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X-ray Resonant Photoemission in organic thin films. ALBERTO MORGANTE, DEAN CVETKO, ALBANO COSSARO, LUCA FLOREANO, GREGOR BAVDEK, Laboratorio TASC-INFM-CNR Trieste — Resonant photoemission (RESPES) allows to investigate the charge transfer processes in thin films at the femtosecond time scale and it has been recently applied to thin organic films on inorganic substrates in order to obtain information related to the carrier injection at the interface, a process of great importance for organic electronic applications. High resolution RESPES on monolayer and multilayer organic films on semiconductor and metal substrates at C K-edge will be presented. It will be shown that in the monolayer range RESPES makes possible to clearly identify very weak molecular valence band structures which can't be distinguished from substrate ones in normal photoemission. Moreover the charge transfer time information will be deduced from the spectroscopic data by the comparison of monolayer and multilayer RESPES spectra. It will be also demonstrated that, due to the localized nature of the resonant process, RESPES gives a clear spatial correlation between filled and empty states and that this effect should be carefully taken into account in the analysis of the resonant spectra for the charge transfer time determination.

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