

# Foreword

## Moving Ever-Further Ahead

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Materials researchers are increasingly demanding analysis techniques with unlimited space resolutions and sensitivity.

The application of micro beams such as electron-beams, X-rays, and ion-beams appears promising as a means of satisfying these demands. Unfortunately, they are not good at identifying functional groups which is very important to the study of organic materials.

This volume describes our efforts to solve these problems. These have been achieved as part of our research and development related to plastics and paints. One of authors refers to the process as a "bottom-up approach."

As yet, however, we have yet to achieve the desired goal. Moreover, other new requirements have become urgent. In the development of polymer electrolyte films for fuel cells, these stringent requirements are targeted at coexist with water. To overcome these challenges it might be necessary to take not only a so-called "bottom-up approach", but also a "top-down approach", or even change our perception.

Necessity is the mother of invention. I hope that researchers in this field will work hard to realize dramatic improvements in the area of analytical tools.