

## Book reviews

D. Diamond (Ed.), *Principles of Chemical and Biological Sensors*, Wiley, New York, 1998 (ISBN: 0-471-54619-4, hardback). 334 pp. Price £ 70.00.

The increase in sensor research and development as well as the commercialisation of sensor technology over the last 20 years makes this introduction to the principles of chemical and biological sensors timely. The book covers a large portion of the main sensor research areas (ion selective electrodes, amperometric, biological and optical sensors) both in terms of their classification and presentation of the underlying principles. The latter are introduced in a clear and simple way making the book ideal for postgraduates engaged in sensor research. There are many examples and case studies (especially in the biological sensors' section) as well as reasonable referencing to give the reader a good overview of current applications. The clarity of presentation and abundance of examples gives this monograph in our opinion an advantage over another very good summary of sensors' principle that has recently appeared in the literature [1].

The monograph benefits from the fact that all the contributing authors are either directly or indirectly involved with the Dublin City University Biomedical and Environmental Sensor Technology (BEST) Centre where sensor research has flourished during the last decade. This has also resulted in a uniform style rarely found in multi-authored monographs.

Unlike other reviews on the same topic the importance of electrochemical sensors is not over stressed and indeed there are excellent chapters on the emerging types of optical and biological sensors as well as smart sensors and sensor arrays. Having said that, the chapter on amperometric detection includes a very good classification of voltammetric methods. However the absence of chapters devoted to sensors based on metal oxide semiconductors and field effect transistors constitutes an obvious omission. Also the chapter on sensor signal processing, although a very useful step by step introduction to the subject, is rather poorly linked to the core of the monograph. It might have been better to give a summary in an appendix.

An interesting feature of most chapters of the book is the critical presentation of current and future trends in sensor research and development, with particular emphasis on the

needs of the marketplace. The monograph is typical of the high standards of the Series of Monographs on Analytical Chemistry and Its Applications published by Wiley. It could have benefited, however, from more photographs of commercial sensor devices.

In summary, this is a very good introduction to the principles of chemical and biological sensors and a brief overview of important applications and trends that reads very well. It should be useful to postgraduates in sensor research and scientists that are end-users of sensor technology.

### References

- [1] J. Janata, *Principles of Chemical Sensors*, Plenum Press, New York, 1989.

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Introduction to Chemical Reaction Engineering and Kinetics. R.W. Missen, C.A. Minns and B.A. Saville, Wiley, 1999, 672 pp., hardback, £29.95, ISBN 0-471-16339-2.

It is perhaps unfortunate that the first new introductory textbook to CRE for some years should come out so soon after the third edition of Levenspiel; it invites comparisons, and I am afraid the comparisons are not particularly flattering to the present work. It is long, slightly longer than Levenspiel of 672 pages, and densely packed, and has the feel of a 'weighty tome' compared to Levenspiel's more relaxed style. It also has some of the skimpiest right and bottom margins I have ever seen, although the left margin is generous enough for any budding Fermat. This reinforces the general impression of cramming things in.

After an introductory chapter and a chapter on elementary reactor models, there follow eight chapters on kinetics,