Preface

Light can do a lot of quite different things to polymers, and light is employed in various quite different technical applications related to polymers that have become beneficial to humans and are influencing the daily lives of many people. These applications include photocopying machines, computer chips, compact disks, polymer optical fiber systems in local area networks, and printing plates. There are many other very useful practical applications. Since these are commonly dealt with separately in monographs or review articles, the idea arose to comprehend and combine in a single book all important developments related to polymers and light that concern industrially employed practical applications or show potential for future applications. Actually, I first contemplated writing a book dealing with both physical and chemical aspects related to the interaction of light with polymers and to the synthesis of polymers with the aid of light while I was lecturing on certain topics of this field at the Technical University in Berlin and at Rika Daigaku (Science University) in Tokyo. However, I only started to immerse myself in this extensive project when I retired from active service some time ago. Upon retrieving and studying the salient literature, I became fascinated by the breadth of the field. The results of this project are presented here for the first time. In referring to the different topics, I have tried to deal with the fundamentals only to the extent necessary for an understanding of described effects. In attempting to be as concise as possible, descriptions of technical processes and tools have had to be restricted to a minimum in order to keep the extent of the book within reasonable limits. To somewhat compensate for this flaw, a rather comprehensive list of literature references also covering technical aspects is presented at the end of each chapter.

Writing a monograph implies that the author can both concentrate on the subject in a quiet office and rely on the cooperation of an effectively functioning library. Both were provided by the Hahn-Meitner-Institute, HMI, and I am very grateful to the management of this institute, especially to Prof. Dr. M. Steiner, Scientific Director, Chief Executive, for giving me the opportunity to work on this book after my transfer to emeritus status. Special thanks are due to Prof. Dr. H. Tributsch, head of the Solar Energy Research Division of HMI, for appreciating my intention to write this book and for providing a quiet room. The HMI library under the direction of Dr. E. Kupfer and his successor Dr. W. Fritsch has sub-
stantially contributed to the preparation and completion of the manuscript by delivering necessary resources and executing many retrievals. The latter yielded most of the literature citations upon which this book is based. In this context, I wish to express my special gratitude to senior librarian Mr. M. Wiencken, who has performed an excellent job. Other people who proved very helpful in this project are Mr. D. Gafßen, who has kept the computer running, and Mrs. P. Kampfenkel, who has scanned various figures.

The personnel of the publisher, Wiley-VCH, worked carefully and rapidly on the editing of the manuscript after its completion in the summer of 2006. This is gratefully acknowledged.

Last but not least, credit has to be given to the efforts of the author’s family. My wife Hildegard has accompanied the progress of the project with encouraging sympathy and moral support, and my two sons, Dr. Ronald Schnabel and Dr. Rainer Florian Schnabel, have given substantial advice. The latter has critically read all chapters of the manuscript.

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Wolfram Schnabel