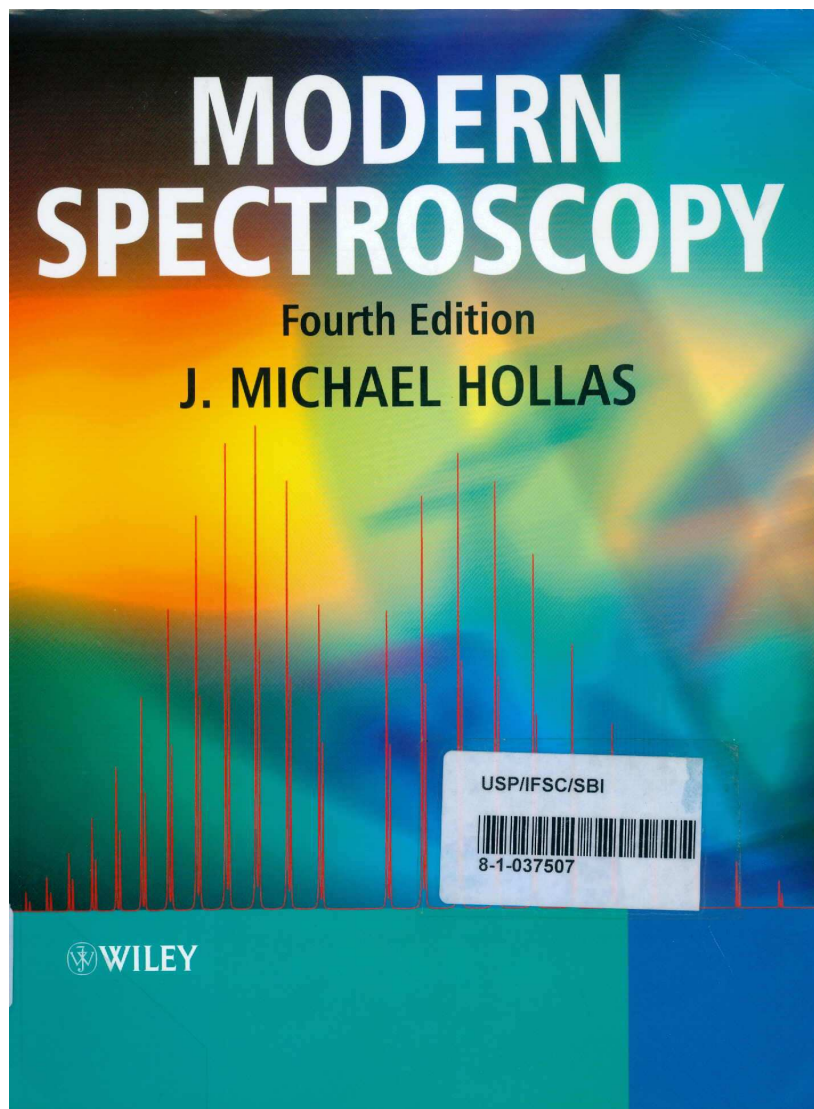


Universidade de São Paulo
Instituto de Física de São Carlos - IFSC

SFI 5800 Espectroscopia Física
SCM5770 - Caracterização de Materiais por Técnicas de
Espectroscopia

Bibliografia

Prof. Dr. José Pedro Donoso



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Modern Spectroscopy

(Wiley)

Chap 2 Electromagnetic radiation.

Interaction with atoms and molecules

Chap 3 Experimental methods

Chap 4 Molecular symmetry

Chap 5 Rotational spectroscopy

Chap 6 Vibrational spectroscopy

Chap 7 Electronic spectroscopy

Chap 8 Photoelectron spectroscopy,

Auger and X-ray fluorescence

Chap 9 Laser spectroscopy

Haken · Wolf

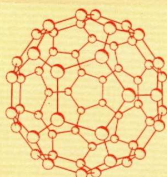
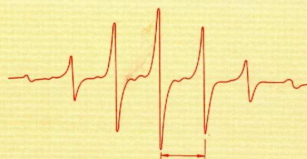
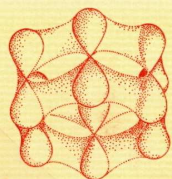
Molecular Physics and Elements of Quantum Chemistry

