

# **EFFECT OF CRYSTALLINE ORDERING IN ORGANIC SEMICONDUCTOR FILMS ON FIELD EFFECT TRANSISTOR CHARACTERISTICS**

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2,3,9,10,16,17,23,24-Octakis(Octyloxy)-29H,31H-phthalocyanine( $H_2Pc-OC_8$ ) is an organic semiconductor with a band gap of 1.5eV, which can exhibit either 3-D crystalline structures or 1-D discotic packing depending on the deposition condition. Fabrication of different structured films of  $H_2Pc-OC_8$  by using solution processing method based on hollow capillary has successfully been accomplished. These films are either highly aligned 1-D fibers, a continuous network of fibers, or a continuous crystalline structure, which are formed due to the difference in the self assembling characteristics of the semiconducting  $H_2Pc-OC_8$  molecules in different organic solvents. Our goals of this study include the utilization of these films in designing field effect transistors, followed by the comparison based on their performances. We will also report on their optical and structural properties by using X-ray diffraction and UV-vis absorption.