

PLD- MoS₂ on Sapphire

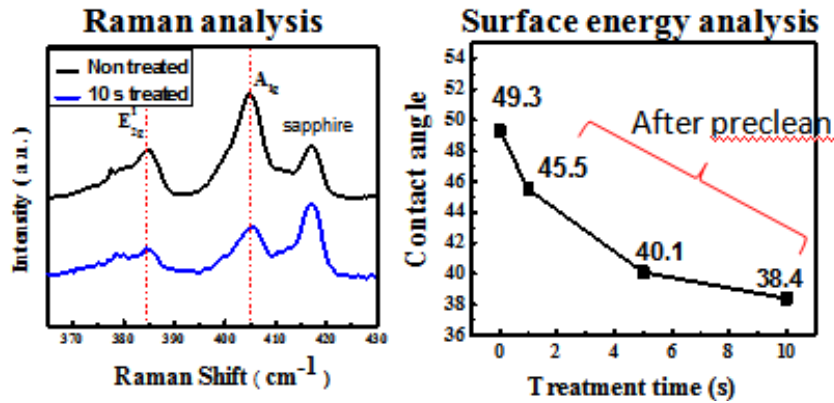


Figure 1 The Raman (left) and contact angle (right) analysis for PLD directly grow MoS₂ film on sapphire substrate. No obvious change in Raman spectrum after cleaning and contact angle decreased and kept after cleaning for 10 s.

MoS₂ (Sputtering MoO₃ film + S) on SiO₂/Si

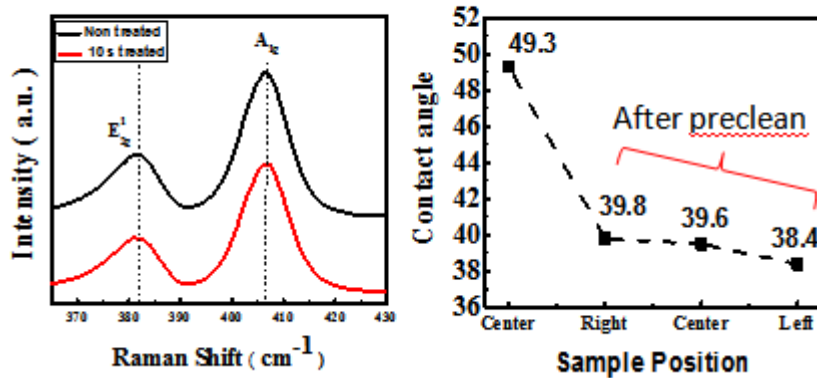


Figure 2 The Raman (left) and contact angle (right) analysis for MoS₂ film on SiO₂/Si substrate. No obvious change in Raman spectrum after cleaning. The contact angle data within 10s cleaned wafer was uniform and similar to the result of PLD grown MoS₂ film.

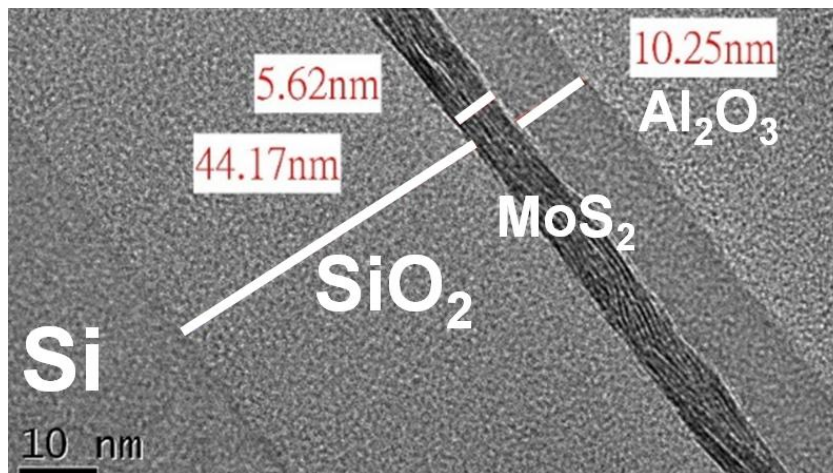


Figure 3 The cross-sectional TEM image of 10nm ALD Al₂O₃ high k film deposited onto precleaned layered MoS₂ film covered with 44nm SiO₂/Si. An uniform and smooth high k film with a clear interface with underneath MoS₂ film was observed.