

Abstract Submitted  
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**Spin Crossover Transition in Molecular Adsorbates** XIN ZHANG, SUMIT BENIWAL, AXEL ENDERS, PETER A. DOWBEN, Dept. of Physics and Astronomy, University of Nebraska-Lincoln, TATIANA PALAMARCIUC, PATRICK ROSA, JEAN-FRANÇOIS LÉTARD, Groupe des Sciences Moléculaires, Université de Bordeaux, France, JING LIU, Dept. of Chemical Engineering, Northeastern University. And Brookhaven National Laboratory, NSLS, EDUARDO V. LOZADA, FERNAND TORRES, LUIS G. ROSA, Dept. of Physics and Electronics, University of Puerto Rico - Humacao, BERNARD DOUDIN, 3 Université Louis Pasteur Strasbourg, France — The occupied and unoccupied electronic structure of ultra thin films of the spin crossover  $[\text{Fe}(\text{H}_2\text{B}(\text{pz})_2)_2(\text{bipy})]$  complex (with  $\text{H}_2\text{B}(\text{pz})_2 = \text{bis}(\text{hydrido})\text{bis}(1\text{H-pyrazol-1-yl})\text{borate}$  and  $\text{bipy} = 2,2'$ -bipyridine) was investigated by ultraviolet photoelectron spectroscopy (UPS), inverse photoemission (IPES) and X-ray absorption spectroscopy (XAS). The XAS spectra clearly shows the change of iron L edge spectra associated with thermal induced spin crossover. Generally changes occurring for the iron coordination, across the spin crossover transition, are seen to be very similar. The spin crossover transition, and certainly the unoccupied electronic structure, is influenced by the polarization direction of molecular ferroelectric poly(vinylidene fluoride – trifluoroethylene) substrates at temperatures in the vicinity of the thermally driven spin cross-over transition. Combining the STM studies with the thickness dependent IPES results of the molecular adsorbate on gold substrates, we understand that the molecular thin film spin-states may also be affected by thickness of the  $\text{Fe}(\text{H}_2\text{B}(\text{pz})_2)_2(\text{bipy})$  film.

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