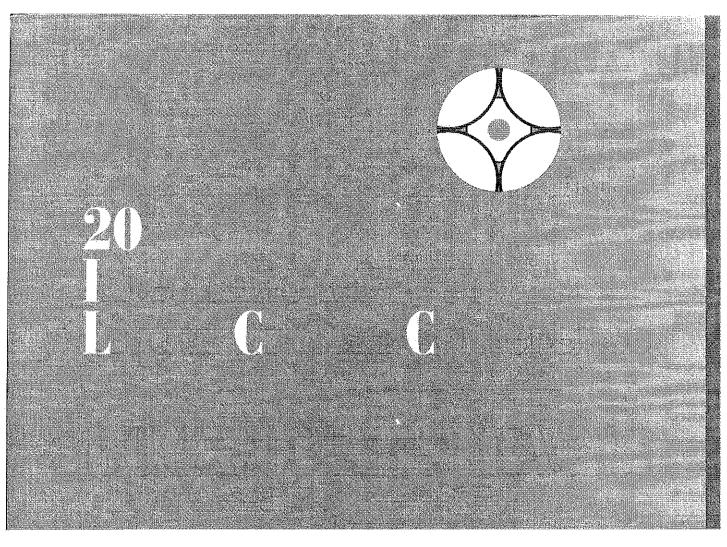
## PHOTO-CONTROLLED RETARDATION FILM BASED ON A REACTIVE LIQUID CRYSTAL AND ITS USE FOR TRANSFLECTIVE DISPLAYS

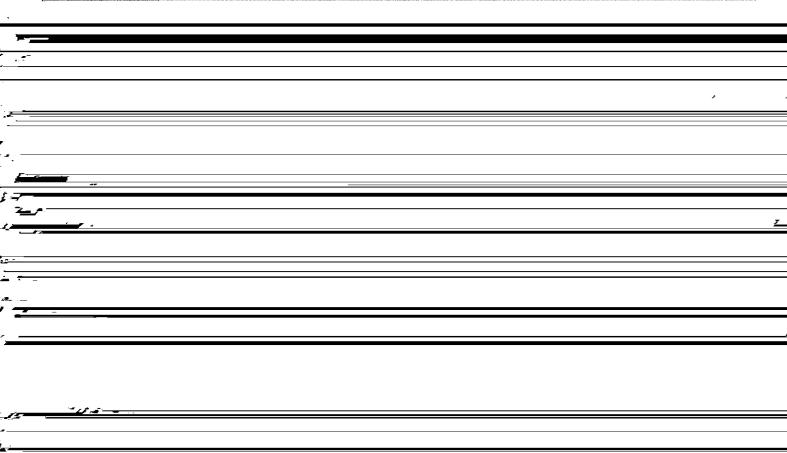
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A patterned retardation film fabricated by the photoalignment technique and its use for transflective displays were investigated. The photopolymer used in this study is capable of controlling the molecular orientation of a liquid crystal (LC) from the homeotropic to the planar alignment depending on the intensity of the exposed ultraviolet (UV) light. Combing the intrinsic properties of the photopolymer and the UV curable LC, we obtained an optical retardation film having both the homeotropic and planar configurations of the LC layer. This approach has some advantages over the existing film processes in manufacturing of the retardation film. In contrast to conventional transflective displays that require dual cell gaps or dual LC modes involving complex manufacturing processes, a new type of a transflective display with a single LC mode and a proper retardation film can be designed. The optical retardation will appear only in the reflecting part of the transflective display through the photoaligned LC layer. A low-twisted nematic LC cell, having the twist angle less than 90°, was fabricated to determine the electro-optic characteristics of a new transflective display with only a single LC mode.

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