Abstract Submitted
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Soft X-Ray Spectroscopic Studies of the Electronic Structure of Aluminum tris-8-hydroxyquinoline (Alq3)[1] A. DEMASI, L.F.J. PIPER, Y. ZHANG, I. REID, S. WANG, K.E. SMITH, Boston University, J. DOWNES, Macquarie University, N. PELTEKIS, C. MCGUINNESS, Trinity College Dublin, A. MATSUURA, In-Q-Tel — The valence and core level electronic structure of the organic semiconductor aluminum tris-8-hydroxyquinoline (Alq_3) has been measured using synchrotron radiation-excited resonant x-ray emission spectroscopy (RXES), and x-ray photoelectron spectroscopy (XPS). Samples were in the form of thin films, grown *in-situ* in an organic molecular beam deposition chamber attached to the spectrometer system. The films were found to be highly sensitive to photon induced beam damage, but this problem could be alleviated by continuous translation of the films during measurement. Our RXES measurements are compared to the results of density functional theory (DFT) calculations. The DFT calculated C, N and O partial densities of states are found to agree very well with the corresponding emission spectra. Our measurements will be discussed in the context of earlier soft x-ray studies of Alq_3, with particular attention paid to issues of beam damage.

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