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Resonant Soft X-Ray Emission (SXE) and Resonant Inelastic X-Ray Scattering (RIXS) study of the Electronic Structure of Thin Film Vanadium Oxide Phthalocyanine (VO-Pc).[1] KEVIN E. SMITH, YUFENG ZHANG, LUKASZ PLUCINSKI, SHANCAI WANG, SARAH BERNARDIS, TIMOTHY LEARMONTH, Department of Physics, Boston University, JAMES DOWNES, School of Chemical and Physical Sciences, Victoria University, Wellington, NZ — We report a synchrotron radiation-excited resonant soft x-ray emission (SXE) spectroscopy study of the electronic structure of thin films of the organic semiconductor vanadium oxide phthalocyanine (VO-Pc). SXE measures directly the element-resolved partial density of states (PDOS) in materials. The VO-Pc films were grown *in-situ* on Si(100) substrates at beamline X1B at the National Synchrotron Light Source. We present measurement of the V, O, N, and C PDOS in VO-Pc, as well as the observation of dipole forbidden V $3d$ – V $3d$ excitations and O $2p$ - V $3d$ charge transfer excitations. The relationship of these excitations to those observed in bulk vanadium oxide crystals will be explored, and our data will be compared to our earlier study of Cu-Pc (J.E. Downes, C. McGuinness, P.-A. Glans, T. Learmonth, D. Fu, P. Sheridan, and K.E. Smith, Chem. Phys. Lett. 390, 203 (2004))

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