

OTFT 특성향상을 위한 이온빔 정렬처리 통한 펜타센 분자의 비등방 정렬

김 영환, 김 병용, 김 대현, 한 정민*, 서 대식
연세대학교, *서일대학교

Organization of pentacene molecules using an ion-beam treatment for organic thin film transistors

Young-Kim, Byeong-Young, Dae-Hyun Kim, Jeong-Min Han, and Dae-Shik Seo

Yonsei Univ. *Seo-il Univ.

Abstract : This paper focuses on improving organic thin film transistor (OTFT) characteristics by controlling the self-organization of pentacene molecules with an alignable high-dielectric-constant film. The process, based on the growth of pentacene film through high-vacuum sublimation, is a method of self-organization using ion-beam (IB) bombardment of the $\text{HfO}_2/\text{Al}_2\text{O}_3$ surface used as the gate dielectric layer. X-ray photoelectron spectroscopy indicates that the IB raises the rate of the structural anisotropy of the $\text{HfO}_2/\text{Al}_2\text{O}_3$ film, and X-ray diffraction patterns show the possibility of increasing the anisotropy to create the self-organization of pentacene molecules in the first polarized monolayer.

Key Words : Ion-beam bombardment, self-organization, organic thin film transistor, pentacene