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Fabrication of Organic Bulk Heterojunction Solar Cells on Flexible Substrates GABRIEL CALDERON, MILZAIDA MERCED-SANABRIA, CAROLYN CARRADERO-SANTIAGO, JOSEE VEDRINE-PAULÉUS, University of Puerto Rico-Humacao — The active layer for the organic solar cells fabricated is composed of P3HT:PCBM, poly(3-hexylthiophene) (P3HT) as electron donor and phenyl-C61-butyric acid methyl ester(PCBM) as electron acceptor. These polymers were used due to their promising characteristics for devices such as bulk heterojunction solar devices. We used polyethylene terephthalate (PET) substrates, a highly flexible plastic, with indium tin oxide (ITO) as the transparent conducting anode for the device, and UV lithography technique to pattern the ITO; this is to facilitate multiple devices on a single substrate. The fabrication process for pattern transfer incorporates developing and etching processes. We diluted the HCl and DI water to etch out the ITO. PEDOT:PSS and active layer of P3HT:PCBM were deposited on (3.0 sq-cm) patterned of ITO/PET by spin coating method. The cathode was thermally evaporated with Al. We characterized the device using a sourcemeter. We also simulated portions of the device using PET on graphene as the substrate.

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