

Abstract Submitted  
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**Proficient ternary blend organic photovoltaic device with PC<sub>61</sub>BM as an interface modulator** SHASHI SRIVASTAVA, SAMARENDRA SINGH, Shiv Nadar University — Ternary organic solar cells (OSCs) with inverted structure of ITO/ZnO/PTB7-Th:PC<sub>71</sub>BM:PC<sub>61</sub>BM/MoO<sub>x</sub>/Ag were fabricated in ambient using PC<sub>61</sub>BM in place of ICBA to seize electron-cascade effect. Since spherically-shaped PC<sub>61</sub>BM molecules are more symmetric than elliptical PC<sub>71</sub>BM molecules, results in better precipitation kinetics. The ternary devices with additional 20% PC<sub>61</sub>BM content exhibit average efficiency of 7.8%, higher than (6.3%) that of binary blend. The observed lowering of built-in potential and defect states at the ZnO/BHJ interface can be attributed to the interface modulation due to the percolation of PC<sub>61</sub>BM towards ZnO interface, leads to better transport. Also AFM image shows better morphology with suitable phase separation for 20% PC<sub>61</sub>BM loaded active layer. This homogeneous blend may be evolved due to the differential chemical kinetics of two fullerenes in the blend. Thus the ternary blend OPV witnessed with efficiency upto 8.2% with mere addition of PC<sub>61</sub>BM as interface modulator.

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