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Chemical Vapor Deposition (CVD) of Molybdenum Disulphide (MoS2) Monolayers

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Abstract : In this work molybdenum dioxide (MoO2) and sulphur powders are used to grow MoS2 mono layers at elevated temperatures T≥800 °C. Centimetre scale continues thin films with grain size up to 410 µm have been grown using chemical vapour deposition. To our best knowledge, these domains are the largest that have been grown so far. Advantage of our approach is not only because of the high quality films with large domain size one can produce, but also the procedure is potentially less hazardous than other methods tried. The thin films have been characterized using transmission electron microscopy (TEM), atomic force microscopy (AFM) and Raman spectroscopy.

Keywords : molybdenum disulphide (MoS2), monolayers, chemical vapour deposition (CVD), growth and characterization
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