ALD 2018 Late News Abstract Supplemental

Effect of Substrate on MoS_2 Deposited by Plasma-enhanced Atomic Layer Deposition

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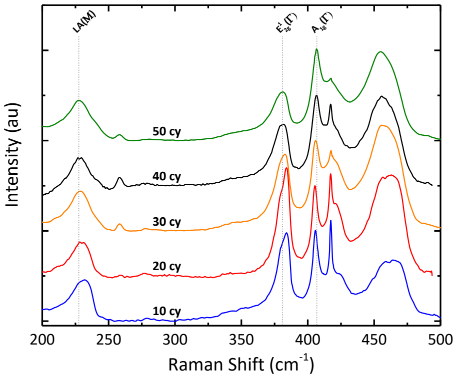
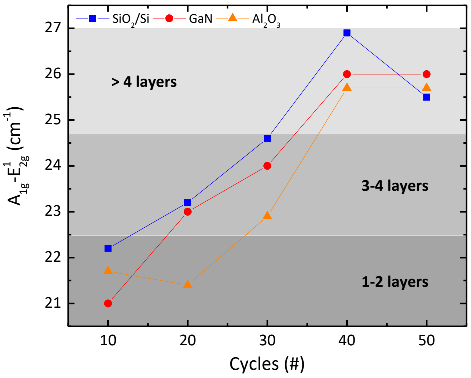
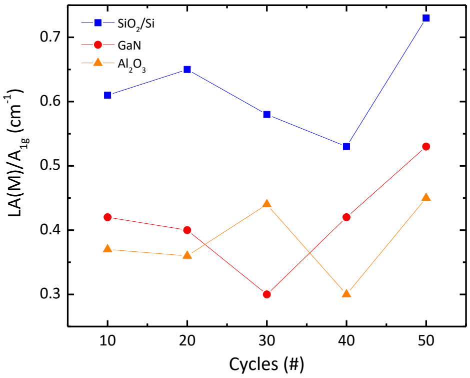


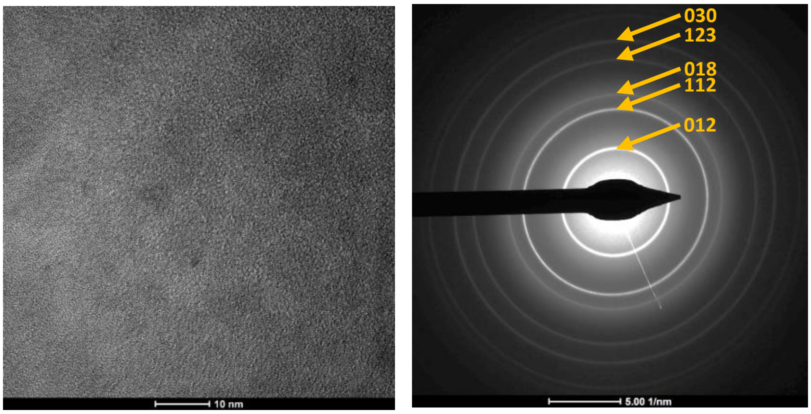
Resonance Raman spectra of PEALD MoS_2 at different deposition cycles indicating a shift in vibrational modes with decreasing film thickness.



Difference between A_{1g} and E^1_{2g} is indicative of layer thickness.

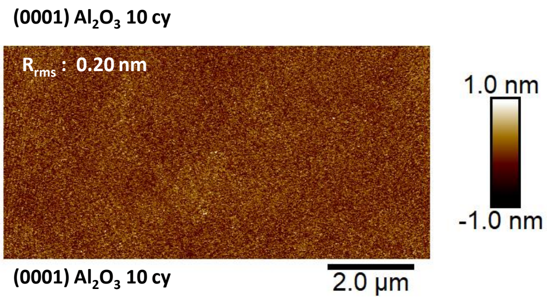


Ratio between LA(M) and A_{1g} (LA(M)/A_{1g}) has an inverse correlation to grain size.



Plan-view TEM and SAED of MoS_2 deposited on a transparent SiN_x membrane

- SAED indexed to 2H-MoS_2
- Systematic absence of (00ℓ) shows that the basal plane of MoS_2 is parallel to the surface
- Polycrystalline



AFM micrograph of MoS_2 film grown on (0001) sapphire for 10 reaction cycles. The film is smooth with no evidence for out-of-plane growth.