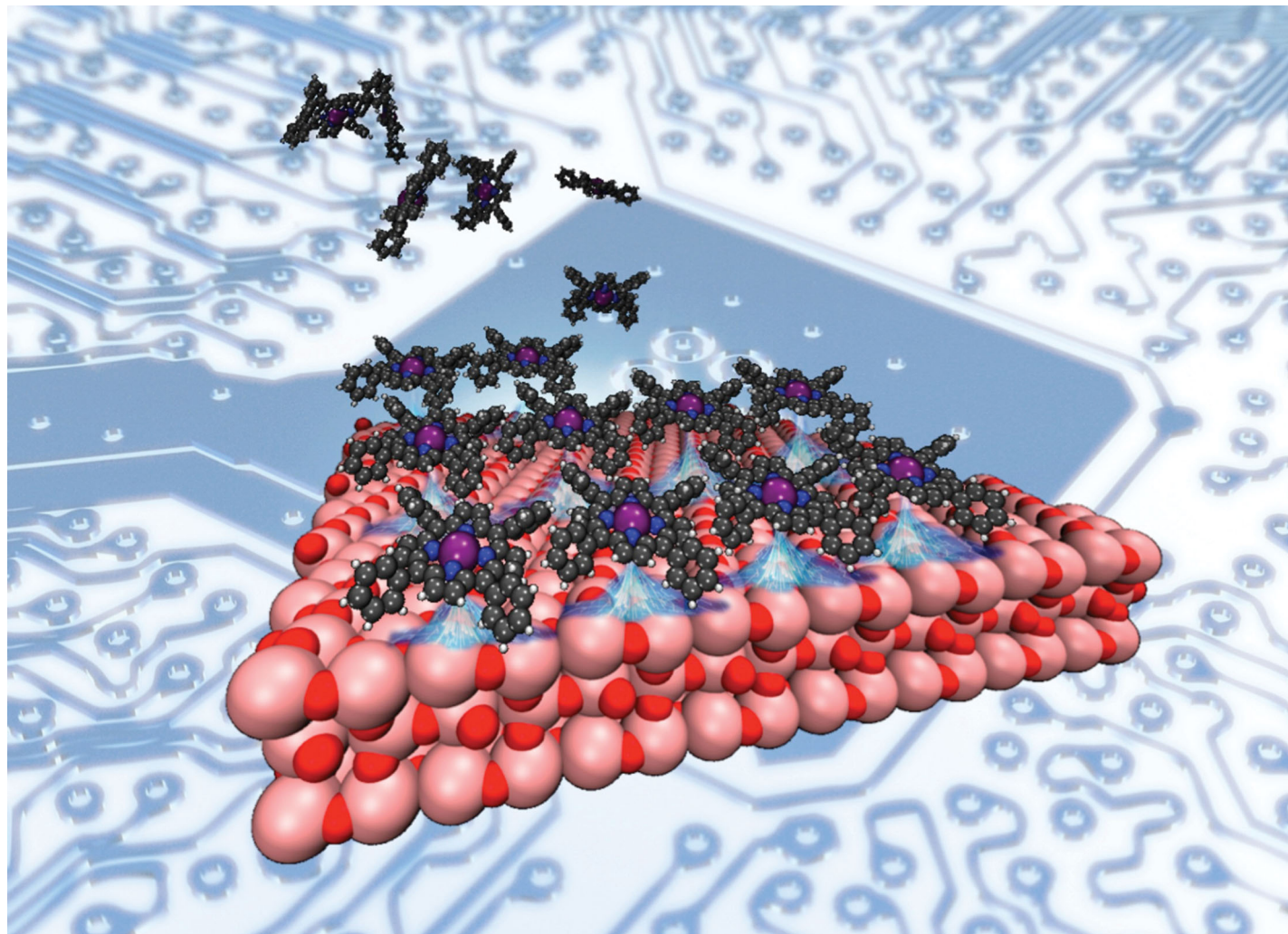


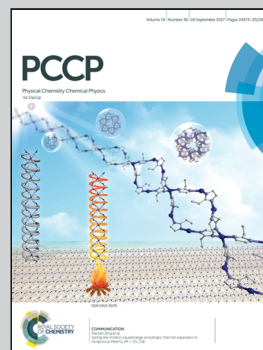


Showcasing research from Dr José I. Martínez at the Institute of Material Science of Madrid (ICMM) of the Spanish National Research Council (CSIC), Spain.

Unveiling universal trends for the energy level alignment in organic/oxide interfaces

In this perspective we report an unprecedented analysis of the energy level alignment at the interface between paradigmatic organic monolayers (PTCDA, Zn-TPP and TCNQ) and the prototypical $\text{TiO}_2(110)$ surface. All cases can be integrated within a universal behaviour when $(E_c - \text{HOMO})$ is calculated as a function of an external bias. That function exhibits a zig-zag curve with a central part having a screening-depending slope, and two plateaus associated with the LUMO and HOMO energy levels crossing the oxide Fermi level. In these plateaus different Coulomb blockade regimes, depending on the organic electronegativity, arise and a space charge layer develops in the oxide.

As featured in:



See José I. Martínez,
Fernando Flores *et al.*,
Phys. Chem. Chem. Phys.,
2017, **19**, 24412.