



Molecular Vibrations: The Theory of Infrared and Raman Vibrational Spectra (Dover Books on Chemistry)

By E. Bright Wilson Jr., J.C. Decius, Paul C. Cross

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Because of its connection with laser technology, the theory of infrared and Raman vibrational spectra is even more important now than when this book was first published. As the pioneering text in the field and as the text still preferred today, *Molecular Vibrations* is the undeniable choice of anyone teaching or studying molecular spectroscopy at the graduate level. It is the only book of its kind in the area written by well-known scientists, and besides its value as a pedagogical classic, it is an essential reference for anyone engaged in research. The genius of the book is its rigorous, elegant treatment of the mathematics involved in detailed vibrational analyses of polyatomic molecules. The reader is led carefully and gradually through the main features of the theory and its methods: starting from a valuable introduction to the theory of molecular vibrations and the application of wave mechanics to this subject; leading into the mathematical methods devised by Professor Wilson and his students for handling the mathematical problems and for making use of symmetry and group theory; proceeding through vibrational selection rules and intensities, potential functions and methods of solving the secular determinant; and concluding with a sample vibrational analysis of the molecule of benzene. Sixteen appendices, comprising nearly one hundred pages, offer much extremely useful information that is more clearly understood outside the body of the text.

Well-known for their distinguished contributions to the field, the authors — in addition to Professor Wilson of Harvard University — are J. C. Decius of Oregon State University and Paul C. Cross, late President of Mellon Institute. Younger students interested in the field of molecular spectroscopy will especially welcome this inexpensive reprint edition of an exceptional book.

"An authoritative and complete presentation written on a very high level." — G. Herzberg, *Science*

"The easiest and quickest route to acquiring skill in handling the mathematics of molecular vibrations." — *Nature*

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- Sales Rank: #306559 in Books
- Brand: Wilson, Edgar Bright
- Published on: 1980-03-01
- Released on: 1980-03-01

- Original language: English
- Number of items: 1
- Dimensions: 8.25" h x 5.75" w x .75" l, .93 pounds
- Binding: Paperback
- 416 pages

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