

ANALYZING THIN FILM MORPHOLOGY BY RESONANCE RAMAN SPECTROSCOPY

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ABSTRACT

Polymeric organic thin film transistors (OFETs) and all-polymer bulk heterojunction solar cells (all-PCS), which are composed of a polymer donor and a polymer acceptor, have attracted considerable attention in the last years.[1] The interest of these polymeric materials present various advantages versus small molecular counterparts, including strong light absorption, excellent mechanical flexibility and durability, and great potential in printing applications due to their great processability.[2]

In OFETs and bulk heterojunction solar cells, the morphology and crystallinity control of the neat polymer or blended donor-acceptor polymer films is essential in order to improve device performance. In this communication, we present a Resonance Raman spectroscopy [3] study directed to disentangle the film morphology of a series of all-acceptor and donor acceptor polymers for OFETs and all-PCS applications.[4]

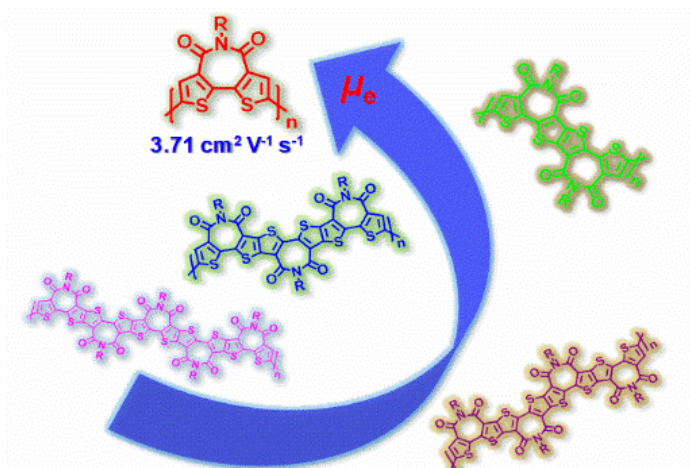


Figure 1. Chemical structures of selected polymers materials under study. The arrow indicates the electron mobility increase with monomer building block length.

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