이온빔 에너지와 유기절연막 사용에 의한 액정 배향 연구

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Investigation of LC Alignment Using Ion-beam and Overcoat Layer

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Abstract : The liquid crystal (LC) aligning capabilities treated on the Organic overcoat thin film surfaces by ion beam irradiation and rubbing method was successfullystudied for the first time. The Organic overcoat layer was coated by spin-coating. In order to characterize the LC alignment, the microscope, pretilt angle, thermal stress, and atomic force microscopy (AFM) image was used. The good LC aligning capabilities treated on the Organic overcoat thin film surfaces with ion beam exposure of 45 ° above ion beam energy density of 1200 eV can be achieved. But, the alignment of defect of NLC on the Organicovercoat surface at low energy density of 600 eV was measured. The pretilt angle of NLC on the Organic overcoat thin film surface with ion beam exposure of 45°for 1 min at energy density of 1800 eV was measured about 1.13 degree. But, low pretilt angles of NLC on the Organic overcoat thin film surface with ion beam exposure at energy density of 600, 1200, 2400, and 3000 eV was measured. Also, the pretilt angle of NLC on the rubbed Organic overcoat thin film surfaces was measured about 0.04 degrees. Finally, the good thermal stability of LC alignment on the Organic overcoat thin film surface with ion beam exposure of 45°for 1 min can be measured.

Key Words : Over coat, LC alignment, pretilt angle, Ion-beam