

## **Supporting Information**

for

### **Toward the use of CVD-grown MoS<sub>2</sub> nanosheets as field-emission source**

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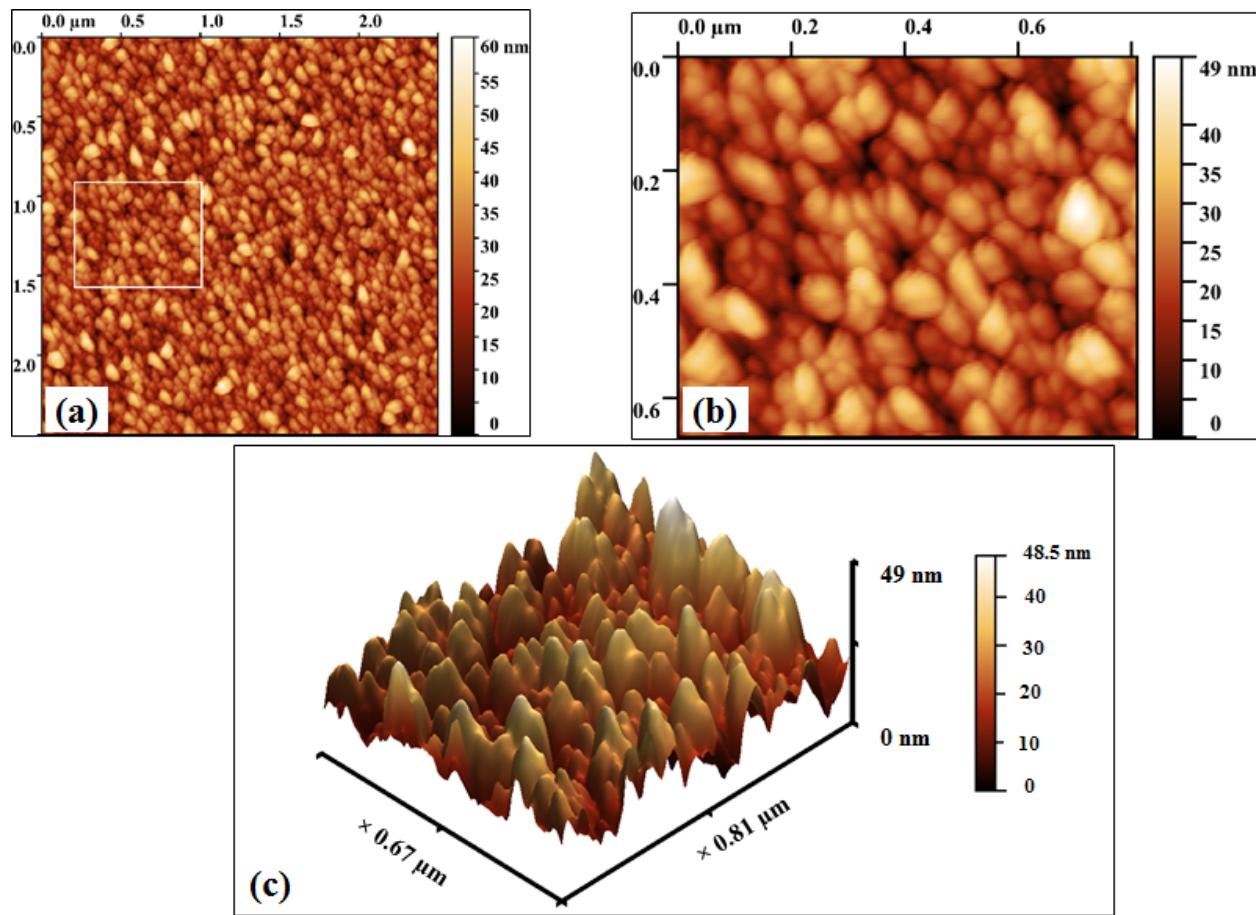
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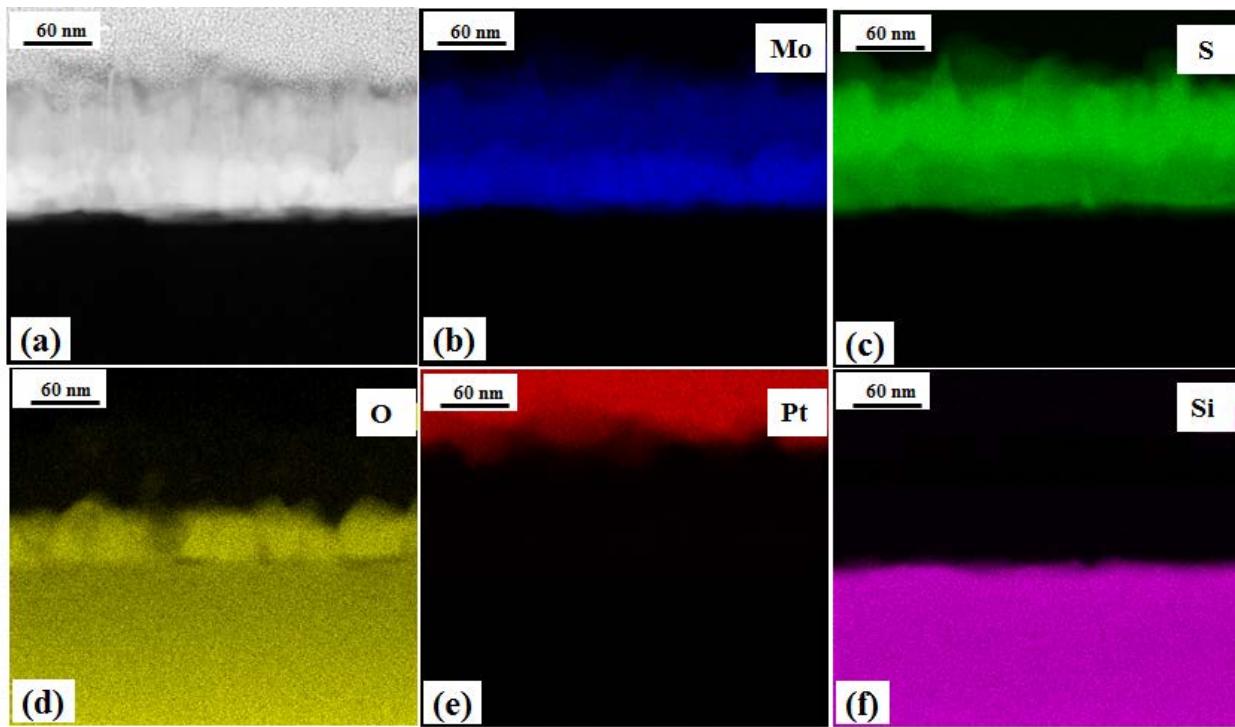
### **Additional experimental data**

