

이온빔을 이용한 SnO₂ 무기 박막에서의 수평액정 배향 능력

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Abstract : This paper introduces the characteristics of SnO₂ inorganic film deposited by radio-frequency magnetron sputtering as an alternative alignment layer for liquid crystal display (LCD) applications^{1,2}. The pretilt angle of the SnO₂ layer was shown to be a function of the ion beam (IB) incident angle, a planer alignment of nematic liquid crystal was achieved. The about 1.8° of stable pretilt angle was achieved at the range from 1500 ~ 2500eV of incident energy. To characterize the film shows atomic force microscopy (AFM) on the IB irradiated SnO₂ surface and the X-ray photoelectron spectroscopy analysis showed that the liquid crystal (LC) alignment on the IB irradiated SnO₂ surface was due to the reformation of Sn-O bonds. Also, Figure 1 shows that The alignment capability of the IB irradiated SnO₂ layers is maintained until annealing temperature of 200°C. Comparable electro-optical characteristics to rubbed polyimide were also achieved.

Key Words : SnO₂, pretilt angle, AFM, rubbing

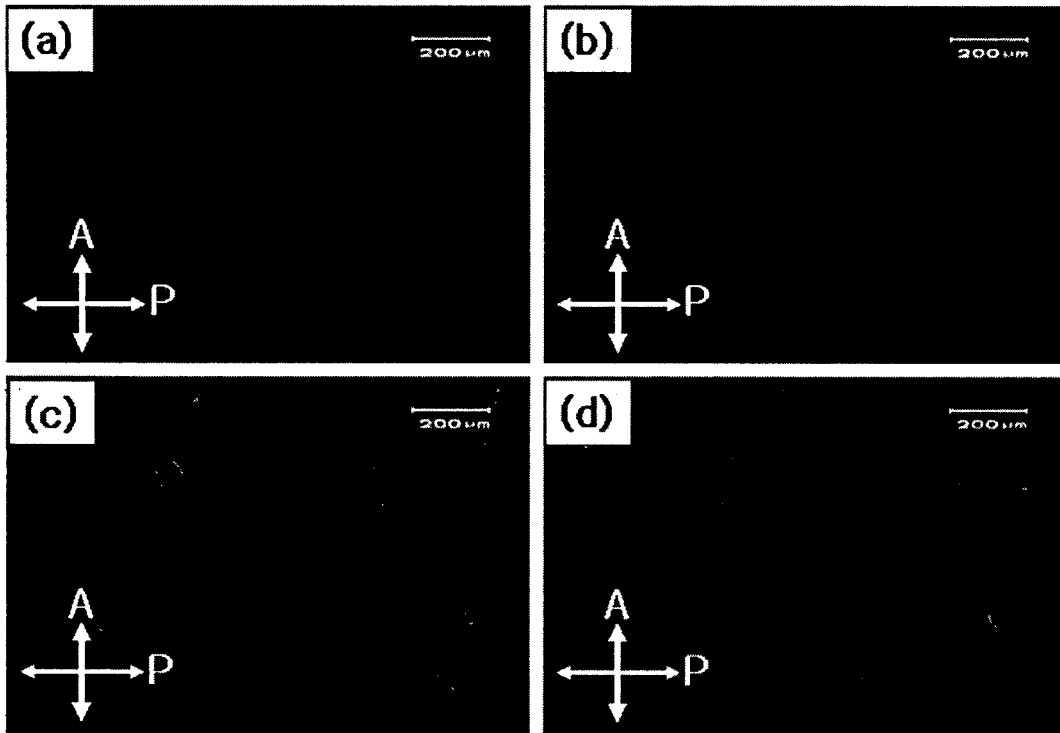


Figure 1. Thermal stability photomicrographs of twisted nematic LCD cells on SnO₂ surfaces irradiated with the IB energy of 1800 eV at the incident angle of 45° of (a) 20, (b) 180, (c) 240, (d) 250°C.

참고 문헌

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