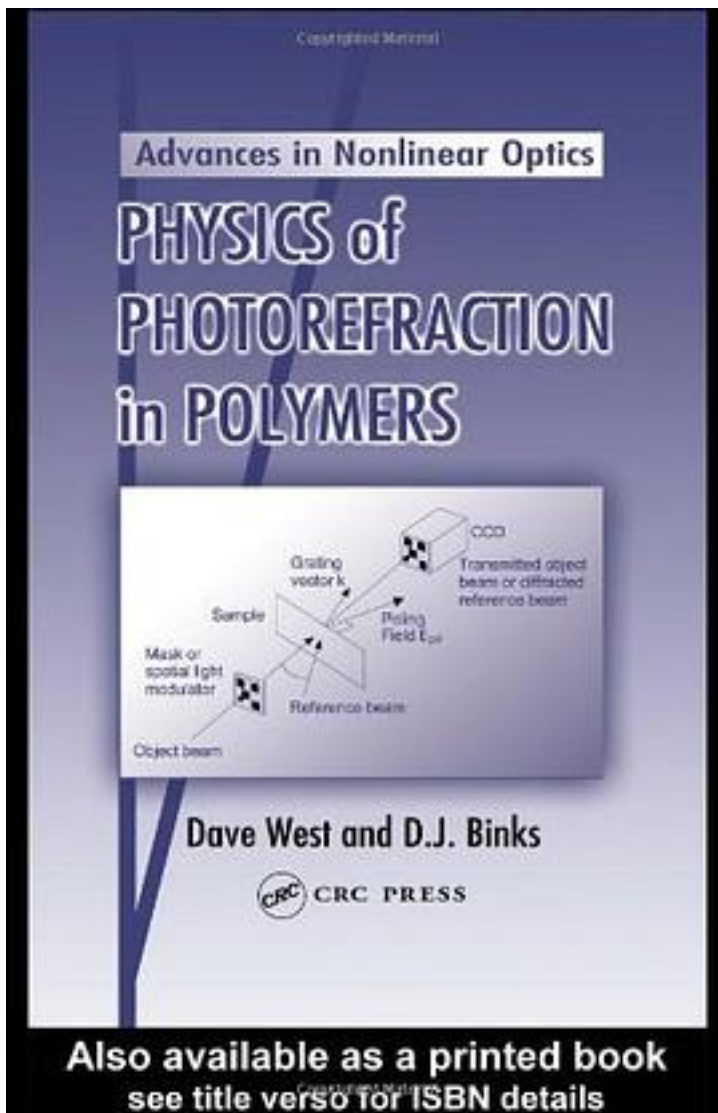


# Physics of Photorefraction in Polymers (Advances in Nonlinear Optics)



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This volume describes the current understanding of the physical processes that combine to produce a photorefractive effect in key, representative composite materials. It describes how a straightforward physical model can be devised to describe the static and dynamic properties of photorefractive polymers. "Physics of Photorefraction in Polymers" summarizes the simple singe-trap model of photorefraction as applied to polymers with high diffraction efficiency. The authors explain how this model can accurately predict photorefractive polymer behavior so that researchers can focus more on the applications of these materials, rather than their characterization. They emphasize how the patterning of an electric field within a dielectric polymer and its physical processes lead to observable properties of the polymers and applications, such as holographic archiving, optical information processing, and optical machine vision. Specific topics covered include the charge photogeneration process, the dispersion in charge transportation, charge compensation and trapping, molecular diffusion, organic composite structure and nonlinear optical wave coupling developed from a physical perspective, and the electro-optical response that creates a phase hologram from the pattern in the electric field. "Physics of Photorefraction in Polymers" provides a detailed treatment of the best methods for observing photorefractive properties in polymers and explores applications that potentially supercede the capabilities of photorefractive crystals.

作者介绍:

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