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We report the interface energetics of decacyclene trianhydride (DTA) monolayers on top of two distinct model surfaces, namely, Au(111) and Ag(111). On the latter, combined valence band photoemission and X-ray absorption measurements that access the occupied and unoccupied molecular orbitals, respectively, reveal that electron transfer from substrate to surface sets in. Density functional theory calculations confirm our experimental findings and provide an understanding not only of the photoemission and X-ray absorption spectral features of this promising organic semiconductor but also of the fingerprints associated with the interface charge transfer.

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