Introduction
to Experiments and Theory

USP/IFSC/SBI



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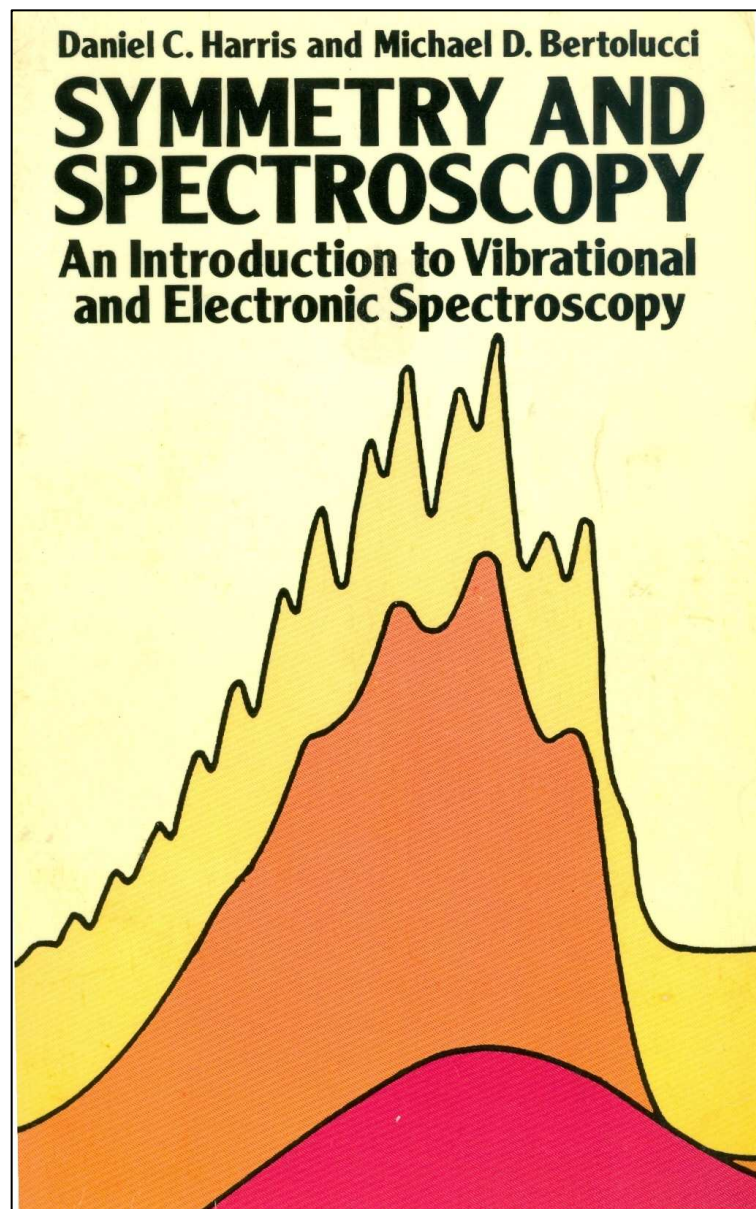
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- Cap 5 - 6 Symmetry operations
- Cap 8 Molecular spectroscopy techniques
- Cap 9 Rotational spectroscopy
- Cap 10 Vibrational spectroscopy
- Cap 11 Quantum mechanical treatment
- Cap 12 Raman spectra
- Cap 14 Electronic spectra of molecules
- Cap 17 Raman effects, Non-linear optics
- Cap 18 Nuclear magnetic resonance
- Cap 19 Electron spin resonance



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- Chap 1 Symmetry and Group theory
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- Chap 3 Vibrational spectroscopy
- Chap 4 Molecular orbital theory
- Chap 5 Electronic spectroscopy

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University of Florida, Gainesville



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Chap 1 - 2 Symmetry. Group Theory

