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Large-scale Synthesis of monolayer $MoSe_2$ via Chemical Vapor Deposition BYEONGGIL KANG, SKKU Advanced Institute of Nanotechnology(SAINT), Sungkyunkwan University, Suwon, 440-746, Korea, CHANGGU LEE, Department of Mechanical Engineering and SKKU Advanced Institute of Nanotechnology(SAINT), Sungkyunkwan University, Suwon, 440-746, Korea — Molybdenum diselenide ($MoSe_2$) has a direct band gap of 1.55eV for a monolayer utilized photodetctor and optoelectronics. Recently, its synthesis methods have been briskly researched as a material for electronic devices from reason why it has similar properties with molybdenum disulfide (MoS_2). We present synthesis method for large-scale monolayer $MoSe_2$ through the chemical vapor deposition using Se and MoO_3 powder as a precursor. Raman and X-ray photoelectron microscopy confirmed the quality of synthesized $MoSe_2$. Moreover, electrical property was investigated with field effect transistor.

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