

# Supporting Information for: Substrate Induced Changes on the Optical Properties of Single-Layer $\text{WS}_2$

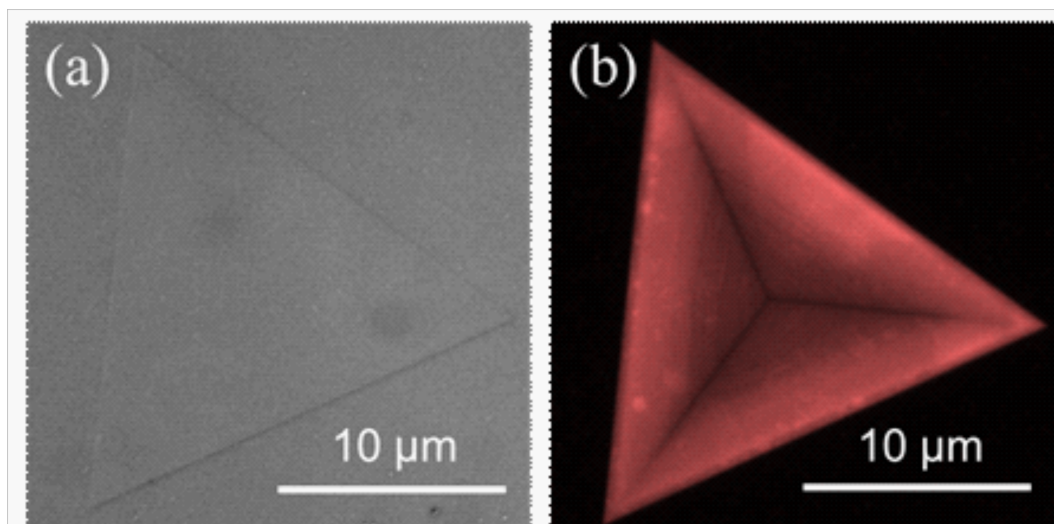


Figure S1: (a,b) Optical and fluorescence microscopy images of a typical CVD-grown  $\text{WS}_2$  flake. The strong fluorescence emission of the flake shown in (b) indicates the single-layer nature of the flake.

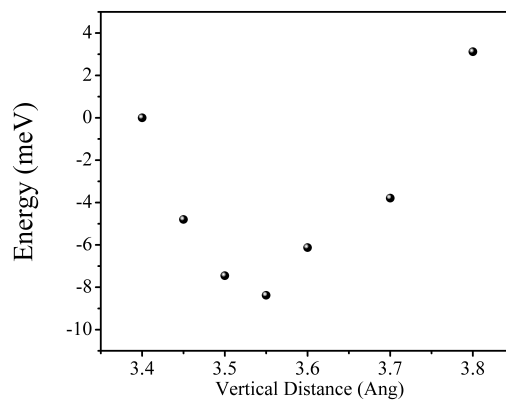


Figure S2: Energy  $\times$  Vertical Distance graph zoomed around the energy minima for  $\text{WS}_2/\text{Si}_3\text{N}_4$  interface.

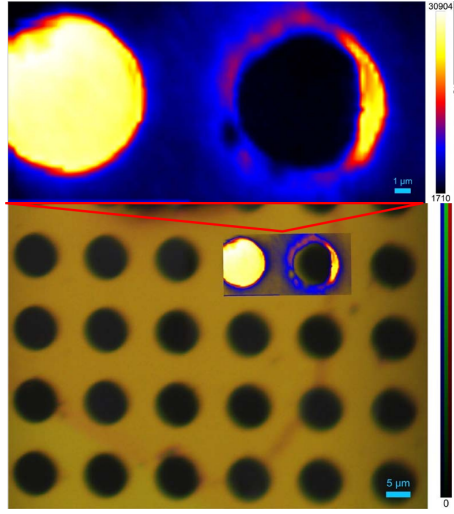


Figure S3: PL mapping (peak centred at 616.7 nm) of one region of the  $\text{WS}_2$  monolayer sample showing a continuous sample free of damage (left hole) and the high intensity of the signal on the suspended region in comparison with supported one.

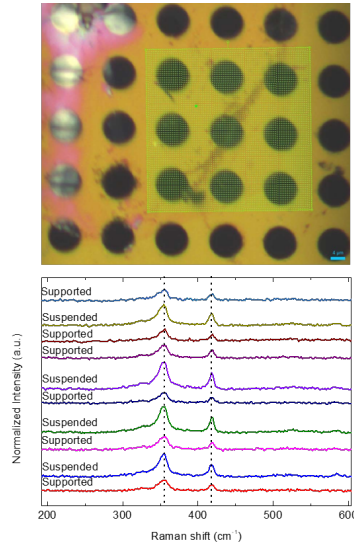


Figure S4: Optical image of region and Raman spectra of  $\text{WS}_2$  samples sus-pended and supported on the substrate, showing that there is no significant shifting of peak positions and the difference of the intensity between sus-pended and supported sample.

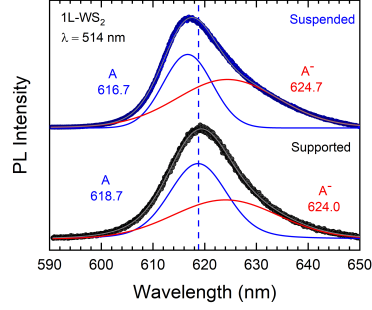


Figure S5: Normalized Raman spectra of 1L-WS2 acquired in the suspended (upper panel) and supported (lower panel) regions. The vertical red dashed line highlights the slight blueshift for the suspended sample.

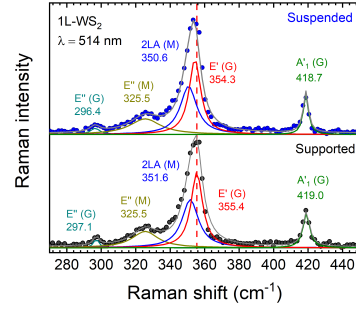


Figure S6: Normalized Raman spectra of 1L-WS2 acquired in the suspended (upper panel) and supported (lower panel) regions. The vertical red dashed line highlights the slight redshift for the suspended sample.

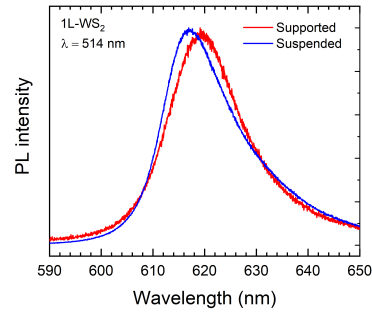


Figure S7: Normalized PL spectra of 1L-WS2 acquired in the suspended (blue trace) and supported (red trace) regions.