Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Electronic Supplementary Information for

Stepwise Growth of Crystalline MoS_2 in Atomic Layer Deposition

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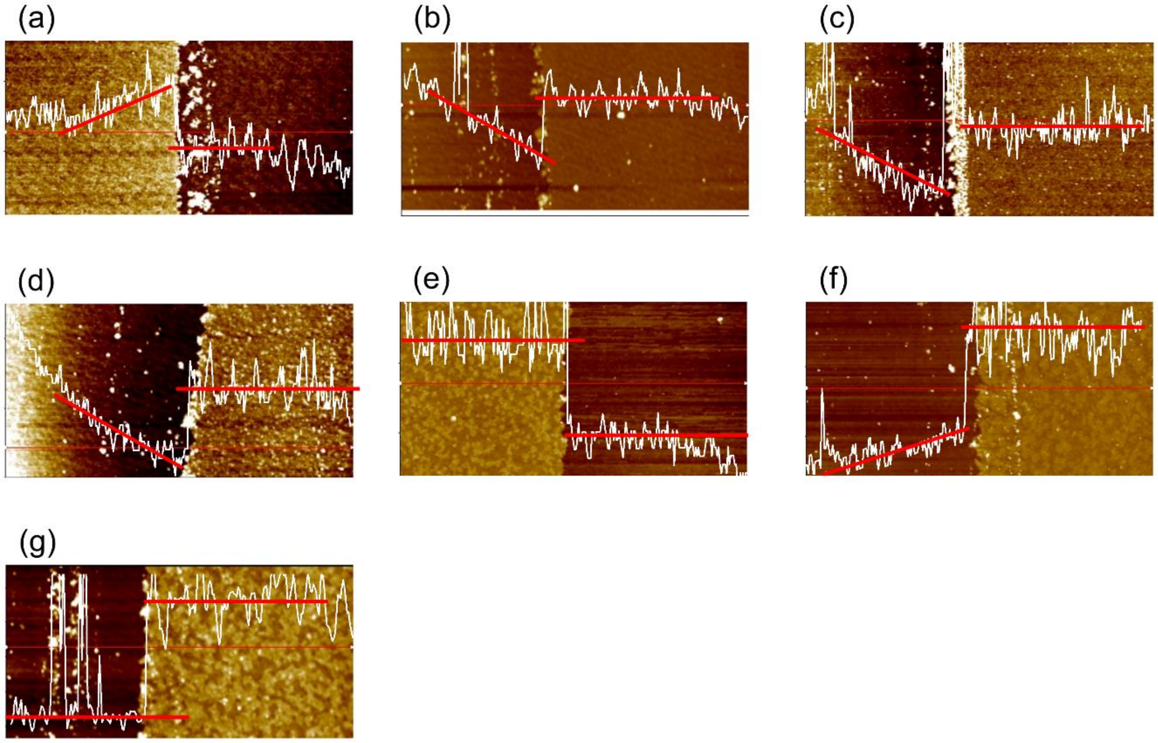

Figure S1. AFM images and height profiles of the PEALD-grown MoS_2 on SiO_2/Si for (a) 50, (b) 100, (c) 200, (d) 300, (e) 400, (f) 500, and (g) 700 cycles.

