

Supporting Information

Structural alignment and enhanced crystallinity of ZnO columns across multiple monolayer MoS₂ layers as compliant substrates

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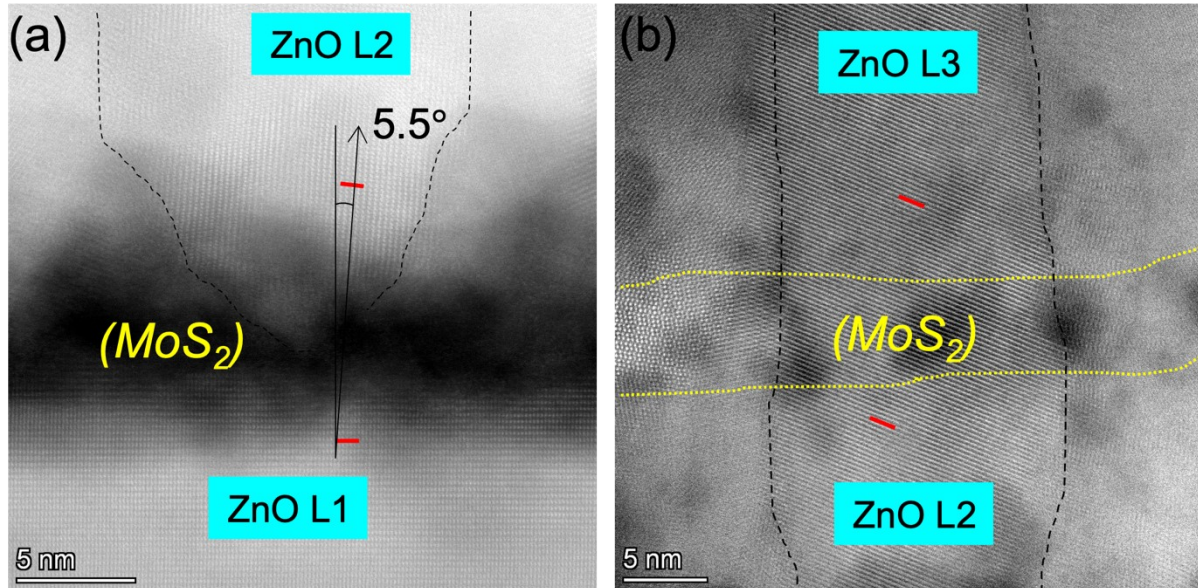


Figure S1. (a) HRSTEM at ZnO L1/L2 interface showing misaligned ZnO columns with a 5.5° angle rotation. (b) HRSTEM at ZnO L2/L3 interface showing aligned ZnO column without rotation.

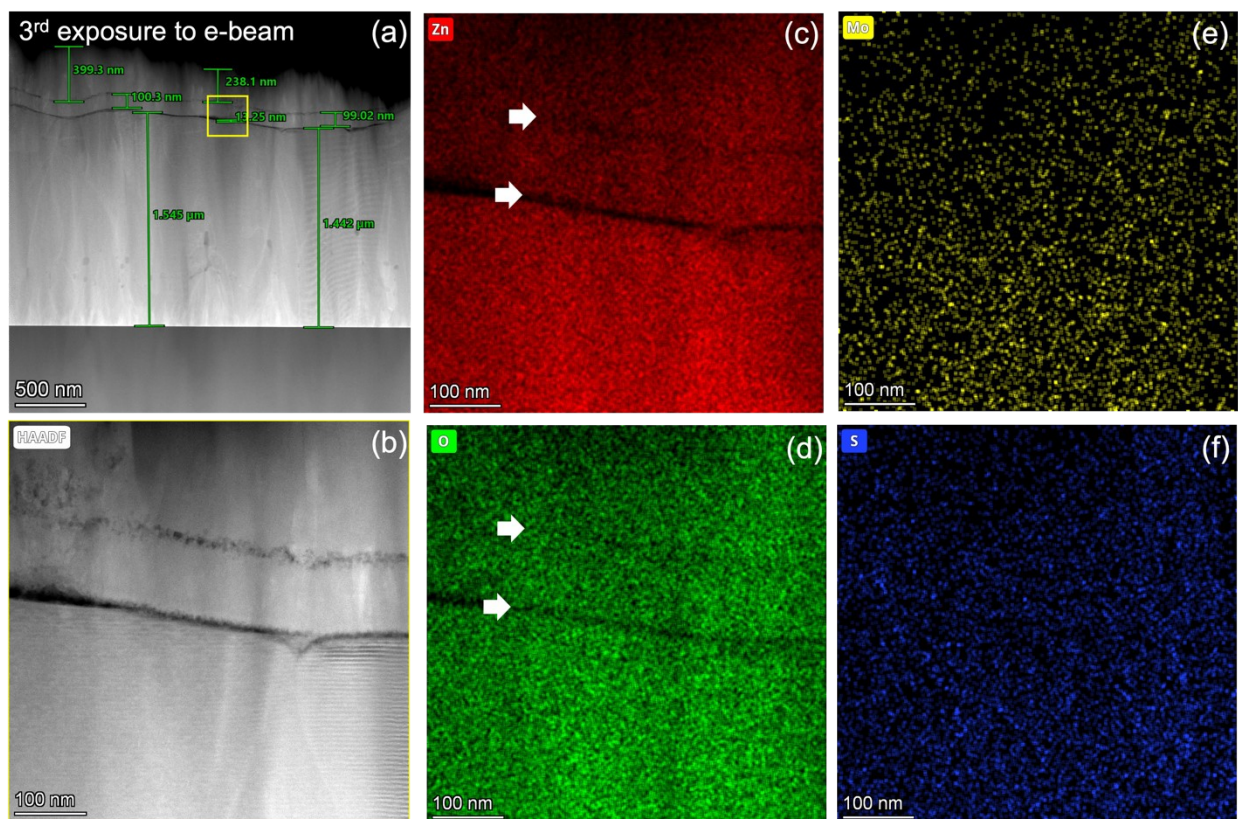


Figure S2 (a) Cross-sectional HAADF STEM micrograph imaged at the 3rd time. Dark contrast indicates damaged MoS₂ under 300kV electron beam. (b) Area selected for EDX mapping. (c-f) EDX mapping for Zn, O, Mo and S. The dark contrast lines (white arrows) of Zn and O maps suggest the position for original MoS₂ without interfacial diffusion. Mo and S are below detection limit indicating the monolayers were damaged during the repeated *e*-beam exposure.