

# **"Normal incidence X-ray standing waves for understanding surface bonding of organic molecules"**

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The understanding of the bonding of large  $\pi$ -conjugated organic molecules to surfaces is challenging since different cooperative and counteracting "bonding channels" (e.g., covalent, van der Waals) on different functional groups play a role. Over the last decade, the normal incidence X-ray standing wave method (NIXSW) has matured to one of the most powerful techniques in this field, because it yields detailed and quantitative structural information with chemical resolution for disordered and order phases. Quantitative data from NIXSW, including intermolecular distortions and atom resolved surface bonding distances, serve as a test ground for modern DFT based descriptions. It will be resumed how the picture of the surface bonding of the model molecule PTCDA has evolved over the last years under the continuous advancement of the NIXSW method.