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Growth of Molybdenum disulfide by Mo foil and ammonium heptamolybdate[1] CARL NAYLOR, GANGHEE HAN, NICHOLAS KYBERT, CHARLIE JOHNSON, Univ of Pennsylvania — Molybdenum disulfide (MoS_2) is one of the latest semiconducting materials to show huge attention, due to its tunable band gap by controlling the number of layers and reasonable values of mobility. Indeed, its astonishing electrical properties combined with having a high on/off ratio for field effect transistors that is difficult to reach with graphene, make MoS_2 a promising material for nanosensing and many other applications. Here we introduce two different growth techniques for MoS_2. Molybdenum foil and ammonium heptamolybdate were used as molybdenum feedstock while we sublimated sulfur source from solid for both techniques. Crystallinity of MoS_2 from both techniques was checked by optical microscope, atomic force microscope, Raman spectroscopy and Transmission electron microscopy. We believe that our techniques would be facile routes for MoS_2 growth.

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