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**Large scale synthesis of niobium disulfide as a transparent transition metal dichalcogenide electrode.** HUNYOUNG BARK, CHANGGU LEE, Sungkyunkwan Univ — Atomically thin transition metal dichalcogenides(TMDC) semiconductor such as MoS<sub>2</sub> and WSe<sub>2</sub> is considered as a promising candidate for future flexible and transparent electronic devices. However, direct metal contact to atomically thin transition metal dichalcogenides(TMDC) semiconductor shows high contact resistance, which suppress electrical performance like electron mobility. NbS<sub>2</sub>, one of the transition metal dichalcogenides(TMDC) conductor, is an important material because it is expected to form schottky barrier-free contact with transition metal dichalcogenides(TMDC) semiconductor. Here, we synthesize large scale niobium disulfide film as a transparent transition metal dichalcogenide electrode. Synthesized NbS<sub>2</sub> film shows corresponding Raman shift and binding energy and has good crystallinity. NbS<sub>2</sub> film can be easily patterned and shows uniform conductivity in large area. Large scale transparent NbS<sub>2</sub> electrode applied to large scale MoS<sub>2</sub> grown by chemical vapor deposition on quartz substrate. Ion-gel gated MoS<sub>2</sub> transistor which uses NbS<sub>2</sub> as an electrode shows 10<sup>4</sup> on/off ratio and 1~5cm<sup>2</sup>/Vs electron mobility which is better than metal contact MoS<sub>2</sub> transistor.

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