Chap 3 Molecular Orbital Theory

Chap 5 Electron absorption spectroscopy

Chap 6 Vibration Rotation spectroscopy

Chap 7, 8, 12 NMR spectroscopy

Chap 9 + 13 EPR spectroscopy

Chap 10 Spectra of transition ions

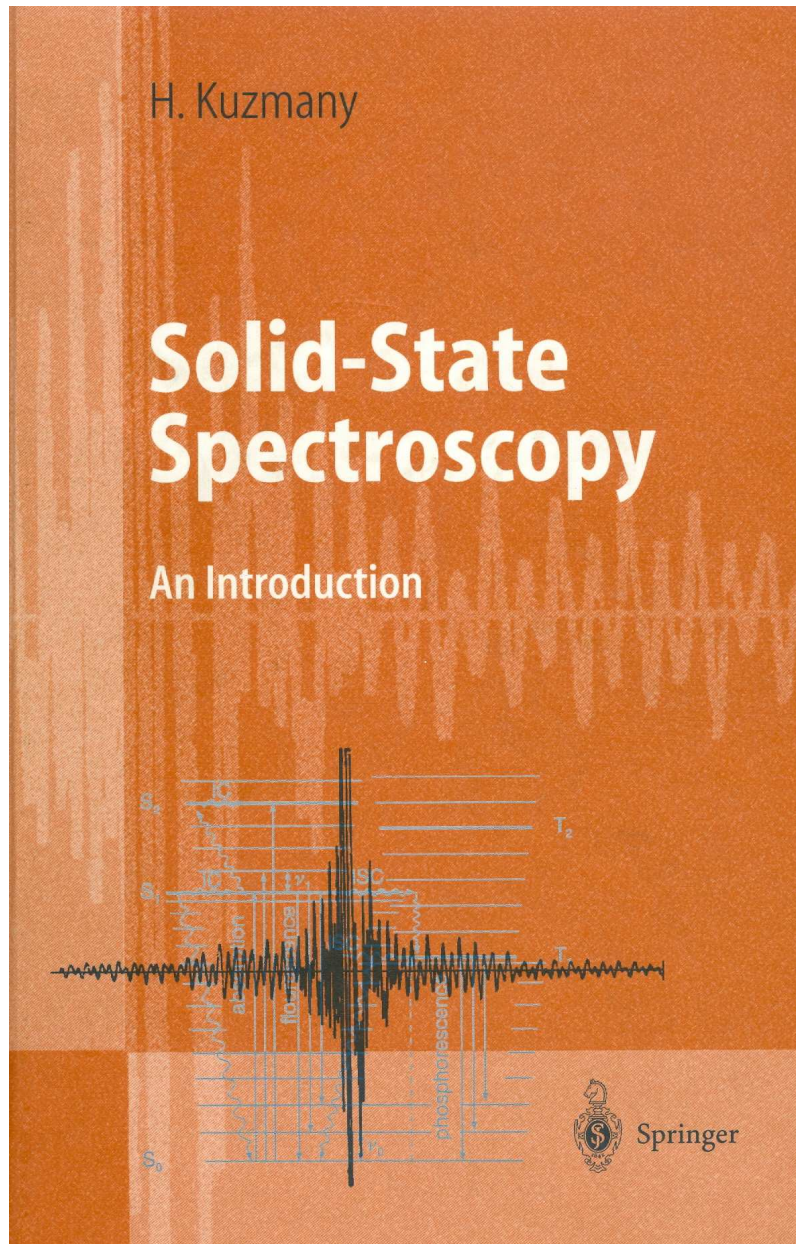
Chap 14 NQR spectroscopy

Chap 15 Mössbauer spectroscopy

Chap 16 Mass spectrometry, Cyclotron

resonance, Photoelectron spectroscopy

Chap 17 X-ray crystallography

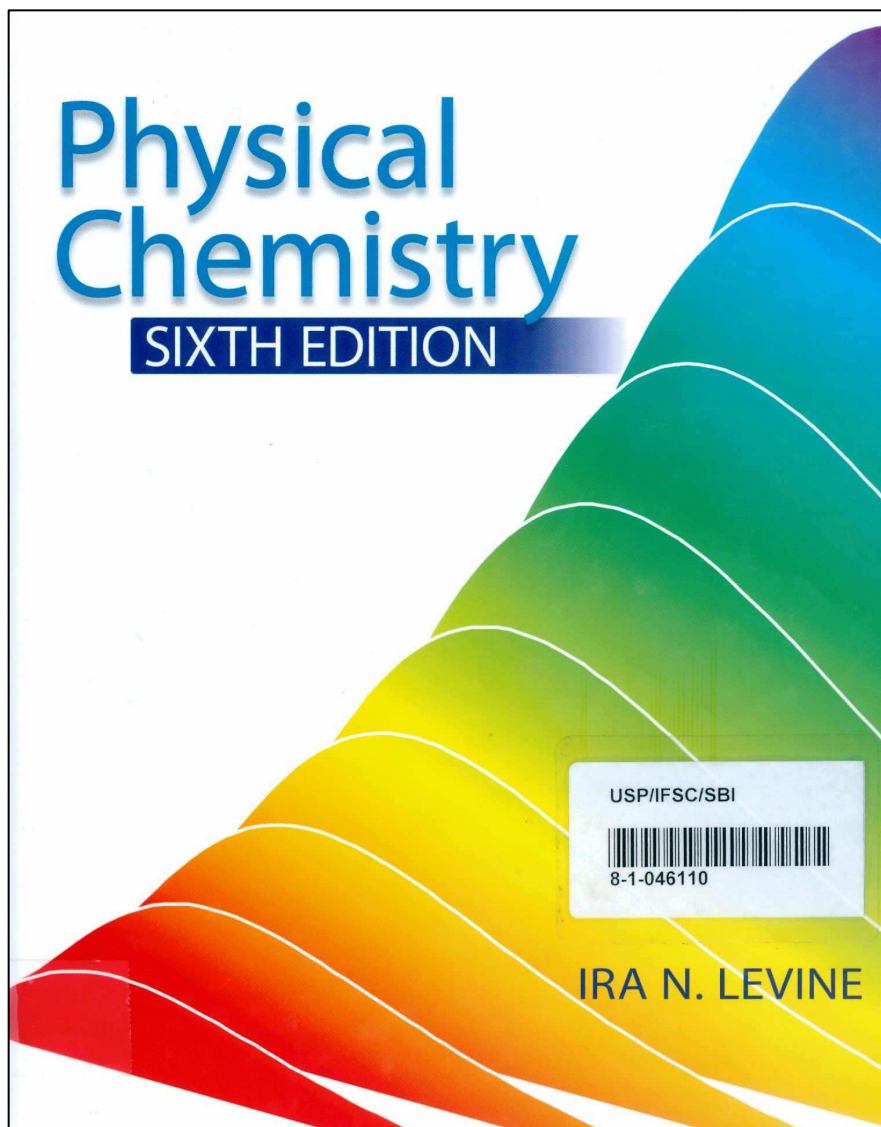


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- Chap 1 Electromagnetic radiation
- Chap 2 – 5 Light sources, spectral analysis and detection
- Chap 7 Spectroscopy in the vis and near vis
- Chap 8 Symmetry and selection rules
- Chap 9 Light scattering spectros. (Raman)
- Chap 10 Infrared spectroscopy
- Chap 11 Magnetic resonance spectroscopy
- Chap 12 UV and X-ray spectroscopy
- Chap 13 Spectros. with γ rays : Mössbauer
- Chap 15 Spectroscopy with electrons (EELS)
- Chap 16 Spectroscopy: positrons and muons
- Chap 17 Neutron scattering

