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Nota di contenuto	Photoalignment of Liquid Crystalline Materials; Contents; About the Authors; Series Editor's Foreword; 1 Introduction; References; 2 Mechanisms of LC Photoalignment; 2.1 Cis-Trans Isomerization; 2.1.1 'Command Surface'; 2.1.2 Cis-Trans Transformations in Azo-Dye Side-Chain Polymers and Azo-Dye in a Polymer Matrix; 2.2 Pure Reorientation of the Azo-Dye Chromophore Molecules or Azo-Dye Molecular Solvates; 2.2.1 Diffusion Model; 2.2.2 Polarized Absorption Spectra; 2.2.3 Modifications: Repeated Cis-Trans Photoisomerization Reaction Resulting in the Reorientation of the Backbone Structure 2.3 Crosslinking in Cinnamoyl Side-Chain Polymers2.4 Photodegradation in Polyimide Materials; 2.5 Photoinduced Order in Langmuir-Blodgett Films; References; 3 LC-Surface Interaction in a Photoaligned Cell; 3.1 Pretilt Angle Generation in Photoaligning Materials; 3.2 Generation of Large Pretilt Angles; 3.2.1 Generation of Large Pretilt Angles by Controlled Photodegradation; 3.2.2 Generation

of Large Pretilt Angles by Nanostructured Surfaces; 3.3 Anchoring Energy in Photoaligning Materials; 3.4 Stability of Photoaligning Materials: Sensitivity to UV Light  
3.5 Comparison of the Characteristics of Photoalignment Layers for Different Mechanisms of LC Photoalignment  
3.6 Various Methods for the Experimental Characterization of Photoalignment Layers; References;  
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5 Application of Photoalignment Materials in Optical Elements; 5.1 Polarizers; 5.1.1 Dichroism; 5.1.2 Direct Photoalignment; 5.1.3 Indirect Photoalignment; 5.1.4 Patterned Polarizers; 5.2 Retardation Films; 5.2.1 Types of Films; 5.2.2 Direct and Indirect Photoalignment; 5.2.3 Examples of Photoaligned Retardation Films; 5.2.4 Photo-patterned Phase Retarders and Color Filters; 5.3 Transflective LCD with Photo-patterned Polarizers and Phase Retarders; 5.4 Security Applications of Photoaligning and Photo-patterning; 5.5 Optical Elements Based on Photoaligning Technology; References  
6 Novel LCDs Based on Photoalignment  
6.1 Bistable Nematic Displays; 6.2 Photoaligned Liquid-Crystal-on-Silicon Microdisplays; 6.3 Photoaligned Ferroelectric LCDs; 6.4 New Optical Rewritable Electronic Paper; 6.5 Application of Photoalignment in Photonic LC Devices; References;  
7 US Patents Related to Photoalignment of Liquid Crystals; 7.1 Introductory Remarks; 7.2 List of Patents: Patent Classification; 7.3 Analysis and Comments on the Patents; Index

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## Sommario/riassunto

Photoalignment possesses significant advantages in comparison with the usual 'rubbing' treatment of the substrates of liquid crystal display (LCD) cells as it is a non-contact method with a high resolution. A new technique recently pioneered by the authors of this book, namely the photo-induced diffusion reorientation of azodyes, does not involve any photochemical or structural transformations of the molecules. This results in photoaligning films which are robust and possess good aligning properties making them particularly suitable for the new generation of liquid crystal devices. Photoa

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