

Abstract Submitted
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Observing Ambipolar Behavior and Bandgap Engineering of MoS₂ with Transport Measurements RACHAEL MORRIS, CEDRIC WILSON, GLEN HAMBLIN, RYUICHI TSUCHIKAWA, VIKRAM V. DESHPANDE, University of Utah — Molybdenum disulfide is a transition metal semiconductor with a relatively large bandgap about 1.8 eV. In MoS₂ it is expected that the bandgap is layer dependent and changes with the application of strain. In this talk I will outline our attempt to make simple field effect transistors with thin MoS₂ on flexible substrates. Our aim was to see the bandgap of MoS₂ directly via transport measurements using electrolytic gating, then apply uniaxial strain to a single layer MoS₂ device to see the bandgap change. This was to be one way of confirming theoretical expectations, as well as compare with experimental results already obtained through photoluminescence spectroscopy. Though we did not obtain our target result with this stage of the experiment, future experimental work is planned. I will discuss the experimental method, the challenges of obtaining data and the results we obtained.

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