

CONTENTS

PART I: FUNDAMENTAL

| | |
|---|-----|
| 1 Essential Properties of X-Rays | 3 |
| 2 X-Ray Scattering, Interference and Diffraction | 18 |
| 3 Crystal Structure | 64 |
| 4 Detailed Interpretation of the Diffraction of X-Rays by Crystals | 83 |
| 5 Diffraction of X-Rays by Imperfect Crystals and Paracrystals | 111 |
| 6 Summary of the Relationship between Structure and X-Ray Diffraction Intensity | 134 |
| 7 The Structure of High Polymeric Substances | 139 |

PART II: EXPERIMENTAL

| | |
|------------------------|-----|
| 8 Experimental Methods | 153 |
|------------------------|-----|

PART III: ANALYTICAL

| | |
|--|-----|
| 9 Identification of Crystals by X-Ray Diffraction | 221 |
| 10 Analysis of Crystallite Orientation | 231 |
| 11 Crystal Structure Analysis of High Polymers | 271 |
| 12 Analysis of the Breadth and Shape of Diffraction Patterns | 323 |
| 13 Analysis Using the Total Diffraction Intensity Distribution Curves of High Polymers | 357 |
| 14 Analysis of Small Angle X-Ray Scattering | 388 |
| Appendix | 436 |
| Acknowledgements | 453 |
| Index | 459 |