이온빔 조사 각도에 따른 액정 배향 특성 연구

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Investigation of LC Alignment characteristic by Controlling Ion-beam Irradiation angles

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Abstract : Recently, it is widely studied to liquid crystal (LC) alignment using ion-beam exposure.[1,2] Because conventional rubbing method has some problems such as defects from dust and electrostatic charges and rubbing scratch during rubbing process. Moreover rubbing method needs cleaning process to remove these defects. Therefore rubbing-free techniques like ion-beam method are strongly required. We studied LC alignment by controlling ion-beam irradiation angles and electro-optical (EO) characteristics of twisted nematic LC on the polyimide surface. In this experiment, a good uniform alignment of the nematic liquid crystal (NLC) with the ion-beam exposure on the polyimide (PI) surface was observed. We also achieved low pretilt angle as function of ion-beam irradiation angles. X-ray photoelectron spectroscopic (XPS) analysis provided chemical evidence for LC alignment by controlling ion-beam irradiation angles. In addition, it can be achieved the good EO properties of the ion-beam-aligned twisted nematic liquid crystal display (TN-LCD) on PI surface. Some other experiments results and discussion will be included in the presentation.

Key Words : LC alignment, ion-beam, polyimide, pretilt angle, response time, voltage-transmittance

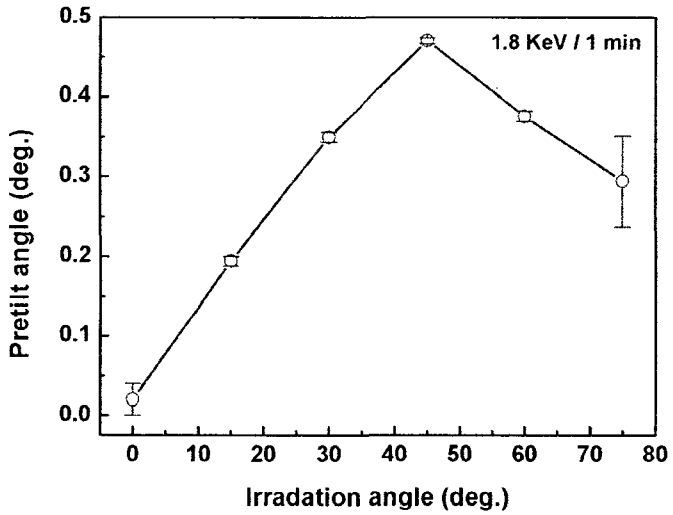

Figure 1. Pretilt angles of the NLC on polyimide surface irradiated by high density ion-beam source as function of ion-beam irradiation angles.

참고 문헌

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