

Abstract Submitted
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Investigations of Liquid Crystal Alignment Layers Prepared by Mechanical Buffing and Exposure to Polarized Blue Light¹ LEWIS SHARP-NACK, Department of Physics, Kent State University, Kent OH 44242, IBRAHIM ABDULHALIM, Department of Electro-Optic Engineering Ilse Katz Institute for Nanoscale Science and Technology Ben Gurion University, Beer Sheva 84105, Israel, SATYENDRA KUMAR, Department of Physics, Kent State University, Kent OH 44242 — Proper liquid crystal (LC) surface alignment remains critical to their technological applications in electrooptical and photonic devices. Researchers have been on a quest to find an alternative to the empirically perfected method involving mechanical buffing of a polymer film deposited on a substrate. Previous investigations of organic alignment films, mechanically buffed or exposed to polarized UV light to affect alignment, have shown that in all cases the air to alignment layer interface acquires roughness anisotropy irrespective of the method of their preparation. A new generation of alignment materials, polarized blue light exposed chalcogenide glass films and that do not require the use of contact methods (e.g., buffing) has been developed. The surface morphology and roughness anisotropy of these films has been investigated with x-ray reflectivity, SEM, and AFM techniques. We will present preliminary findings for several new alignment films along with the conventional PI films.

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Lewis Sharpnack
Kent State University

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