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**Surface Doping of MoS<sub>2</sub> With Molecular Acceptor Films** DANIEL NEVOLA, ALEX BATALLER, HAROLD ADE, KENAN GONDOGDU, DANIEL DOUGHERTY, North Carolina State University — Molecular doping control using small molecule acceptors is an important strategy for controlling the electronic properties of novel van der Waal materials such as graphene and topological insulators. We extend this approach to molybdenum disulfide (MoS<sub>2</sub>), an exciting 2D optoelectronic material in single layer form. We manipulate the valence band photoemission spectrum of MoS<sub>2</sub> by organic molecular beam deposition of the acceptor tetracyanoquinodimethane (TCNQ). Angle resolved photoelectron spectroscopy shows rigid band shifts due to TCNQ film growth that are consistent with charge transfer to the organic layer from the MoS<sub>2</sub> substrate. The ability to control Fermi level position in MoS<sub>2</sub> is important for controlling excited states in optoelectronic applications.

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