

Fig.1 The typical ALD saturation curves showing the growth per cycle (GPC) as a function of (left) Mo precursor dose and (middle) H₂S based plasma exposure (right) The linear relation between thickness and number of ALD cycles.

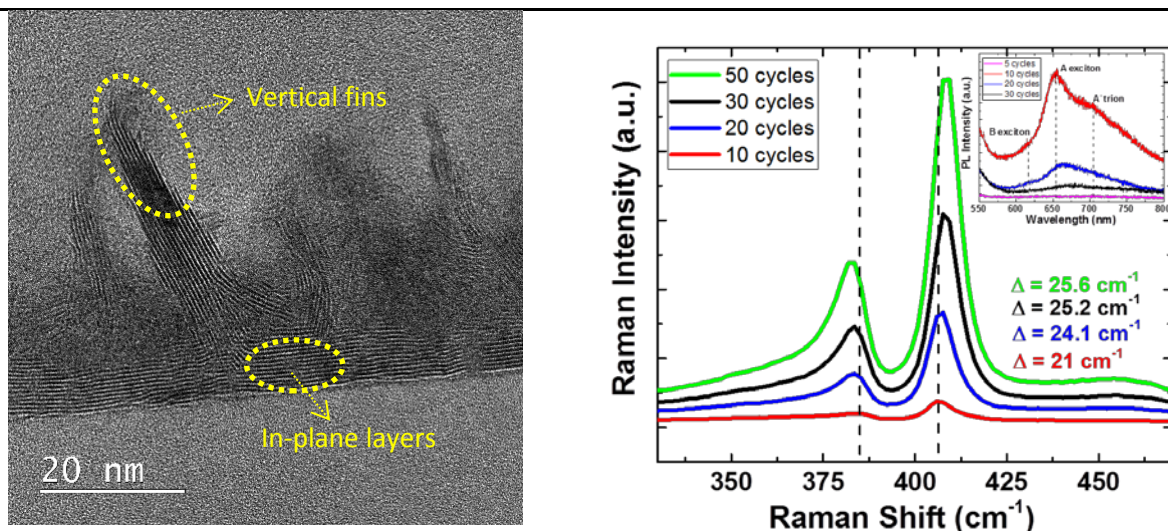


Fig. 2 (left) The cross sectional TEM image reveals the transition from in-plane growth to vertically standing structures at a growth temperature of 450°C. (right) Raman progression showing the increasing frequency difference value as a function of thickness and inset showing the strong PL signal corresponding to a monolayer of MoS₂ grown at 450°C.

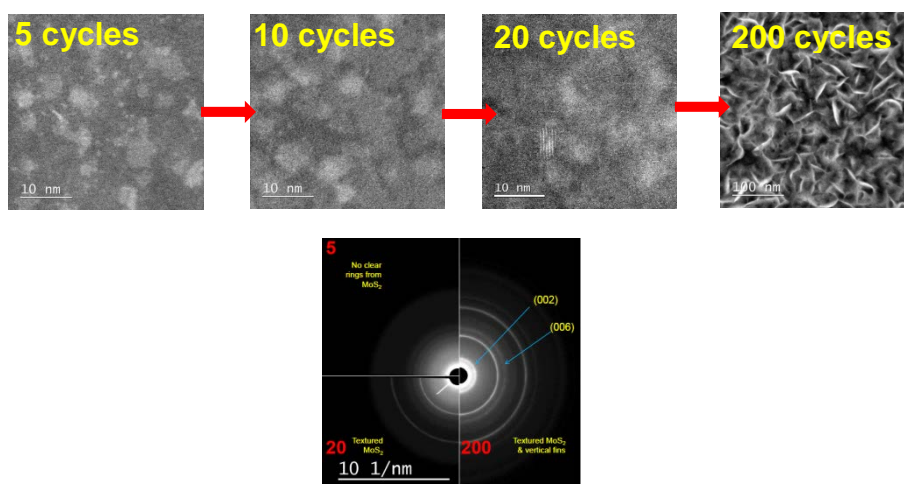


Fig. 3 (upper panels) The HAADF images showing the nucleation of MoS₂ on SiO₂/Si substrates as a function of number of ALD cycles and the variation of morphological structures. (lower panel) The formation of textured and vertically standing MoS₂ nanostructures is supported by the electron diffraction patterns showing the bright rings corresponding to (002) and (006) crystal orientations.