

## Supporting Information for

# Controllable Growth of Transition Metal Dichalcogenides Multilayer Flakes with Kirigami Structures

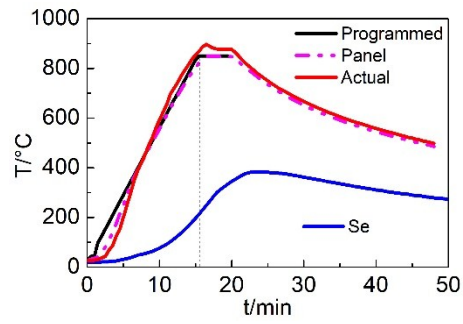
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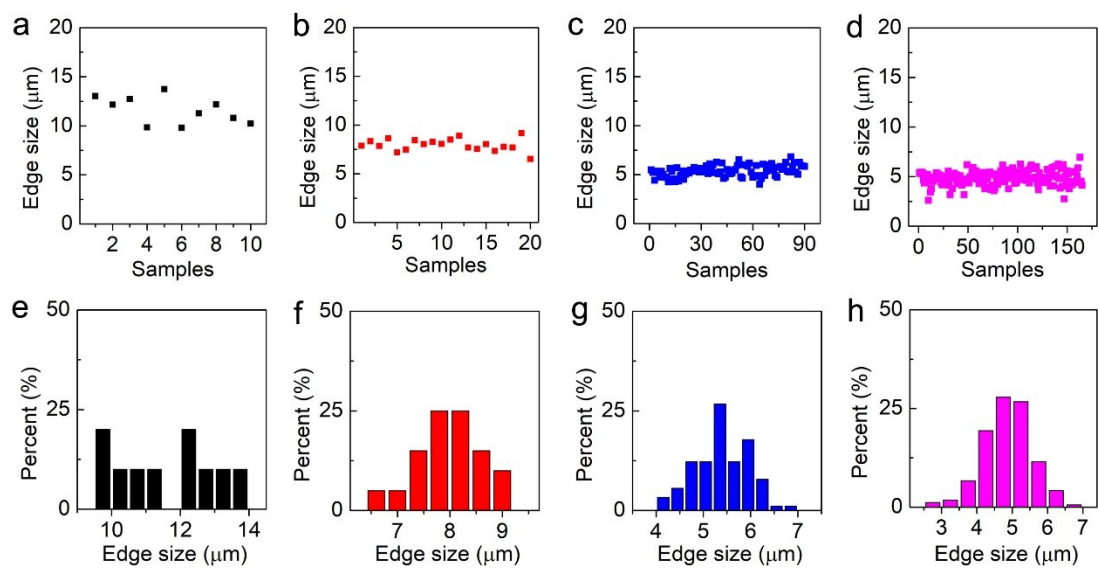
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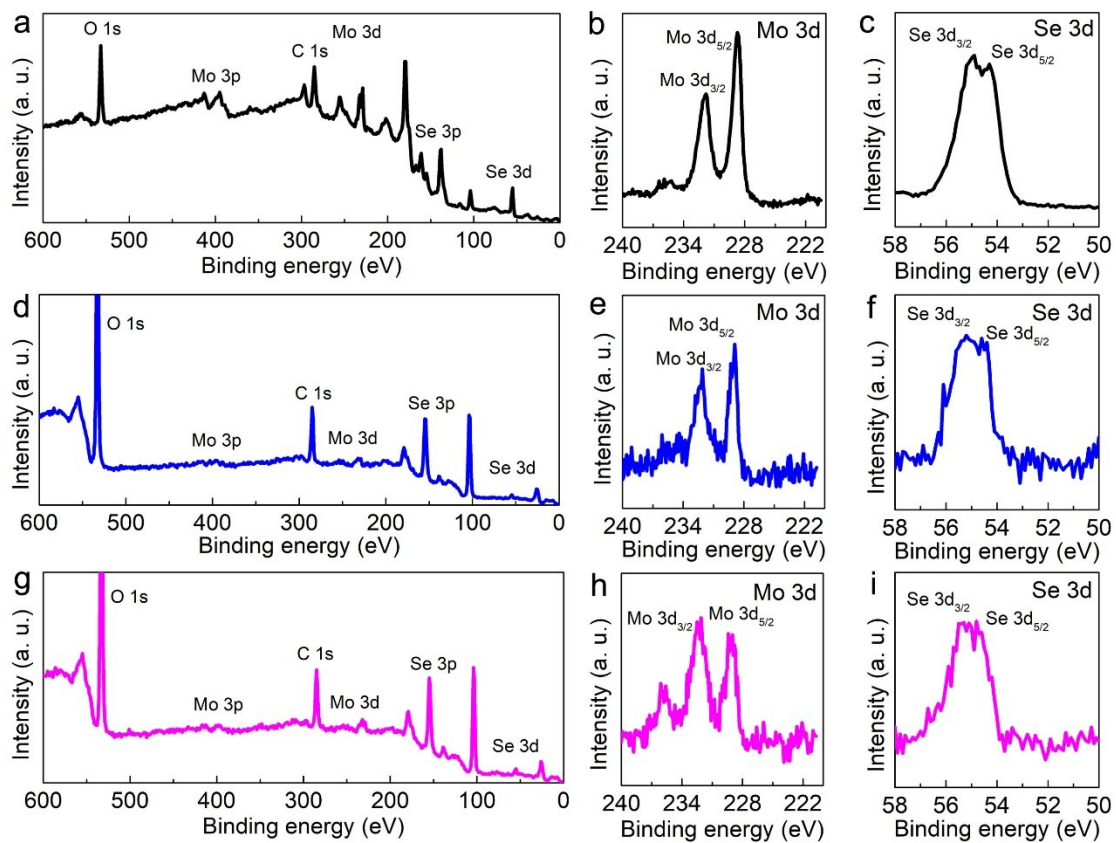
\*E-mail: pkuhjf@bit.edu.cn (J.F.H.); wdxiao@bit.edu.cn (W.D.X.).



