Enhanced Photocurrent in Organic Photodetectors by Tunneling Effect of Hafnium Oxide Thin Film as an Electron Blocking Layer

Chan Hyuk Ji, Ji Young Lee, Kee Tae Kim and Se Young Oh*

Supporting Information

Figure S1. FE-SEM Images of various thickness of hafnium oxide using successive ionic layer deposition.
Table S1. Organic photodetector device (OPD) performance using different thicknesses of a aluminum oxide interlayer at −1 V

| Thickness (nm) | Photocurrent density (A/cm²) | Dark current density (A/cm²) |
|----------------|------------------------------|-----------------------------|
| 3.0            | 4.96x10⁻⁵                   | 2.26x10⁻⁸                   |
| 6.0            | 7.51x10⁻⁷                   | 3.52x10⁻⁸                   |
| 10             | 2.21x10⁻⁷                   | 1.29x10⁻⁸                   |
Figure S2. Current density-voltage curves of organic photodetector devices (OPDs) with various aluminum oxide electron blocking layer thicknesses.