commercially available microwave reactors that are dedicated for microwave-assisted organic synthesis (chapter 3). A brief summary of alternative processing techniques, the use of microwave reactors and general comments on reaction optimization are presented in the next two chapters.

Two literature surveys, Part A, General organic synthesis, and Part B, Combinatorial and high-throughput synthesis methods, constitute the major part of the book. Part A summarizes recent applications of controlled microwave heating technology in organic synthesis. Organic reactions, from Heck to Pauson-Khand reactions and from Diels-Alder reactions to Michael additions, are discussed in a systematic manner. Afterwards syntheses of N-, O-, and S-containing five- and six-membered heterocyclic ring systems are also presented in this chapter. Part B mainly focuses on the solid-phase organic synthesis, peptide synthesis, multicomponent reactions, and the use of polymer-supported reagents, catalysts, and scavengers. The final chapter presents an outlook and conclusions.

This book is an indispensable information source for organic and medicinal chemists in academia, as well as those in the chemical and the pharmaceutical industry. It provides the reader a well-structured, up-to-date, and exhaustive overview of known synthetic procedures involving the use of microwave technology. Some chapters of this book are sufficiently convincing as to encourage scientists not only to use microwave synthesis in their research, but also to offer training for their students or co-workers.

John F. Kennedy*
Miao Jin
Chembiotech Laboratories,
Institute of Research & Development,
University of Birmingham Research Park,
Birmingham B15 2Q4, UK

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* Corresponding author
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J. Cazes, editor. Ewing's Analytical Instrumentation Handbook, Marcel Dekker, NY, USA, 2005 (xxiv + 1037 pp., £145.00, ISBN 0-8247-5348-8)

Analytical methods are applied in a number of different industrial processes. These may be employed for a variety of purposes such as research, development, manufacturing monitoring or quality control practices. Thus, analytical techniques play a vital role in all the industrial processes. Science has witnesses a rapid expansion of all types of analytical methods, and different instruments have come into picture with the advancement of technology. This rapidly growing area has bought together scientists from different disciplines to develop techniques, which are highly sensitive, accurate and less time consuming.

Ewing's Analytical Instrumentation Handbook provides a basic introduction, theory and methodology of different instrumental techniques. The book opens with a basic chapter on the laboratory use of computers. The topics of flow injection/sequential injection analysis, inductively coupled plasma optical emission spectrometry, atomic absorption spectrometry, spectrophotometers, molecular fluorescence and phosphorescence have been described in the subsequent chapters. The vibrational spectroscopy, photoacoustic spectroscopy, chiroptical spectroscopy, nuclear magnetic resonance, electron magnetic resonance and auger electron spectroscopy have been discussed in the individual chapters.

Mass spectrometry (MS) instrumentation has undergone a dramatic increase in popularity with the recognition that MS is an invaluable tool in biological analysis. The separate chapters have been included on the mass spectrometry, thermoanalytical instrumentation, electrochemical stripping and electrochemical lab-on-a-chip in the book. Biosensors are analytical devices that use a biological or biologically derived material immobilized at a transducer to measure one or more analytes. Biosensor technology has also been given in a summarized form.

Chromatographic methods are unique in that they posses dual capabilities, the mixture is separated into components and simultaneously the quantity of each component present is measured. Different chromatographic techniques (high performance liquid chromatography, gas chromatography, supercritical fluid chromatography, gel permeation and size exclusion chromatography etc.) have described in individual chapters. The validation of chromatographic methods has been discussed in the last chapter.

In conclusion, the book provides a detailed description of the most frequently utilized analytical instrumental techniques and it can be unique resource not only to the students and academicians but also the researchers working in the area of analytical techniques.

John F. Kennedy*
Parmjit S. Panesar
Chembiotech Laboratories,
Institute of Research & Development,
University of Birmingham Research Park,
Birmingham B15 2Q5, UK

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* Corresponding author
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K. S. Birdi, Scanning Probe Microscopes: Applications in Science and Technology, CRC Press, Boca Raton, FL, USA, 2003 (314 pp., £85.00, ISBN 0-8493-0930-1).

