SUBSTRATE-ADLAYER INTERACTION AT THE C_{60}/Ag(110) INTERFACE STUDIED BY MEANS OF SYNCHROTRON RADIATION

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The interaction between adsorbed fullerene and metallic or semiconducting surfaces is an intriguing issue spanning a wide variety of possibilities including covalent, ionic, and Van der Waals bonding.

Here, we report a study of the C_{60}/Ag(110) interface by means of synchrotron radiation. The measurements have been performed at the high-brilliance VUV photoemission beamline of the ELETTRA source. The valence band states and the C 1s and Ag 3d core levels of one monolayer of C_{60} (obtained after annealing a fullerene multilayer at ≈ 400 °C) have been measured by photoemission. The unoccupied states local to the C sites have been probed by NEXAFS at the C 1s threshold. The effects of annealing at higher substrate temperature will be also presented.

A partial filling of the LUMO orbital is found along with clear markers of a non-vanishing chemical adlayer/Ag interaction. Our data will be jointly compared with the results from the C_{60}/Au(110) [1], C_{60}/Al(111) [2], and C_{60}/Ag(111) [3] interfaces.

[1] A. J. Maxwell *et al.*, Phys. Rev. B **49** (1994) 10717
[2] A. J. Maxwell *et al.*, Phys. Rev. B **52** (1995) R5546
[3] G. K. Wertheim and D. N. E. Buchanan, Phys. Rev. B **50** (1994) 11070