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## **CVD Growth and Characterization of Atomically Thin Transition Metal Dichalcogenides**

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Monolayer Transition Metal Dichalcogenides (TMDs) has attracted great interest due to its special band structure, very high electronic conductivity, high photoluminescence intensity and spin- valley polarization, which made it good candidate for sensors, energy storage devices, electronic and optoelectronic devices.

Synthesis of controlled, uniform, defect free single domain TMDs is main challenge for in practical application. The property and shape of synthesized TMDs also depends on the synthesis process. Chemical Vapor Deposition (CVD) is commonly accepted synthesis process for high quality and controlled growth TMDs. The temperature, time and pressure of the growth process, precursor ( $\text{WO}_3$  or  $\text{MoO}_3$ , S) amount, carrier gas (Ar,  $\text{H}_2$ ) flow rate, Substrate and its position are important parameter to optimize the growth process for CVD TMDs.

In this presentation I will like to talk about the CVD growth of monolayer TMDs with size 3-50  $\mu\text{m}$  in our lab and how the shape and size of TMDs varies with growth parameters. I will also talk about the characterization of these samples using Optical microscopy, Atomic Force Microscopy and Raman Spectroscopy.

**Primary author:** Ms BISWAS, Banani (Master student)

**Presenter:** Ms BISWAS, Banani (Master student)

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