

BOOK REVIEW

New Developments in Liquid Crystals Research

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Cholesteric liquid crystals are historically the first liquid crystalline materials discovered by Friedrich Reinitzer in 1888. Since then, cholesteric liquid crystals are in the focus of scientists and engineers attracting their attention with the peculiar optical and electro-optical properties. Three of the book's chapters are devoted to different techniques of preparation of microencapsulated polymeric particles and flakes and their electro-optical properties. These composite liquid crystal materials exhibit attractive optical and electro-optical properties with potential for various device applications.

The reader of this book will find another attractive approach for preparation of liquid crystal nano-composite materials, namely liquid crystals containing nano-materials, such as carbon nano-tubes, quantum dots, etc, is presented in this book. The impact of the nano-particles on the physical properties of these composite materials are reviewed with focus on improvement of the liquid crystal display performance when the conventional liquid crystal, which they contain, is replaced by liquid crystal nano-composite material.

Liquid crystal materials with metal atom in their molecular structure, the so called metallomesogens, combine the properties of liquid crystal and metals and thus becoming attractive for certain applications. One of the Chapter of the book provides an overview on the structures and magnetic properties of several metallomesogenic liquid crystal materials studied by Electron paramagnetic resonance (EPR) and Mössbauer spectroscopy.

In nowadays the liquid crystals are widely employed in many electronic devices in the form of liquid crystal displays, which are quite complex devices containing uniformly aligned liquid crystal thin layer inserted in between two supporting solid substrates. In its last Chapter the book offers to the reader a broad overview of different alignment technologies and methods enabling the uniform liquid crystal alignment with author's focus on liquid crystal/solid surface interactions as its origin.

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