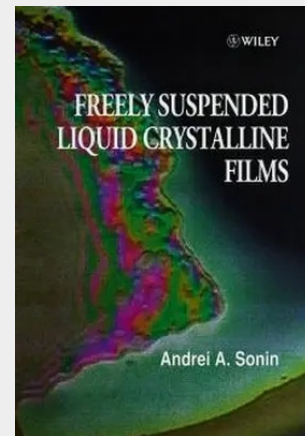


Freely Suspended Liquid Crystalline Film

Freely Suspended Liquid Crystalline Films Andrei A. Sonin Centre d'Etudes Atomiques de Saclay, France and Institute of Crystallography, Russian Academy of Sciences with a Foreword by Professor Noel Clark University of Colorado, USA This book provides a brief introduction to the physics of liquid crystals and to macroscopic physical parameters characterising freely suspended liquid crystalline (FSLC) films, and then reviews the experimental techniques for preparing these films, measuring their thicknesses, and investigating their physical properties and structural aspects. Molecular structures and defects of FSLC films and the problems of film stability, thinning and rupture are discussed in later chapters. Physical phenomena, such as orientational and phase transitions, Frederick's and flexoelectric effects, hydroelectrodynamics, etc., are also analysed. Finally, some applications of FSLC films in industry and in various branches of science are discussed. Specialists working in the physics of liquid crystals and in surface physics will find this book of interest. Industrial firms and their research centres investigating liquid crystals, biological membranes, detergent/surfactant/biomedical areas; and graduates and postgraduates in solid state physics and crystallography will also benefit from this book. The book has an easy-to-read style with just the minimum amount of mathematics necessary to explain important concepts. This is the first book dedicated exclusively to the physics of FSLC in almost a century since their discovery and last twenty years of their active studies. Andrei Sonin, a scientist in the area of FSLC and author of many articles on surface phenomena in liquid crystals, the properties and behaviour of thin liquid crystalline and surfactant films, has a long standing reputation in liquid crystals and surfactant systems and has been particularly active in issues involving surface interactions.

Freely Suspended Liquid Crystalline Films(FSLC - Freischwebende Flüssigkristallfilme) sind sehr dünnflüssige Kristalle, die über einen festen Rahmen gezogen werden. Sie werden eingesetzt als Modellsysteme für biologische Zellmembranen und bei der Bestimmung der Eigenschaften von Flüssigkristallen. FSLC-Filme finden praktische Anwendung in Erdölindustrie und Industrieunternehmen, für die Oberflächenphänomene wichtig sind sowie in Elektrounternehmen, die Flüssigkristall-Anzeigen (LCD) verwenden. Das ist das erste Buch, das Struktur und Verhalten biologischer Systeme tiefgreifend analysiert. Mit einer Vielzahl praktischer Anwendungsbeispiele und experimentellen Techniken zur Herstellung von Filmen. (10/98)

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