

involve him in the excitement of discovery and to keep him reading to the end.



Anyone with an ounce of the scientist romantic in him will love a story which rivals *Star Wars* for fantasy and *Gone With The Wind* for romance. It is the sort of book which brings science to the attention of the general public and gives it a good name.

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Side Chain Liquid Crystal Polymers. Edited by C. B. McArdle. Blackie and Son Ltd., London 1989. 448 pp., bound, £ 75. – ISBN 0-216-92503-7 (USA: 0-412-01761-X)

This book presents an overview of thermotropic side chain liquid crystalline polymers, one of the rapidly growing innovative fields in liquid crystalline materials research. The book is made up of clearly structured contributions from acknowledged experts in the field. Within 14 chapters, theoretical concepts, structural and synthetic aspects, characterization methods and properties, and a discussion of potential applications are covered. Since the book is exclusively dedicated to thermotropic side chain liquid crystalline polymers it is certainly more than an extension to the existing reviews.

In an introductory chapter the editor McArdle summarizes the scope and potential for thermotropic side chain liquid crystalline polymers, focusing on applications based on electro-thermo-optical effects. The second chapter on the physical principles of the polymers is written by M. Warner and the syntheses and different structural principles of liquid crystalline polymers containing mesogenic side groups are

covered by Percec and Pugh. The authors not only describe the 'classical' side chain systems, but also novel types of structural modifications. The following chapter by Gray deals in detail with the synthesis and properties of side chain liquid crystal polysiloxanes. The placing of liquid crystalline polysiloxanes into a separate chapter is questionable, as it overlaps and repeats some parts of the previous chapter. Le Barny and Dubois describe the scope and potential of chiral smectic C liquid crystal side chain polymers, which are currently under extensive investigation because of their potential applications. The following three chapters 6–8 summarize the characterization of side chain liquid crystalline polymers. The chapter by Noel covers, with well chosen examples, macroscopic structural characterization, by DSC, optical microscopy, miscibility studies and X-ray methods. The chapters on dielectric relaxation spectroscopy (Haws, Clark and Attard) and on NMR methods used to study molecular order and motions (Böffel and Spiess) treat the theoretical background and give experimental results. The contribution on cholesteric side chain polymers (Shibaev and Freidzon) discusses especially their optical properties and demonstrates features of cholesteric materials. Side chain liquid crystalline elastomers are described by Gleim and Finkelmann. The properties of side chain liquid crystalline polymers in an electric and a magnetic field are summarized by Haase. Chapters 12 and 13 are concerned with two potential applications of side chain liquid crystalline polymers; as optically nonlinear media (Möhlmann and van der Vorst) and as materials for optical data storage (McArdle). Both contributions also cover theoretical aspects and compare side chain liquid crystalline materials with low molar mass liquid crystals and inorganic materials. The last chapter by Janini, Laub, Purnell and Tyagi treats theoretical aspects as well as experimental results concerning the use of side chain liquid crystalline polysiloxanes as the stationary phase in gas-liquid chromatography.

The book demonstrates the interactions which are necessary in such an interdisciplinary research area. All chapters are distinctly structured and well written. Figures, formulas and tables are uniform and clearly incorporated within the text. The more general introductions into each specific topic and the extensive up to date (1988) literature references are very valuable. However, the organization of the chapters is not entirely convincing. In addition, more specific cross references to other chapters would be helpful. Nevertheless, the book is highly recommended to academic and industrial researchers in the field of liquid crystals and is also of general interest to physicists and chemists working in linear and nonlinear optics, optoelectronics and molecular electronics.

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