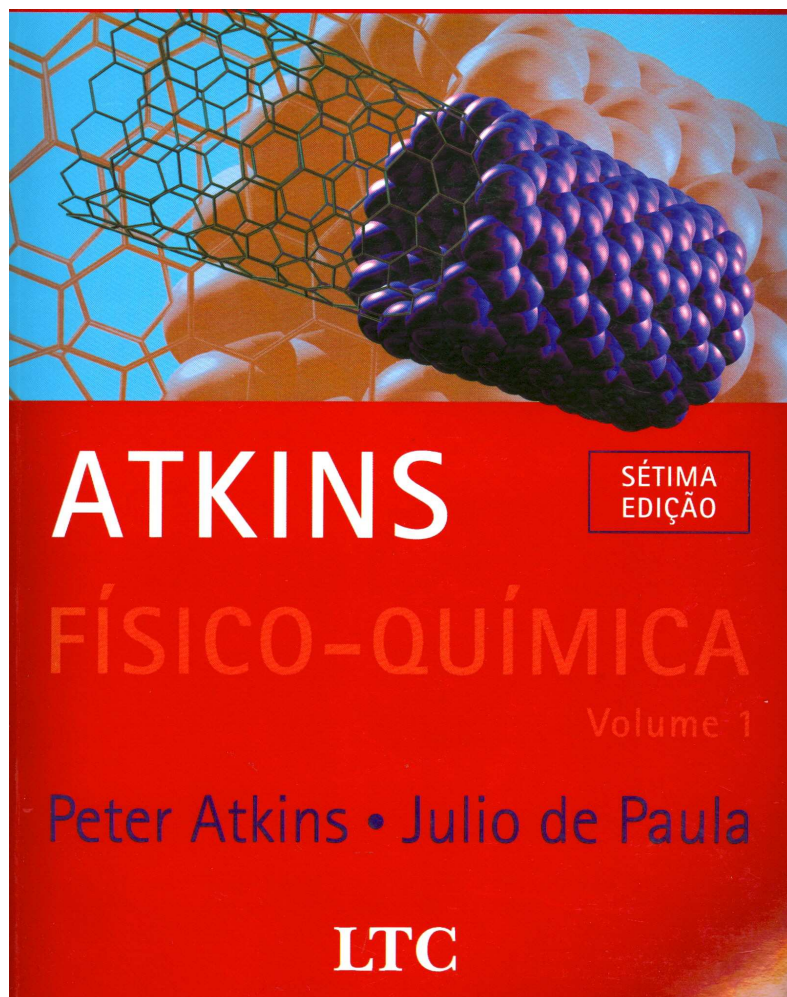


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Volume 2

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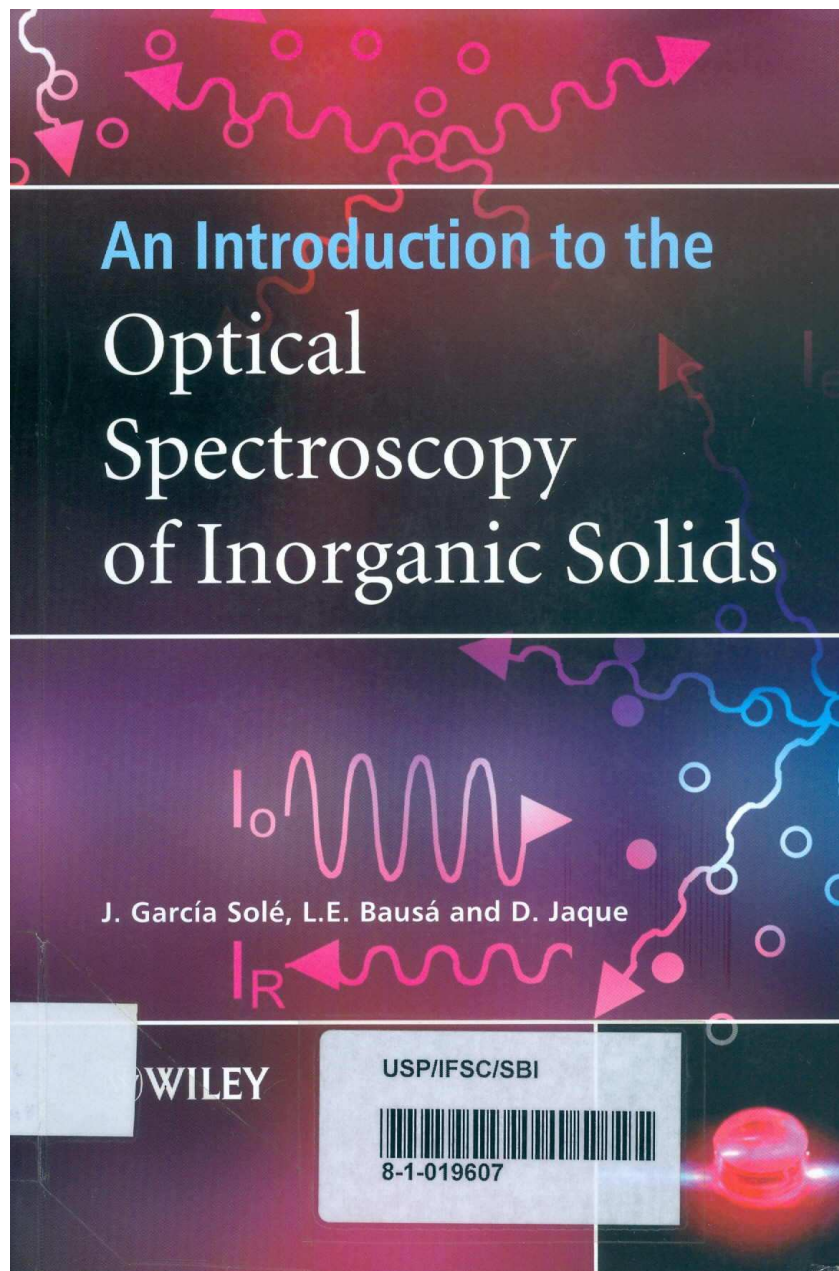
Cap 15 Simetria molecular

