

sistently laid out. The progression of the text through individual reaction steps has meant that there is a fair amount of duplication of structural formulae as we pass through the individual stages of a synthesis. Infuriatingly, the structural formulae are not numbered and it is therefore quite difficult to connect the text to the diagrams, especially when there is more than one photoproduct presented (e.g. pp. 20, 43 and 94): some compound numbering would have been much more use than the relative molar masses, which are given in large print! Nevertheless, the book should become a useful and up-to-date successor to the early slim volumes of *Organic Photochemical Syntheses* (Srinivasan, 1971 and 1976). Practising organic chemists will certainly like the 17 page graphical index of the book's photochemistry.

Overall, the authors have largely succeeded in their aim of producing a useful *vade-mecum* for the experimental organic photochemist, especially because the price of the book is sufficiently modest that it will allow the purchase of personal copies.

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Polymeric Materials for Microelectronic Applications

by H. Ito, S. Tagawa and K. Horie (eds.), ACS SYMPOSIUM SERIES No. 579, Published by the American Chemical Society, Washington, DC, ISBN 0-8412-3055-2, 1994, \$110.

This book is an edited text based on the main lectures presented at a conference on Polymers for Microelectronics held in Kawasaki, Japan during November 1993. The physical and chemical properties of many polymer materials makes them ideal and versatile candidates for various applications in the electronics industry. This provides the reader with what was then a snapshot of the current developments in this rapidly expanding field. Although the conference took place two years ago the contributions nevertheless appear to be state-of-the-art in terms of developments in the field. Furthermore, many of the contributions are from Japanese scientists and therefore, the book provides a unique insight into Japanese developments. The book is over 450 pages in length and is divided into five major themes.

The first section covers the chemistry and physics of irradiated polymers comprising a total of four chapters. Here the emphasis is on the photophysics, photo-optical, liquid crystalline, electron capture and luminescence properties of aromatic polymers. The properties of aromatic polyimides and cinnamates are heavily covered centering on the mechanistic features involved with emphasis on their photoreactions and luminescence characteristics. The second section deals with the science and technology of resist materials comprising twelve chapters in all. There is a diversity of topics here covering chemically amplified resists, dual tone negative resists, donor-acceptor reactions, photogeneration of acids, the use of various cationic initiators, influence of water, thermal properties, modelling and surface imaging of resist materials. The third section covers insulating polymers and comprises a total of four chapters. Here photosensitive polyimides are covered in detail as well as epoxy resins. The fourth section on optoelectronic, conduction and photoresponsive systems has a total of nine chapters. The subject areas here are wide-based covering a variety of specialised applications dealing with waveguiding for high temperature materials, fluorinated polyimides for birefringent optical materials, excitation dynamics, charge-carrier generation, radiation dosimetry, future of fullerenes, holography and photocontrol of liquid crystals. The final section deals with silicon-containing polymers and covers their optical/electronic properties and structure and synthesis. Some of the chapters are presented as overviews of the subjects while others are in research paper format which makes their readability somewhat difficult.

The book is nicely presented and well illustrated and referenced throughout as would be expected for this type of format. In general, the book forms a useful basis from which imaging scientists are able to further develop, compare and gain experience and information in terms of the scientific and technological limitations of the materials currently being used and considered. It is also a valuable text for the applications photochemist and physicist and is a must for libraries in academia, industry and government laboratories.

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