Supporting Information for:

Electronic structure of C_{60}/zinc phthalocyanine/V_2O_5 interfaces studied using photoemission spectroscopy for organic photovoltaic applications

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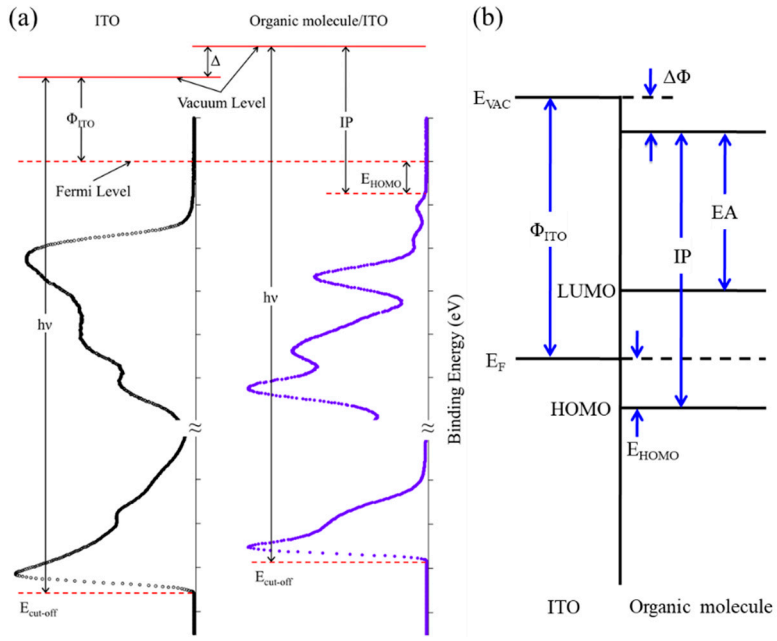

Figure S1. (a) Schematic illustration of some of the important parameters derived from PES characterization of surfaces and interfaces. (b) An energy-level diagram for a generic junction formed between an organic film and an ITO substrate.

Figure S1 illustrates the procedure used for the determination of energy-level alignment at the interface. The basic equation used in interpreting photoelectron spectra is:

$$E_B = h\nu - E_k - \Phi \quad (1)$$

The photon energy (hν) is known and the photoelectron kinetic energy (E_k) is measured in order to deduce the binding energy (E_B) referenced to E_F. When hν is known, the work function (Φ) can be obtained from the measured energy of the secondary-electron cut-off ($E_{cut\text{-}off}$)., i.e.:

$$\Phi = h\nu - E_{cut-off} \quad (2)$$

The change in the work function, ΔΦ, can then be tracked by measuring $E_{cut\text{-}off}$ after a deposition step. Therefore, the shift of this $E_{cut\text{-}off}$ indicates the magnitude of the interfacial dipole, which is equal to increasing or decreasing the work function. Similarly, the ionization potential (IP) can be obtained from $E_{cut\text{-}off}$ and the HOMO onset (E_{HOMO}):

$$IP = h\nu - (E_{cut-off} - E_{HOMO}) \quad (3)$$