Cap 16 Espectros rotacionais e
vibracionais

Cap 17 Transições eletrônicas

Cap 18 Ressonância Magnética

Cap 19 e 20 Termodinâmica estatística

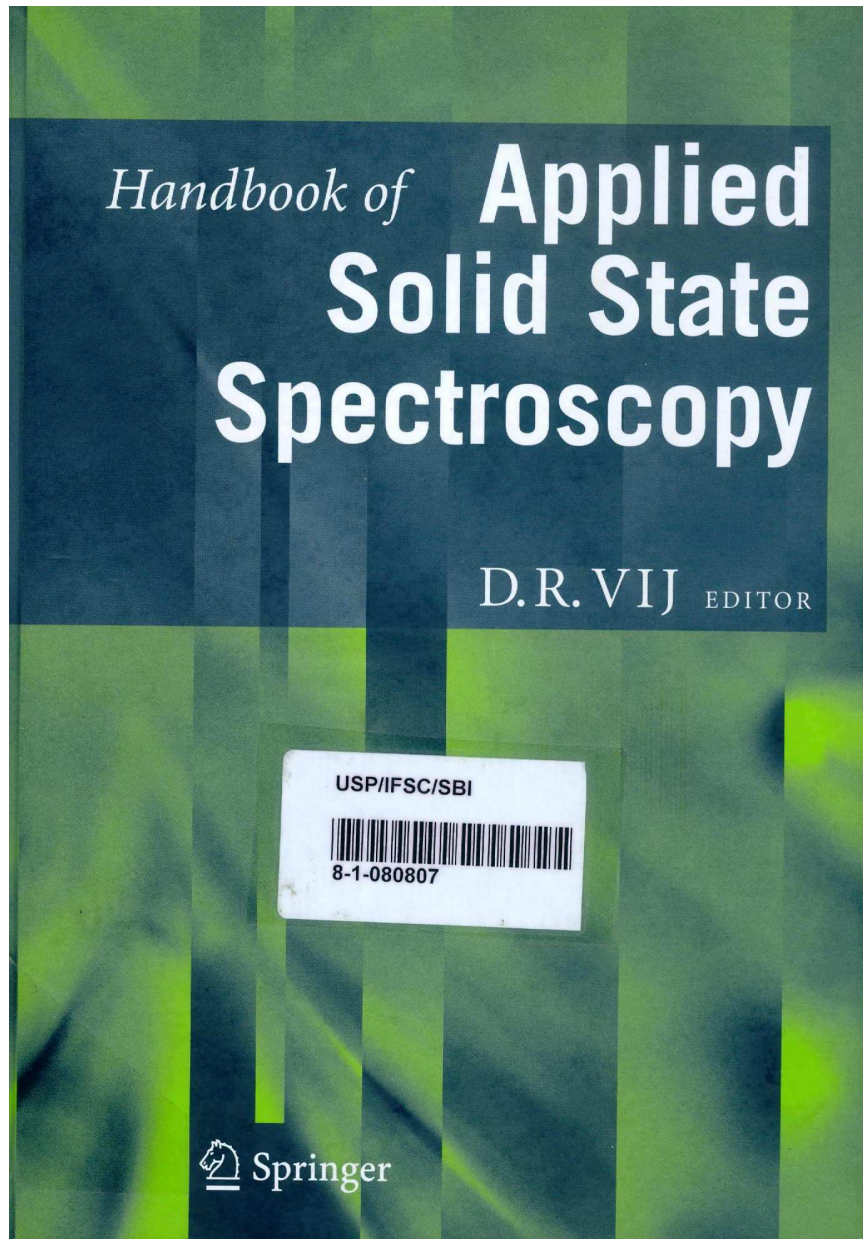


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- 2 – Light sources
- 3 – Monochromators and detectors
- 4 – Optical transparency of solids
- 5 – Optically active centers
- 6 – Applications: Rare earth and transition metal ions
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Chap 1 NMR spectroscopy

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Chap 6 Crystal field spectroscopy