Mankind has always been keen to understand all kind of natural phenomena. Typical of all humans, seeing is believing,

so microscope attracted much interest for many decades. The degree of resolution in microscopy has indeed increased from a few hundred to almost a million times. Thus, techniques like electron microscope allowed us to see molecular resolution. Probably no other scientific techniques have contributed so much to scientific developments in biology, medicine and material science as the microscopic techniques. *Scanning Probe Microscopes: Applications in Science and Technology* deals with one of the latest developed microscopy technique called scanning probe microscopy.

The book opens with an introduction to the history of microscopy and the scanning probe microscopes (SPMs). The basics of scanning tunnelling microscope (STM), atomic force microscope (AFM), friction force microscopy (FFM) are discussed. Each subsequent chapter is related to different kinds of molecular species and systems. The lipid like molecules and self-assembly monolayers (SAMs) are described in the chapter 3. DNA is one of most important molecules for genetic evolution and mankind and the very first image of DNA was actually obtained by using SPM. The applications of SPMs in understanding the structure of biopolymers and synthetic biopolymers are described in the subsequent chapter.

The applications of STM and AFM to the studies of crystal structures have been of much interest. The chapters 5 and 6 provide summarized information on the crystal structures by STM and AFM, and studies of solid surfaces by SPMs, respectively. In recent years, number of different applications in the areas of STM, SFM and AFM has increased appreciably. The last chapter of the book is focussed on the diverse applications of SPMs and nanotechnology.

In conclusion, the book provides systematic coverage and in-depth information on the various aspects of SPM applications in science & technology and can be excellent resource for all the persons working in this exciting field.

Parmjit S. Panesar
John F. Kennedy*
Chembiotech Laboratories,
Institute of Research & Development,
University of Birmingham Research Park,
Vincent Drive, Birmingham B15 2Q6, UK

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* Corresponding author
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S. H. Yalkowsky, Y. He (Eds.), Handbook of Aqueous Solubility Data, CRC Press, Boca Raton, USA, 2003 (v+ 1496 pp., $319.95/£183.00, ISBN 0-8493-1532-8)

The *Handbook of Aqueous Solubility Data* is an extensive compilation of published data for the solubility of a wide variety of organic nonelectrolytes and unionized weak electrolytes in water. It includes data for pharmaceuticals, pollutants, nutrients, herbicides, pesticides, and agricultural, industrial, and energy-related compounds. This hand book contains over 16,000 solubility records for more than 4000 compounds and is divided into 5 parts on solubility data, reference, and three indices.

Each compound is identified in this handbook by a sequential number along with molecular formula, compound name, synonyms, molecular weight, Chemical Abstracts Service Registry Number, melting point, and boiling point if available. The compounds are sorted by their molecular formula using the Hill system. Each compound can contain up to five synonyms. This is followed by the Chemical Abstracts Service Registry Number (RN), melting point (MP) in Celsius, molecular weight (MW), and boiling point (BP) in Celsius. Multiple values are presented whenever available. These are sorted by temperature and then by reference source.

The reference citation is given as a four-character code in which the first character is alphabetic, referring to the first author's last name, and the next three are numeric. The complete reference citation is provided in the Reference section. The detailed source reference about the relative compound can be found conveniently in this way.

Each entry has a 5-point evaluation score for reporting of the data, the full citation, and comments from the authors when necessary. A 5-point evaluation is provided for quality of the reporting of temperature (T), purity of solute (P), equilibration time/agitation (E), analysis (A), and accuracy and/or precision (A). Entries in the indices are referenced to the compound sequential numbers, not to page numbers.

For user convenience, all solubility data are converted to moles per liter and grams per liter and the reported numerical temperature values are converted to Celsius. The alphabetization of chemical names and plenty of entries offer completely extensive information of aqueous solubility data expediently. This book is suitable for the researchers in the fields of chemistry and related areas.

John F. Kennedy*
Miao Jin
Chembiotech Laboratories,
Institute of Research & Development,
University of Birmingham Research Park,
Birmingham B15 2Q7, UK

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* Corresponding author
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