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【237】Special Structures of a Prototypical Organic-Semiconductor Transparent-Electrode Interface: CuPc on In_2O_3(111)

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Indium oxide (In_2O_3) is a ubiquitous anode material in OLEDs and photovoltaics due to its transmissivity to visible light and metal-like conductivity (when doped with Sn). When In_2O_3 is paired with organic materials, a thin organic buffer layer is often introduced to improve the charge injection from In_2O_3 to the organic active layers. We probe the adsorption behaviour and density of states (DOS) of the prototypical copper phthalocyanine (CuPc) - In_2O_3 interface combining scanning tunnelling microscopy, non-contact atomic force microscopy and local tunnelling spectroscopy. Starting from the clean In_2O_3(111) surface we identify morphological details of the molecular structures and their electronic properties and compare the results to DFT calculations.

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