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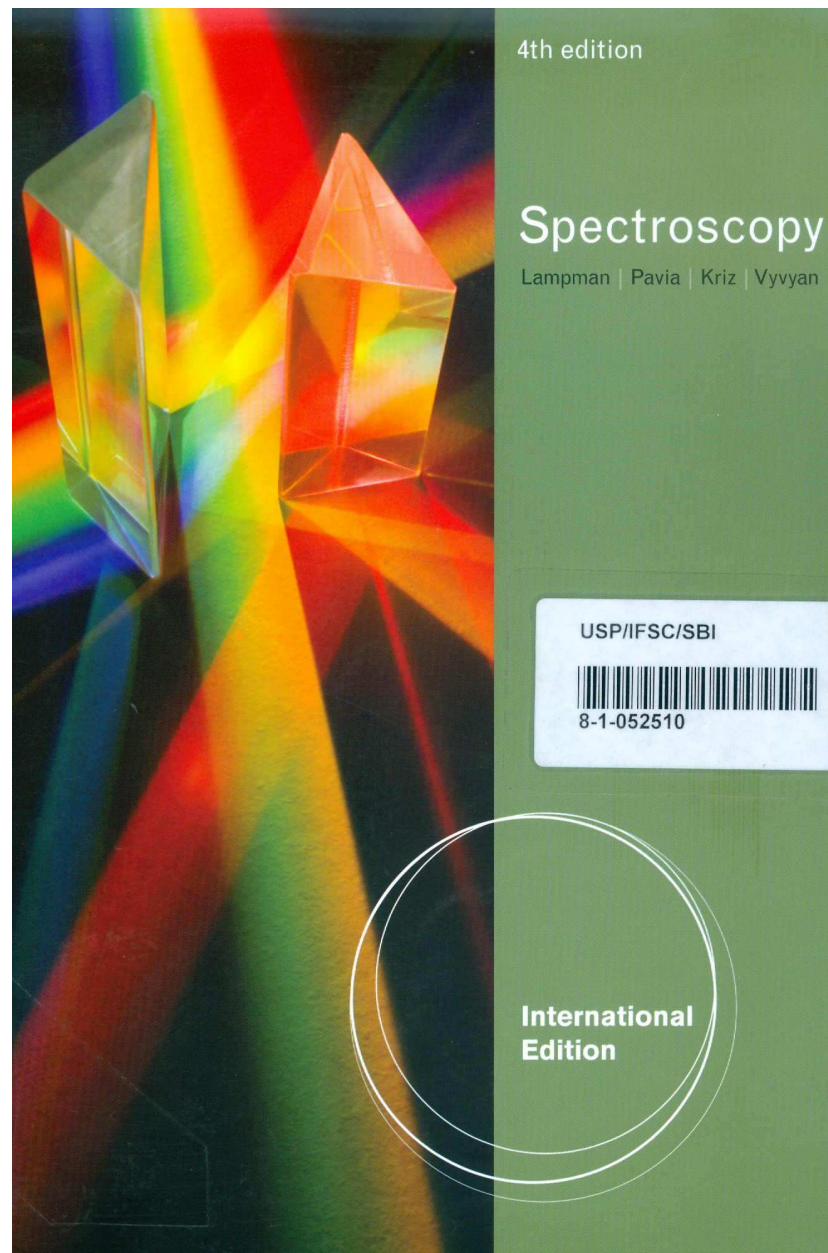
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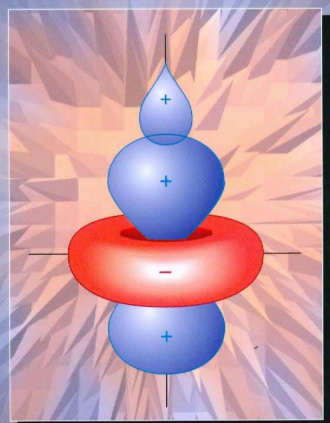
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Metal–Ligand Bonding



