

# Table of Contents

## General Aspects

|     |   |    |
|-----|---|----|
| I   | Intermolecular Forces<br><i>T. Zeegers-Huyskens, P. Huyskens</i> . . . . .          | 1  |
| II  | Quantum Chemistry of the Hydrogen Bond<br><i>L.G. Vanquickenborne</i> . . . . .     | 31 |
| III | How to Understand Liquids?<br><i>W.A.P. Luck</i> . . . . .                          | 55 |
| IV  | Dynamic Aspects of Intermolecular Interactions<br><i>L.C.M. De Maeyer</i> . . . . . | 79 |

## Spectroscopic Methods

|      |   |     |
|------|---|-----|
| V    | Vibration Aspects of the Hydrogen Bond<br><i>A. Ceulemans</i> . . . . .   | 107 |
| VI   | Experimental Vibrational Characteristics<br>of the Hydrogen Bond<br><i>T. Zeegers-Huyskens</i> . . . . .  | 123 |
| VII  | IR-Overtone Vibration Spectroscopy<br><i>W.A.P. Luck</i> . . . . .  | 157 |
| VIII | Intermolecular Interactions at Low Temperature.<br>Matrix Isolation Spectroscopy Applied<br>to Hydrogen-Bonded Complexes and Charge<br>Transfer Complexes<br><i>G. Maes</i> . . . . . | 195 |
| IX   | Water—The Most Anomalous Liquid<br><i>W.A.P. Luck</i> . . . . .   | 217 |
| X    | Cooperative Effects Involved in H-Bond Formation<br><i>H. Kleeberg</i> . . . . .  | 251 |
| XI   | NMR Studies of Elementary Steps<br>of Multiple Proton and Deuteron Transfer<br>in Liquids, Crystals, and Organic Glasses<br><i>H.-H. Limbach</i> . . . . .                            | 281 |

|  |     |
|--|-----|
| XII Cluster Research with Spectroscopic Molecular Beam Techniques<br><i>K. Rademann</i> . . . . .                      | 297 |
| <b>Other Methods</b>   |     |
| XIII Molecular Beam Scattering: Method and Results on Intermolecular Potentials<br><i>U. Buck</i> . . . . .            | 317 |
| XIV Molecular Dynamics (MD) Computer Simulations of Hydrogen-Bonded Liquids<br><i>P. Bopp</i> . . . . .                | 337 |
| XV The Energy of Intermolecular Interactions in Solution<br><i>G. Somsen</i> . . . . .                                 | 367 |
| XVI The Mobile Order Created by Hydrogen Bonds in Liquids<br><i>G.G. Siegel, P.L. Huyskens</i> . . . . .               | 387 |
| XVII Hydrogen Bonding and Entropy<br><i>P.L. Huyskens, G.G. Siegel</i> . . . . .                                       | 397 |
| XVIII Specific Intermolecular Forces and the Permittivity and Conductivity of Solutions<br><i>J. Barthel</i> . . . . . | 409 |
| XIX The Role of Hydrogen Bonds in Biochemistry<br><i>Y. Engelborghs</i> . . . . .                                      | 439 |
| XX Hydrogen Bonds in Crystals<br><i>G.S.D. King</i> . . . . .  | 451 |
| XXI Role of Intermolecular Interactions in Chromatographic Separations<br><i>J. Ceulemans</i> . . . . .                | 459 |
| Subject Index. . . . .   | 485 |