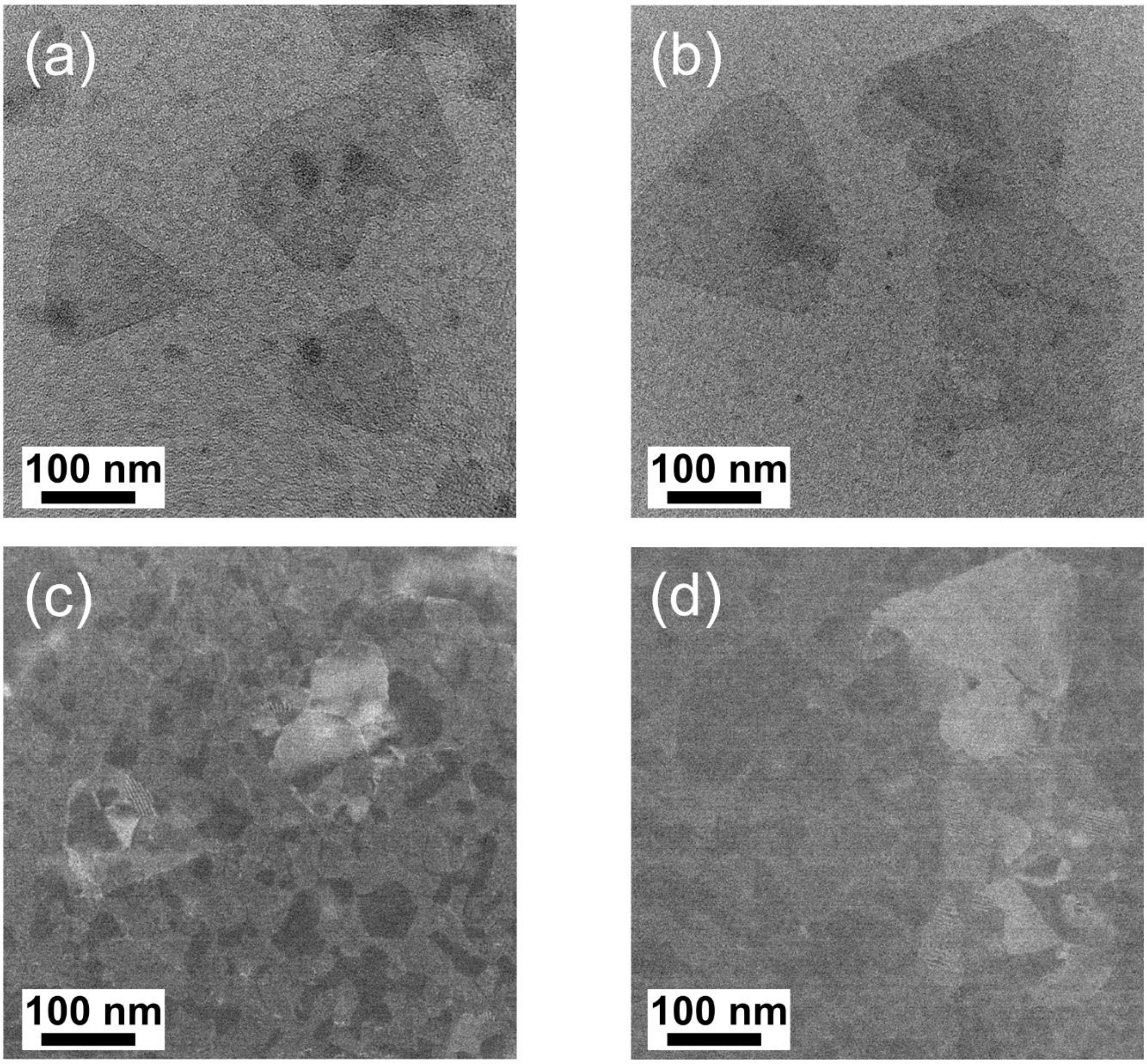

Figure S2. Bright-field TEM images of (a) 400-cycle-ALD-grown and (b) 700-cycle-ALD-grown MoS_2. Dark-field TEM images of (c) 400-cycle-ALD-grown and (d) 700-cycle-ALD-grown MoS_2.

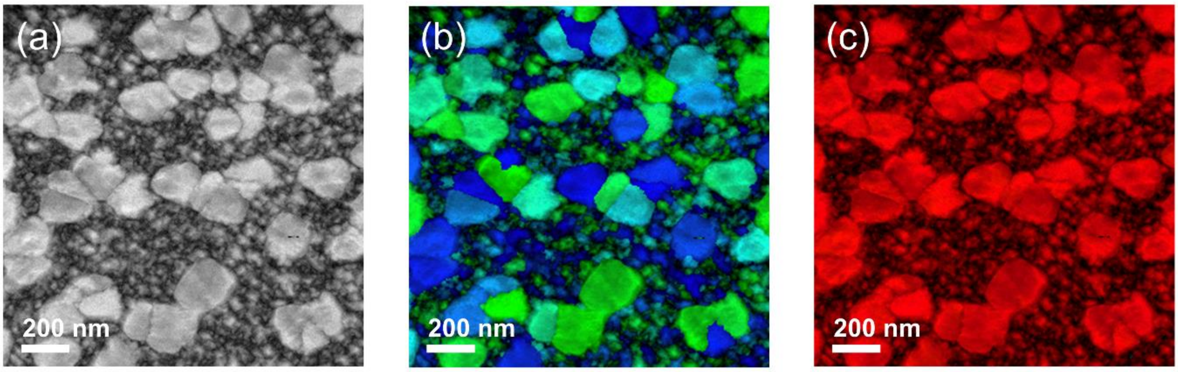

Figure S3. (a) Index map and (b) In-plane and out-of-plane orientation maps combined with index map of PEALD-grown MoS2 via ASTAR analysis.

