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KOREA-JAPAN JOINT FORUM

2007

Organic Materials for Electronics and Photonics

September 27 – 29

KOREA UNIVERSITY
SEOUL, KOREA

GROWTH OF VARIOUS ORGANIC CRYSTALS BY USING ORGANIC VAPOR TRANSPORT METHOD

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We report on the growth method of organic crystals by using organic vapor transport and the electrical characteristics of organic field-effect transistors (OFETs) using the crystal as an active material. The organic crystals such as perylene and rubrene were directly grown from powder by using a continuously flowing N_2 gas in the home-made furnace. In the case of rubrene, the crystal sizes were dependent on the growth time and temperature (see Fig. 1). The crystalline structure of the rubrene and perylene single crystals was characterized by means of a single crystal X-ray diffractometer. In order to place the single crystal onto the Au electrodes of the field-effect transistor pattern, a polymethylmethacrylate thin layer was spin-coated on top of the crystal surface. The OFETs using rubrene or perylene single crystal showed a typical p-type operating mode.



Figure 1. Rubrene single crystal