

Altogether the DECHEMA Corrosion Handbook is a very valuable reference book for all engineers working in the area of corrosion, provided that the reader has a thorough knowledge of this area and is thus able to critically evaluate the information in the figures, tables and text of individual chapters. The organization of the Handbook is clear, and it is rather easy for the user to find the desired information. In addition to this, the large number of litera-

ture references cited in the Handbook (about 400 for most chapters, citations up to 1980) offers even more information to users who have to solve special corrosion problems.

Martin Stratmann
Max-Planck-Institut für Eisenforschung
Düsseldorf (FRG)

Miscellanea

Photophysics of Polymers. Edited by *Charles E. Hoyle* and *John M. Torkelson*. American Chemical Society, Washington, D.C., USA 1987. 531 pp., \$ 119.95.—ISBN 0-8412-1439-5

This clearly structured and nicely presented book stems from a symposium of the Division of Polymer Chemistry of the American Chemical Society which took place in Anaheim, CA, in September 1986. The book is designed to provide scientists engaged in basic and applied polymer research with a comprehensible text on polymer photophysics. The philosophy of the book is that photophysical phenomena allow one to gain an accurate picture of the properties of polymers, both in solution and in solid phases. Based on the historical development as well as on current practice, the book is divided into six main sections: 1) Overviews, 2) Polymer Dynamics and Complexation, 3) Excimer Photophysics, 4) Energy Migration, 5) Luminescent Polymerization Probes, 6) Photophysics of Silicon-Based Polymers.

On the whole, the book is a timely and most welcome addition to the literature in a field which has recently seen a strong increase of interest. In fact several works on related subjects have been published over the last few years: the monographs by *J. Guillet*: "Polymer Photophysics and Photochemistry; an Introduction to the Study of Photoprocesses in Macromolecules" (Cambridge Univ. Press, 1985) and *J. F. Rabek*: "Mechanisms of Photophysical Processes and Photochemical Reactions in Polymers; Theory and Applications" (Wiley, New York 1987) as well as the multi-author volumes: "Polymer Photophysics, Luminescence, Energy Migration and Molecular Motion in Synthetic Polymers" (edited by *D. Phillips*, Chapman and Hall, London 1985), "Photophysical and Photochemical Tools in Polymer Science: Conformation, Dynamics, Morphology" (edited by *M. A. Winnik*, NATO ASI-Series C, Vol. 182, D. Reidel, Dordrecht, Netherlands 1986) and "New Trends in the Photochemistry of Polymers" (edited by *N. S. Allen* and *J. F. Rabek*, Elsevier, London 1986). In my opinion the new book edited by *Hoyle* and *Torkelson* is extremely valuable, since it stands at the forefront of this dynamic field which offers many possibilities for future developments. The presentation is—unusually for a multi-author book!—balanced; most of the active research groups in the field are well represented. Of course, one cannot ex-

pect a book with some eighty contributors to present a unified viewpoint; however, one gets a good snapshot of the situation. Furthermore, even the camera-ready printing does not impair the presentation too much.

The individual contributions stress the application of photophysical methods to polymers, and it is indeed gratifying for a physicist to see such devoted use of physical methods in chemistry research. While most groups have realized the importance of time-resolved measurements (the contributions by the groups of *M. D. Fayer*, *H. F. Kauffmann* and *S. E. Webber* highlight this trend), an intimate connection between theory and experiment is—in general—still lacking. Several contributors have, in my opinion, not always been cautious in interpreting their data, and one sometimes gets the feeling that the method is over emphasized; in many cases I would welcome a comparison of photophysical results with data obtained by other physico-chemical methods.

In summary, the editors have achieved their goal of providing a picture of the state-of-the-art situation in the photophysics of polymers. I view the book as a valuable addition to the library of scientists actively involved in polymer research.

Alexander Blumen
Experimentalphysik IV
Universität Bayreuth (FRG)

Physics at Surfaces. By *A. Zangwill*. Cambridge University Press, Cambridge 1988. xiii, 454 pp., hardcover £ 40.00.—ISBN 0-521-32147-6

Physics at Surfaces is an excellent introductory book for students or other researchers interested in surface processes. It is certainly the best source of general information about the concepts and techniques of surface physics/chemistry, painting a broad-brush picture of the current state of the field and covering a broad range of topics. Characteristics of both metal and semiconductor surfaces, clean and adsorbate-covered are described. Topics such as the thermodynamics and electronic structure of surfaces, and adsorption/desorption phenomena are discussed. Several emerging, albeit not understood areas, such as metal organic chemical vapor deposition (MOCVD) and energy transfer at or near surfaces are also introduced.