Layer Effects of Photovoltaic Heterojunction of Fully Conjugated Heterocyclic Aromatic Rigid-rod Polymer Poly-p-phenylenebenzobisoxazole JEN WEI HUANG, SHIH JUNG BAI, National Sun Yat-Sen University — Poly-p-phenylenebenzobisoxazole (PBO) contains fully conjugated rod like backbone entailing excellent optoelectronic properties and superior stabilities. Polystyrenesulfonate:poly (2,3-dihydrothieno-1,4-dioxin) (PEDOT:PSS) is a hole transferring medium which could be spun into a thin-film between indium-tin-oxide (ITO) and PBO to exhibit highly sensitive photovoltaic (PV) effect. PEDOT:PSS and PBO formed a donor-acceptor interlayer and made photoinduced charge transfer. Optimal absorption PV cell thickness for PBO was about 71 nm. By using a layer of lithium fluoride (LiF) as an electron transferring layer, the most open circuit voltage ($V_{oc}$) and short circuit current ($I_{sc}$) were achieved at a LiF thickness of 1 nm. The $V_{oc}$ increased from 0.7 V to 0.9 V and the $I_{sc}$ increased one and half times.

Jen Wei Huang
National Sun Yat-Sen University

Date submitted: 27 Nov 2005