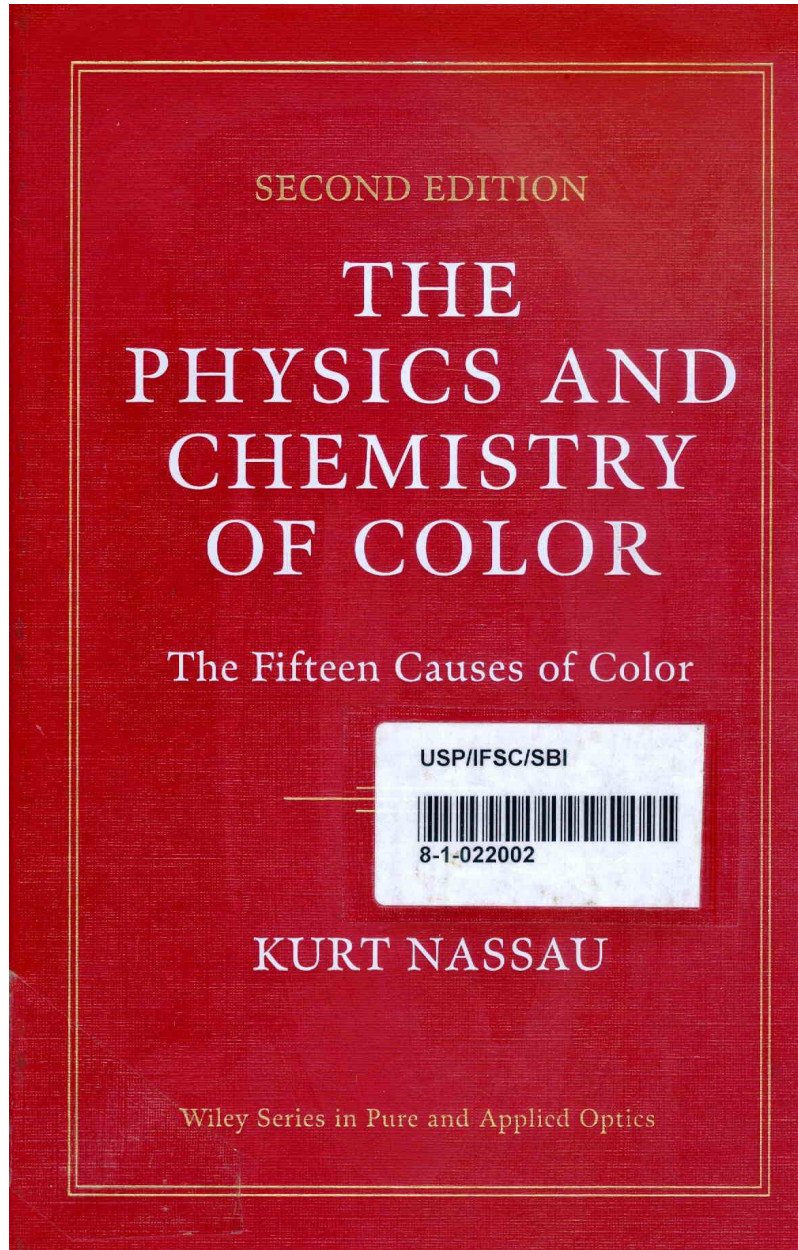
Rob Janes
and
Elaine Moore

Janes & Moore

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(RSC & Open University, 2004)

- 2 – Crystal field theory
- 3 - Electronic spectra of octahedral complexes
- 5 – Tetrahedral complexes
- 8 – Molecular orbital theory
- 9 – Bonding in octahedral complexes
- 10 – Bonding in D_{4h} complexes
- 11 – Bonding in Tetrahedral complexes
- 14 – Charge transfer bands

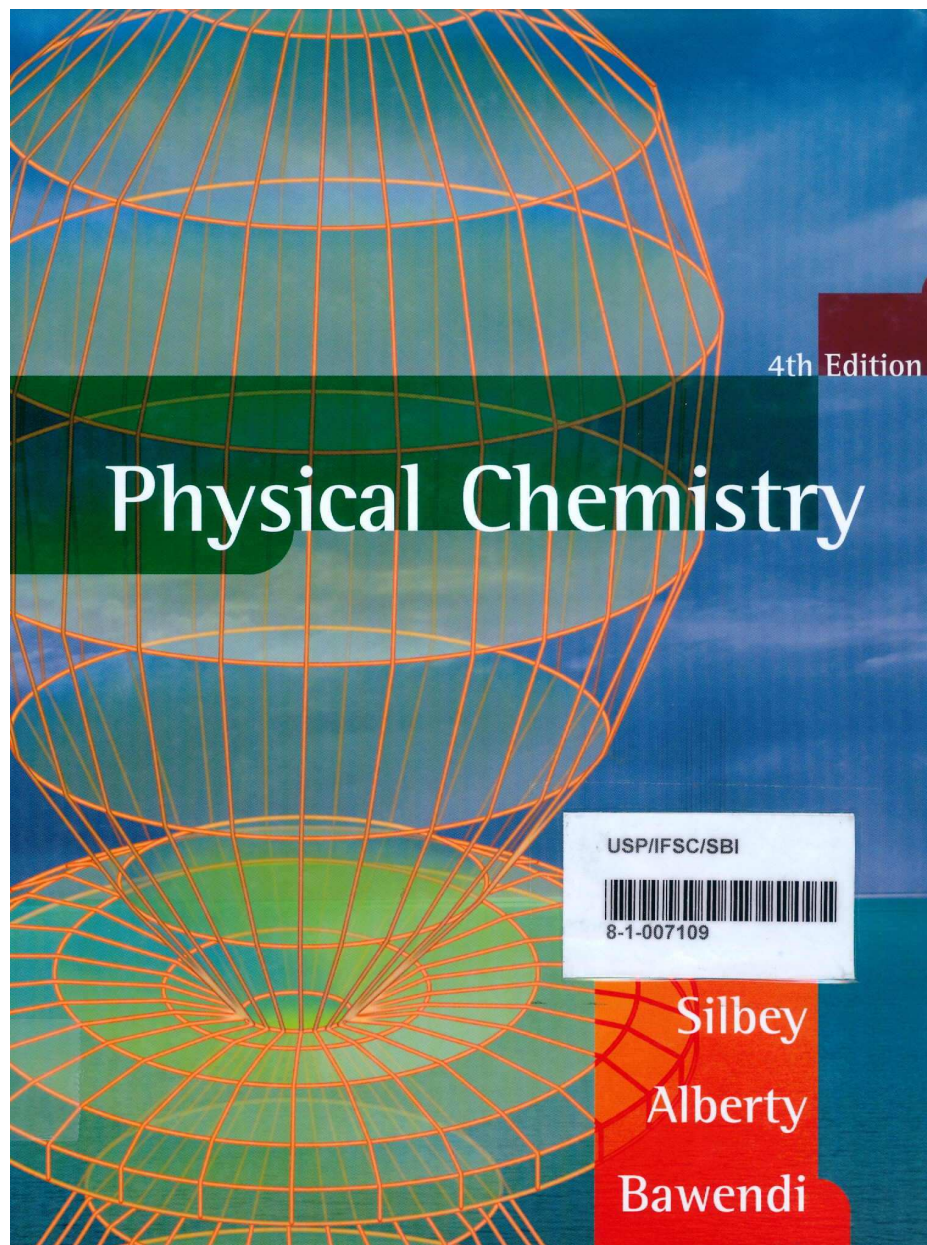


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- 8 – Metals and semiconductors
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- 9 - Quantum theory
- 10 - Atomic structure
- 11 - Molecular electronic structure
- 12 - Symmetry
- 13 - Rotational and vibrational spectroscopy
- 14 - Electronic spectroscopy of molecules
- 15 - Magnetic Resonance spectroscopy