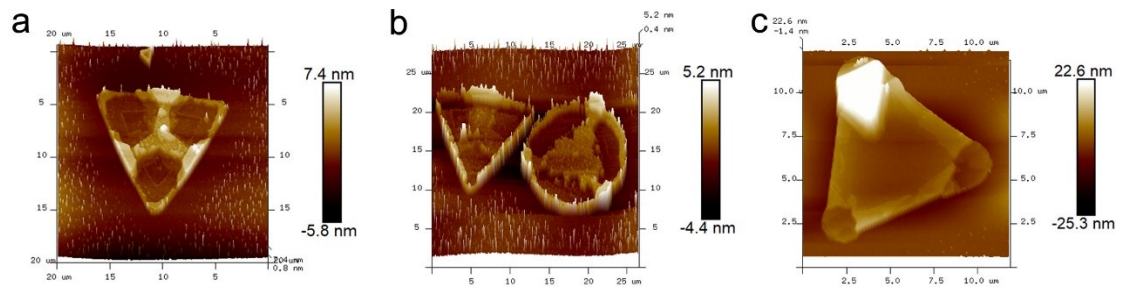
**Fig. S1** The T-t curves of the reaction process measured by armored thermometers. When the central temperature reaches 850 °C, Se vapor overflows (217 °C), resulting in a Se-rich conditions during the whole growth process.



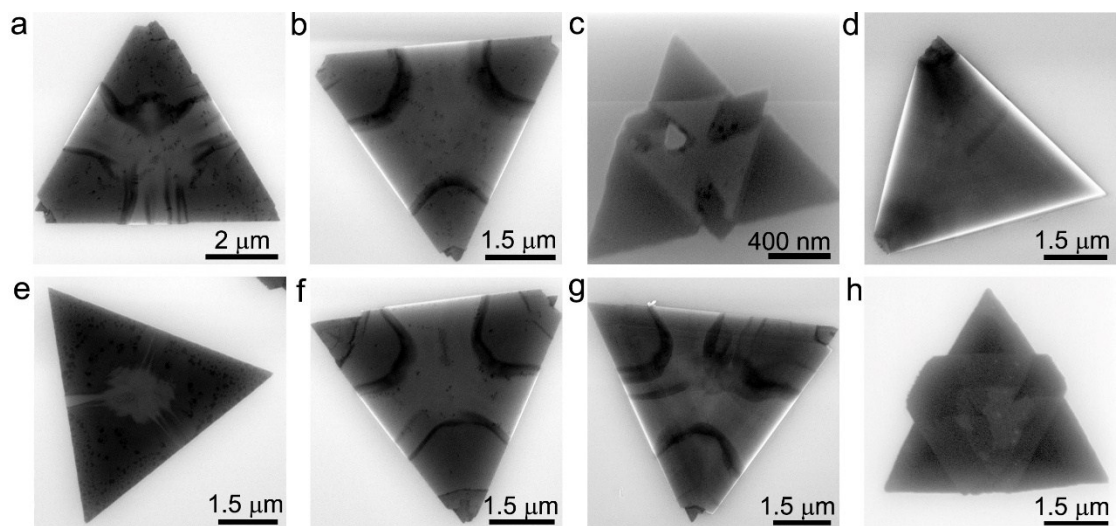
**Fig. S2** Edge size variations and the corresponding histograms of MoSe<sub>2</sub> multilayer flakes at different deposition temperature in Fig. 1e-h.



**Fig. S3** (a–c, d–f, g–i) The corresponding XPS spectra of MoSe<sub>2</sub> multilayer flakes at different deposition temperature in Fig. 1e, 1g, 1h.



**Fig. S4** The corresponding 3D AFM images of Kirigami-structured MoSe<sub>2</sub> multilayer flakes in Fig. 2e, 4c and 4f.



**Fig. S5** SEM images of the Kirigami-structured WSe<sub>2</sub> multilayer flakes with different contrast.