



Figure 1 (a) Film thickness of WS₂ on SiO₂ (blue diamonds) and on Al₂O₃ (red circles) as a function of number of ALD cycles, as determined from *in-situ* spectroscopic ellipsometry. (b) Scanning electron microscopy images of the Al₂O₃/SiO₂ patterned samples. (c) Raman spectra showing the characteristic in-plane (E_{2g}¹) and out-of-plane (A_{1g}) Raman modes of WS₂ on SiO₂ after annealing at 450 °C, and (d) the corresponding Raman E_{2g}¹ peak intensity line scans over the Al₂O₃/SiO₂ patterned samples after 20 *ABC-type* WS₂ ALD cycles. (e) XPS elemental W and Al line scans after 20 *ABC-type* WS₂ ALD cycles on the Al₂O₃/SiO₂ patterned samples.