Spectroscopy

VOLUME TWO

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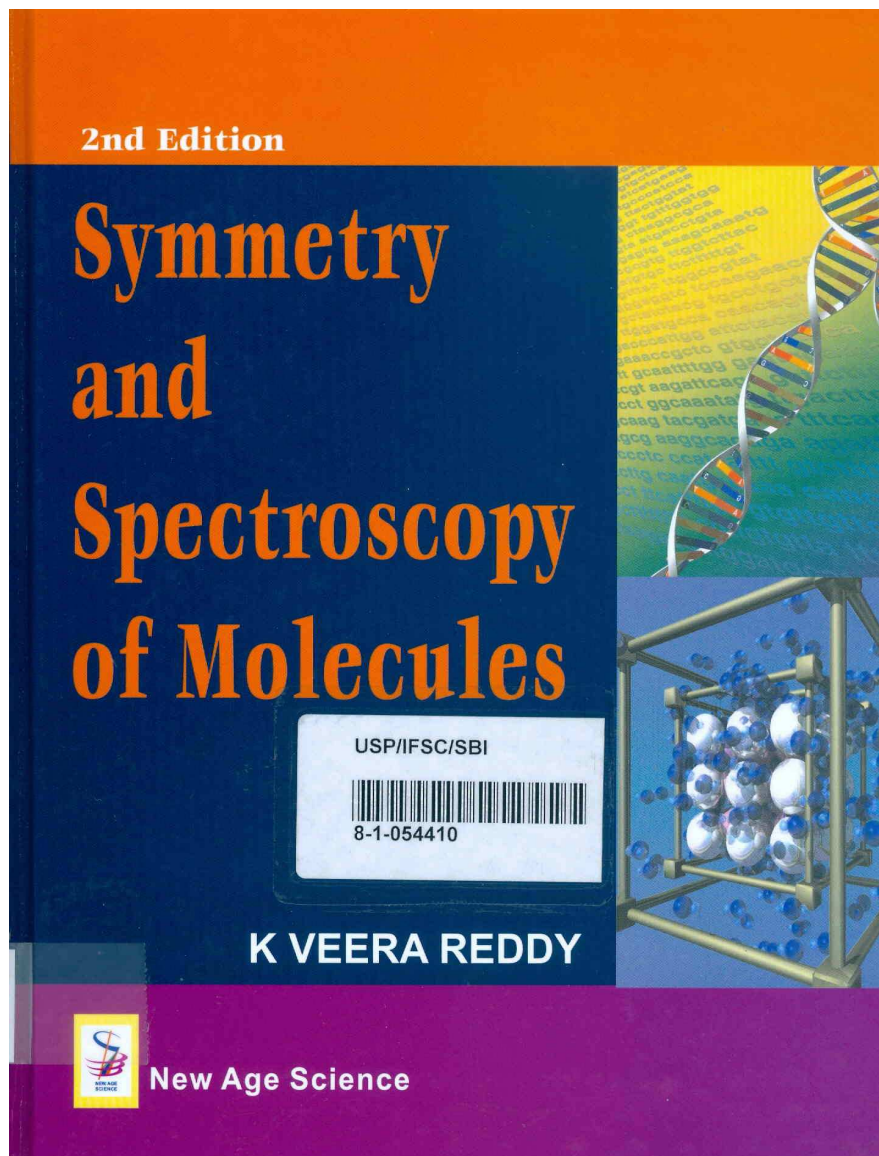
Atomic spectra; NMR; ESR; Mössbauer

Volume 2

Molecular spectra; Symmetry and Group theory; Microwave spectroscopy
Infrared and Raman spectroscopy;
Far-infrared spectroscopy;
Thermodynamics functions

Volume 3

Electronic spectra of diatomic and polyatomic molecules; Fluorescence spectroscopy; Astrochemistry;
Photoelectron spectroscopy



Veera Reddy

***Symmetry and Spectroscopy
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(New Age Science, 2010)

Chap 3 Molecular point groups

Chap 8 Infrared and Raman
spectroscopy of molecules

Chap 9 Molecular orbital theory

Chap 11 Ligand field theory

Chap 12 Electronic spectra of metal
complexes

INFRA-RED PHYSICS

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University of Oxford*

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OXFORD

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Chap 2 Infra-red spectra of molecules

Chap 3 Infra-red optical properties of
solids:lattice vibrations

Chap 4 Infra-red optical properties of
solids: electronic effects in semiconductors

Chap 5 Infra-red detectors

Chap 6 Spectrometers, interferometers

Chap 7 The far infra-red. Molecular
spectra. Ferroelectrics. Superconductors

JOSÉ J. C. TEIXEIRA DIAS

ESPECTROSCOPIA MOLECULAR

FUNDAMENTOS, MÉTODOS E APLICAÇÕES

FUNDAÇÃO CALOUSTE GULBENKIAN

J. Teixeira Dias

Espectroscopia Molecular

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Cap 2 Interação radiação matéria.

Cap 3 Simetria molecular e espectroscopia

Cap 4 Modelos moleculares: vibrações
moleculares; transições eletrônicas;
transições entre estados de spin nuclear

Cap 5 Correlações espectros – estrutura
molecular

Cap 6 Correlações espectros – dinâmica
molecular

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