**Applied Physics Letters -- 16 October 2006**

Appl. Phys. Lett. **89**, 162102 (2006) *(3 pages)*



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# High resolution photoemission spectroscopy: Evidence for strong chemical interaction between Mg and 3,4,9,10-perylene-tetracarboxylic dianhydride

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(Received 22 May 2006; accepted 8 August 2006; published online 16 October 2006)

The interface formation between Mg and 3,4,9,10-perylene-tetracarboxylic dianhydride (PTCDA) was investigated by high resolution soft x-ray photoemission spectroscopy. The interface chemistry was obtained after fitting the core level spectra as a function of Mg thickness. At the initial stage of deposition, a strong chemical interaction between Mg and the single bonded oxygen atoms of PTCDA is observed leading to the formation of MgO and a modified organic molecule. Based on the experimental evidence, the molecular structure of the modified molecule is proposed. Moreover, the changes observed in the measured $C_{1s}$ core level spectra are supported by density functional theory calculations. 

doi:10.1063/1.2356305
**PACS:** 82.65.+r, 79.60.Jv, 82.80.Pv, 73.20.-r, 71.15.Mb Additional Information