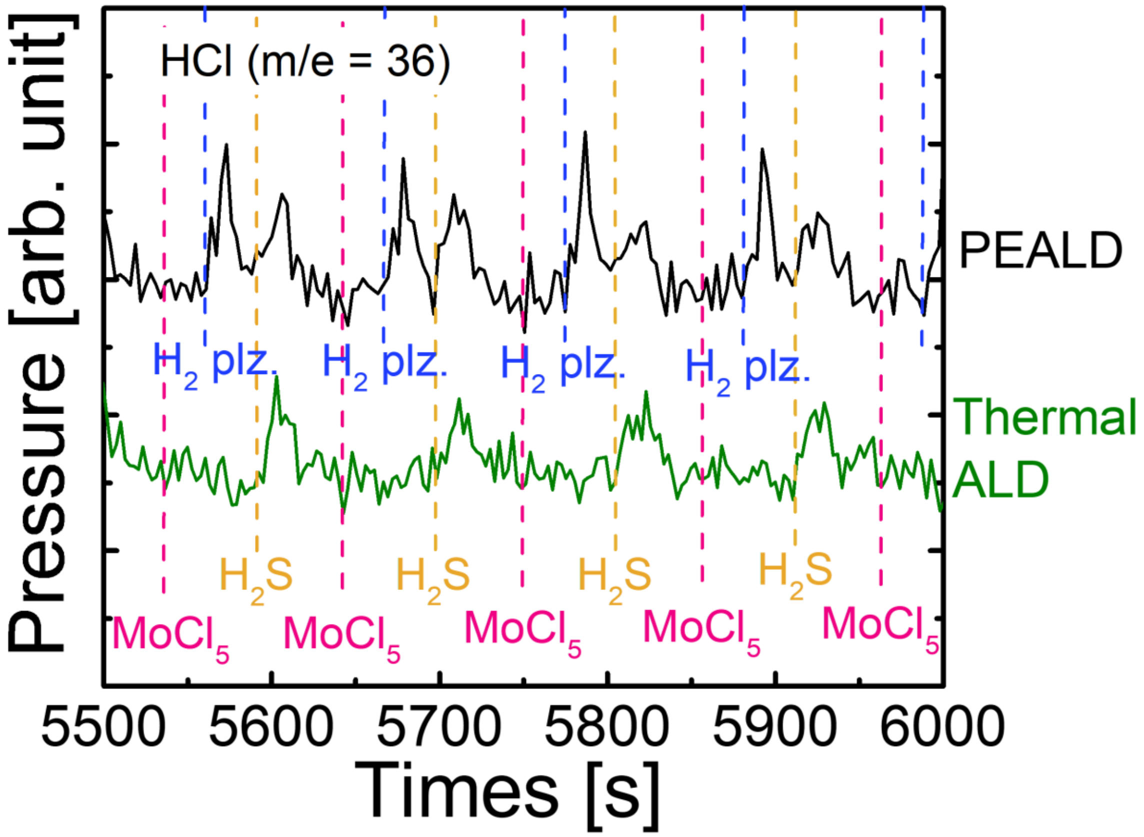

Figure S4. Quadrupole mass spectrometry (QMS) signal of m/e = 36 during the ALD process with $MoCl_5$-H_2 plasma-H_2S and $MoCl_5$-H_2S sequences.

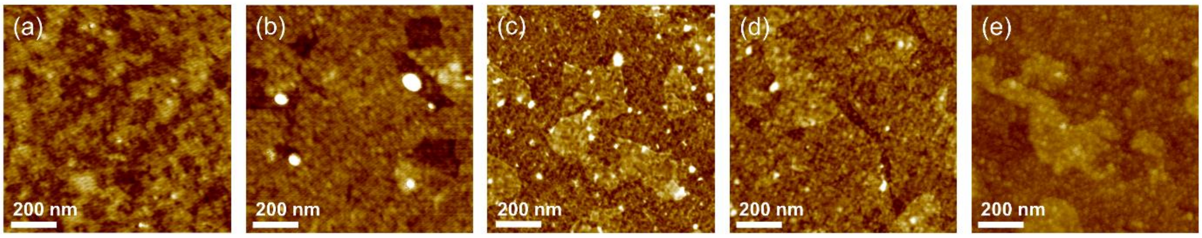

Figure S5. AFM images of the thermal ALD-grown MoS_2 on SiO_2/Si for (a) 100, (b) 300, (c) 400, (d) 500, and (e) 700 cycles.