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This book is the first ever monograph on nematic liquid crystals for microwaves, millimeter waves and terahertz waves. It presents the first hand independent studies on nematic liquid crystals for microwaves, millimeter waves and terahertz waves. This book opens with an introduction to generic liquid crystals and a retrospective review about nematic liquid crystals in microwaves, millimeter waves and terahertz waves. Attention is then focused on the latest in-house progress on microwave, millimeter wave and terahertz nematic liquid crystals. Synthesis and characterization of novel nematic liquid crystals are first presented, followed by indigenous technologies to manufacture functional nematic liquid crystal devices for microwaves, millimeter waves and terahertz waves. A few self-developed representative advanced functional devices are shown to demonstrate the promising perspective of liquid crystals for not only microwaves, millimeter waves and terahertz waves but also many other non-display applications. The presented studies will attract scientists, engineers and students from various disciplines, such as materials, chemical, electrical, biological, and biomedical engineering. The book is intended for undergraduates, graduates, researchers, professionals and industrial practitioners who are interested in developing novel liquid crystals and further extending liquid crystals beyond display.
