

THE LIQUID CRYSTALS BOOK SERIES

CHEMISTRY OF DISCOTIC LIQUID CRYSTALS

FROM MONOMERS TO POLYMERS

Sandeep Kumar



 CRC Press
Taylor & Francis Group

THE LIQUID CRYSTALS BOOK SERIES

Edited by
Virgil Percec

Department of Chemistry
University of Pennsylvania
Philadelphia, PA

The Liquid Crystals book series publishes authoritative accounts of all aspects of the field, ranging from the basic fundamentals to the forefront of research; from the physics of liquid crystals to their chemical and biological properties; and from their self-assembling structures to their applications in devices. The series will provide readers new to liquid crystals with a firm grounding in the subject, while experienced scientists and liquid crystallographers will find that the series

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General Chemistry

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The self-contained properties of discotic liquid crystals (DLCs) render them powerful functional materials for many semiconducting device applications and models for energy and charge migration in self-organized dynamic functional soft materials. The past three decades have seen tremendous interest in this area, fueled primarily by the possibility of creating a new generation of organic semiconductors and wide viewing displays using DLCs. While a number of books on classical calamitic liquid crystals are available, there are, as yet, no books that are dedicated exclusively to the basic design principles, synthesis, and physical properties of DLCs.

The first reference book to cover DLCs, **Chemistry of Discotic Liquid Crystals: From Monomers to Polymers** highlights the chemistry and thermal behavior of DLCs. Divided into six chapters, each with a general description, background, and context for the concepts involved, the book begins with a basic introduction to liquid crystals, describing molecular self-assembly and various types of liquid crystals. It outlines their classification, covers their history and general applications, and focuses on DLCs and their discovery, structure, characterization, and alignment.

The book goes on to examine the chemistry and physical properties of various monomeric DLCs, including 25 sections describing the synthesis and mesomorphic properties of monomeric DLCs formed by different cores. The bulk of the book covers the chemistry and mesomorphism of discotic dimers, oligomers, and polymers and concludes with a look at some applicable properties of DLCs.

A comprehensive and up-to-date resource, this book is designed to be accessible and of value not just for students and researchers but also to the directors and principal investigators working in this field, providing the foundation and fuel to advance this fast-growing technological field.

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