Supplementary Information

An Aproach to High-throughput Growth of Submillimeter Transition Metal Dichalcogenides Single Crystals

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Fig. S1 The size distribution of the WS₂ flakes counted along (a) horizontal direction and (b) perpendicular direction



Fig. S2 (a) Optical image of a large size WS₂ flake transferred onto a Cu grid, (b-d) three SAED patterns taken from the feature region labeled in Figure S2 (a).



Fig. S3 (a-d) PL spectra were taken from the WS_2 flakes grown on the No. 1, 7, 13, and 18 substrates.



Fig. S4 (a) and (e) Optical image of typical submillimeter WSe_2 and MoS_2 flakes grown on the self-stacked substrates placed in the inner tube. (b) and (f) Raman spectra of WSe_2 and MoS_2 flakes taken from (a) and (e), the inert images is their PL spectra, (c)、 (d)、 (g) and (h) Raman and PL mapping images of the WSe_2 and MoS_2 flakes, respectively.



Fig. S5 (a) TEM image of MoS_2 flake transferred onto a copper grid, (b-i) SAED patterns taken from the feature region labeled in Fig. S5(a), which is corresponded with 1-9, respectively.