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Enhancing Photovoltaic Performance of P3HT/PDIB-silsesquioxanes Donor-Acceptor using Spray-Coating Fabrication Technique VENKATA MANDA, HEMALI RATHNAYAKE, Weestern Kentucky University — Organic photovoltaic devices of a blend of perylenediimide-functionalized silsesquioxane nanoparticles with poly(3-hexylthiophenes) were fabricated using a spray-painting technique. The photovoltaic performance of these blends with two different film thicknesses of the active layer and PEDOT.PSS layer was evaluated and compared with the test devices made from spin-coated samples. The film thickness of the layers was characterized under the scanning electron microscope. Through the spray-painting techniques, the photovoltaic performance of P3HT/PDI blend is enhanced with the power conversion efficiency of 2.05% at open circuit voltage of 1.05 V.

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