

Material: MoS₂

Substrate: c-Sapphire (0001)



(2 times)

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Sample details: Growth done on two-inch backside-scribed double side polished sapphire. Quarter of the wafer is sent to

user. Shipping: Sample is face down in the container and sealed in argon filled glove box.

Position at the center of the wafer where measurements were done

AFM 3.0 nm -3.0 nm 2.0 µm 3.0 nm -3.0 nm 1.0 µm

AFM shows the films are coalesced monolayer

with minor regions of bilayer growth and

particles.

PL/Raman PL conditions: Laser wavelength: 532 nm Raman E1 A1 Laser- 11 mW Acquisition time- 10 s Objective - 100X Grating - 300 gr/mm Raman conditions: Laser wavelength: 532 nm Laser-11 mW Acquisition time-20 s 600 Objective - 100X Grating - 1800 gr/mm Energy(eV) Wavenumber (cm⁻¹)

PL demonstrates luminescent peak at 1.85 eV suggesting monolayer film. Raman peak, especially at low wavenumbers indicate formation of monolayer film.

TEM – dark field imaging Composite dark-field map Selected Area Diffraction pattern Bilaver 1 um

The DF-map of MoS₂ transferred on Quantifoil Cu grid shows two contrasting regions, 1 and 2, in the monolayer MoS₂. This corresponds to anti-phase domains present in the films.



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