**Table S1:** Peak fitting analysis results of the Mo 3d, S 3p, and O 1s core-level high-resolution XPS spectra from Figure 2b,c (BE = binding energy and FWHM = full width at half maximum).

Phase	Core level Mo3d / S1s	Peak BE	FWHM	Core level S2p/O1s	Peak BE	FWHM
<b>MoS<sub>2</sub></b>	<b>Mo3d<sub>5/2</sub></b>	<b>228.9</b>	<b>0.81</b>	S2p <sub>3/2</sub>	<b>161.8</b>	<b>0.73</b>
	<b>Mo3d<sub>3/2</sub></b>	<b>232</b>	<b>0.91</b>	S2p <sub>1/2</sub>	<b>163</b>	<b>0.73</b>
<b>MoS<sub>2</sub></b>	<b>S2s</b>	<b>226.2</b>	<b>2.02</b>			
<b>MoO<sub>2</sub></b>	<b>Mo3d<sub>5/2</sub></b>	<b>232.7</b>	<b>0.68</b>	O1s	<b>530.3</b>	<b>1.36</b>
	<b>Mo3d<sub>3/2</sub></b>	<b>235.6</b>	<b>1.67</b>			
<b>-C-O</b>				O1s	<b>532.0</b>	<b>2.54</b>



**Figure S1:** AFM resonant-mode mapping for MoS<sub>2</sub> sample grown by double sulfurization of a 50 nm Mo film at 850 °C on SiO<sub>2</sub>/Si substrates: (a) Topographic view of a  $2.5 \times 2.5 \mu\text{m}^2$  area and (b) zoom-in over the white square in panel (a); (c) 3D image of panel (b).



**Figure S2:** MoS<sub>2</sub> sample grown by double sulfurization of a 50 nm Mo film at 850 °C on SiO<sub>2</sub>/Si substrates: (a) HAADF-STEM image, (b–f) EDS mapping results for various elements, over the area in panel (a).