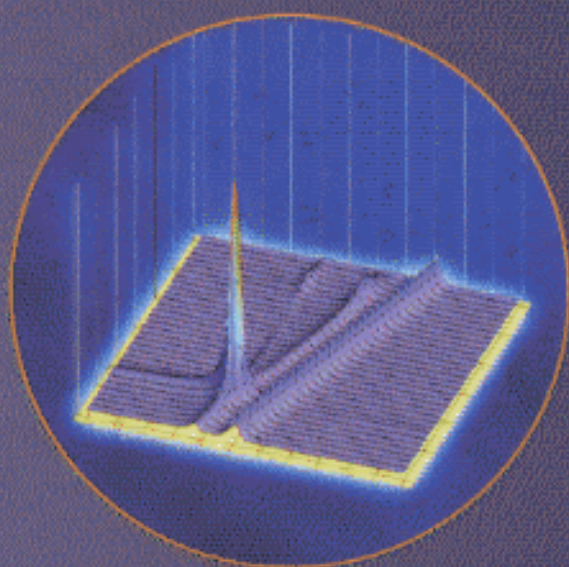


EDITORS
J. M. CHALMERS
P. R. GRIFFITHS



HANDBOOK OF

VIBRATIONAL SPECTROSCOPY

Volume

Applications in Life,
Pharmaceutical and
Natural Sciences

 WILEY

VOLUME 5: APPLICATIONS IN LIFE, PHARMACEUTICAL AND NATURAL SCIENCES

Biomedical Applications

Pathology by Infrared and Raman Spectroscopy <i>M Jackson/H H Mantsch</i>	3227
Role of Near-infrared Spectroscopy in Minimally Invasive Medical Diagnosis <i>C P Schultz</i>	3246
Noninvasive Diagnoses by Near-infrared Spectroscopy <i>M K Alam</i>	3266
Glucose Measurements by Vibrational Spectroscopy <i>H M Heise</i>	3280
Vibrational Spectroscopy Applications in Clinical Chemistry <i>R A Shaw/H H Mantsch</i>	3295
Vibrational Spectroscopic Studies of Microorganisms <i>K Maquelin/L-P Choo-Smith/C Kirschner/ N A Ngo-Thi/D Naumann/G J Puppels</i>	3308
Vibrational Spectroscopy in the Detection of Cancer <i>R K Dukor</i>	3335
In Vivo Near-infrared Spectrometry <i>C E W Gribb/D H Burns</i>	3362
Ex Vivo Vibrational Spectroscopy Imaging <i>L M McIntosh/M Jackson</i>	3376
Functional Infrared Imaging for Biomedical Applications <i>M Attas</i>	3388

Biochemical Applications

Infrared Spectroscopy of Proteins <i>H Fabian/W Mantele</i>	3399
Raman Spectroscopy of Proteins <i>T Kitagawa/S Hirota</i>	3426
Vibrational Spectroscopy of Lipids <i>R N A H Lewis/R N McElhaney</i>	3447
Vibrational Spectroscopy of Nucleic Acids <i>E Taillandier/J Liquier</i>	3465
Vibrational Spectroscopy of Carbohydrates and Glycoconjugates <i>K Brandenburg/U Seydel</i>	3481
Vibrational Spectroscopy of Membranes <i>M Jackson/D J Moore/H H Mantsch/R Mendelsohn</i>	3508
Raman Spectroscopy of Viruses <i>R Tuma/G J Thomas Jr</i>	3519
Molecular Reaction Mechanisms of Proteins Monitored by Time-resolved FT-IR Difference Spectroscopy <i>K Gerwert</i>	3536

Pharmaceutical Applications

Polymorphs, Solvates and Hydrates <i>T Threlfall</i>	3557
The Analysis of Pharmaceutical Substances and Formulated Products by Vibrational Spectroscopy <i>D Clark</i>	3574
Guidelines for the Development and Validation of Near-infrared Spectroscopic Methods in the Pharmaceutical Industry <i>N Broad/P Graham/P Hailey/A Hardy/S Holland/S Hughes/ D Lee/K Prebble/N Salton/P Warren</i>	3590
Applications of Vibrational Spectroscopy to Combinatorial Chemistry <i>D Pivonka</i>	3611

Food Science

Vibrational Spectroscopy of Food and Food Products <i>E C Y Li-Chan/A A Ismail/J Sedman/F R van de Voort</i>	3629
Applications of Vibrational Spectroscopy in Brewing <i>M Meurens/S H Yan</i>	3663
Vibrational Spectroscopy in the Analysis of Dairy Products and Wine <i>S K Andersen/P W Hansen/H V Andersen</i>	3672

Agricultural Applications

Vibrational Spectroscopy to the Analysis and Study of Forages <i>F E Barton III/D S Himmelsbach</i>	3683
Near-infrared Spectroscopy of Cereals <i>P Williams</i>	3693
Vibrational Spectroscopy Imaging of Agricultural Products <i>B O Budevska</i>	3720
Glossary of Terms, Abbreviations and Acronyms Used in the Articles on Biological Spectroscopy	3733

Abbreviations and Acronyms, Glossary, List of Contributors, and Subject Index

Abbreviations and Acronyms <i>J M Chalmers</i>	3743
Glossary of Terms used in Vibrational Spectroscopy <i>J E Bertie</i>	3745
Contributors	3795
Subject Index	3815