deleted. (Mass Spectra were moved earlier into Chapters 3 and 4.) A new Section 1.6 is now titled: "The Nitrogen Rule." References were revised/updated.
2 Infrared Spectroscopy	2 Infrared Spectroscopy	Section 2.6, the solid samples subsection was updated to include ATR techniques. Several figures were revised/updated. Section 2.21, Alkyl and Aryl Halides, was revised. Section 2.23, How to Solve Infrared Spectral Problems, is a new section. The sections that followed were renumbered. Problems were revised. References were revised/updated.
3 Nuclear Magnetic Resonance Spectroscopy Part One: Basic Concepts.	5 Nuclear Magnetic Resonance Spectroscopy Part One: Basic Concepts.	New Section 5.20 References were revised/updated. New online resources were referenced and/or updated.
4 Nuclear Magnetic Resonance Spectroscopy Part Two: Carbon-13 etc.	6 Nuclear Magnetic Resonance Spectroscopy Part Two: Carbon-13 etc.	Section 6.4 introduces a new decoupling notation. New Section 6.12. Sections following 6.12 are renumbered. Several new problems were added. Some spectra replaced/improved. References were revised/updated. New online resources referenced and/or updated.
5 Nuclear Magnetic Resonance Spectroscopy Part Three: Spin-Spin Coupling	7 Nuclear Magnetic Resonance Spectroscopy Part Three: Spin-Spin Coupling	New discussion of splitting in diastereotopic systems. New discussion of heteronuclear splitting between ^1H - ^{31}P and S - ^{31}P Addition of solved example problems. New and revised end-of-chapter problems using coupling constant information and chemical shift calculations. References were revised/updated.
6 Nuclear Magnetic Resonance Spectroscopy Part Four: Other Topics in One-Dimensional NMR	8 Nuclear Magnetic Resonance Spectroscopy Part Four: Other Topics in One-Dimensional NMR	New discussion and examples of solvent effects. Addition of solved example problems. New and revised end-of-chapter problems. References were revised/updated.

(Continued)

Fourth edition chapter number/title	Fifth edition chapter number/title	Notes
7 Ultraviolet Spectroscopy	10 Ultraviolet Spectroscopy	Few changes.
8 Mass Spectrometry (first half) Chapter was split.	3 Mass Spectrometry Part One: Basic Theory, Instrumentation, and Sampling Techniques	To highlight the continued development and importance of mass spectrometry (MS) methods, we have moved this material to the early part of the text and split it into two chapters, one on theory and instrumentation (Chapter 3) and the other on detailed structural analysis using characteristic fragmentation patterns of common functional groups (Chapter 4). Expanded and refined discussion of sampling and ionization methods, including atmospheric pressure chemical ionization techniques. Examples of applications for different MS techniques and instrumentation, including pros and cons of different methods.
8 Mass Spectrometry (second half)	4 Mass Spectrometry Part Two: Fragmentation and Structural Analysis	Refined discussion of fragmentations in EI-MS for common functional groups. New examples of use of MS in structure determination. Additional solved example problems. New and revised end-of-chapter problems.
9 Combined Structure Problems	11 Combined Structure Problems	Several new problems were introduced. Two-dimensional spectra were replaced with new, improved ones. References were revised/updated. Online resources were updated.
10 Nuclear Magnetic Resonance Spectroscopy Part Five: Advanced NMR Techniques.	9 Nuclear Magnetic Resonance Spectroscopy Part Five: Advanced NMR Techniques	Sections 9.4 and 9.7 were extensively revised. Many of the two-dimensional spectra were replaced with new, improved ones.
Appendices	Appendices	Old Appendix 11 was removed. Values in some of the tables were updated or revised.