ESI

Supporting information

Fullerene Alloy Formation and the Benefits for Efficient Printing of Ternary Blend Organic Solar Cells

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Table S1 Optimization of binary blend of P3HT:PCBM. Average standard deviation is given along with hero cell parameters in parenthesis. Parameters of hero cells are given in parenthesis. Measurements under calibrated at 100 mW cm^{-2}, AM1.5G.

P3HT:PCBM blending fraction	V_{oc} [V]	J_{sc} [mA cm^{-2}]	FF [%]	PCE [%]
0.8:0.2	0.46 ±0.01 (0.45)	2.27± 0.52 (1.90)	29.29 ±1.32 (28.35)	0.37 ± 0.01 (0.38)
0.75:0.25	0.52 ± 0.01 (0.52)	5.87 ± 0.54 (5.79)	39.22±2.54 (42.13)	1.20 ±0.10 (1.28)
0.67:0.33	0.52 ± 0.03 (0.56)	6.53 ±0.91 (7.24)	40.18±5.97 (48.31)	1.40± 0.40 (1.96)
0.6:0.4	0.55 ± 0.03 (0.53)	6.49 ± 0.97 (7.18)	46.23±1.36 (47.13)	1.68±0.19 (1.81)
0.5:0.5	0.54 ± 0.00 (0.54)	7.18 ±0.57 (7.99)	56.74± 3.14 (52.34)	2.19 ± 0.06 (2.24)
0.4:0.6	0.49±0.00 (0.49)	8.35 ± 0.56 (8.75)	46.23±1.36 (47.19)	1.90 ±0.17 (2.02)
0.33:0.67	0.50 ±0.04 (0.53)	3.98 ± 1.01 (5.45)	43.09±7.46 (48.36)	1.13± 0.37 (1.39)
0.25:0.75	0.50 ±0.02 (0.52)	3.98 ± 1.01 (4.69)	3.98±1.01 (48.03)	0.90 ±0.38 (1.17)
0.2:0.8	0.22 ± 0.03 (0.25)	1.76 ±0.09 (1.73)	51.45± 14.97 (66.76)	0.20± 0.08 (0.29)

Table S2 Optimization of binary blend of P3HT:ICBA. Average standard deviation is given along with hero cell parameters in parenthesis. Measurements under calibrated at 100 mW cm^{-2}, AM1.5G.

P3HT:ICBA blending fraction	V_{oc} [V]	J_{sc} [mA cm^{-2}]	FF [%]	PCE [%]
0.80:0.20	0.62±0.05 (0.65)	2.94±0.16 (3.05)	43.76±2.89 (45.85)	0.79±0.12 (0.91)
0.75:0.25	0.62±0.02 (0.63)	4.77±0.52 (5.16)	45.84±1.33 (46.88)	1.35±0.23 (1.52)
0.71: 0.29	0.61±0.02 (0.65)	5.14±0.39 (5.50)	35.44±2.16 (35.02)	1.12±0.11 (1.25)
0.67:0.33	0.65±0.02 (0.68)	6.15±0.42 (6.63)	45.32±2.19 (47.83)	1.82±0.28 (2.15)
0.60:0.40	0.72±0.01 (0.72)	6.52±0.31 (6.96)	48.12±0.85 (49.42)	2.26±0.16 (2.49)
0.50:0.50	0.71±0.04 (0.75)	3.17±0.38 (3.67)	42.29±2.14 (43.97)	0.96±0.19 (1.20)
0.33:0.67	0.75±0.00 (0.75)	0.41± 0.00 (0.41)	0.06±0.00 (27.34)	0.08±0.00 (0.08)
0.25:0.75	0.77±0.01 (0.77)	0.40±0.08 (0.48)	0.40±0.08 (26.97)	0.08±0.02 (0.10)
0.20:0.80	0.66±0.04 (0.68)	0.24 ± 0.14 (0.14)	27.24±2.42 (28.95)	0.03±0.00 (0.03)