Electronic Supplementary Information

Porous Metallic MoO\textsubscript{2}-Supported MoS\textsubscript{2} Nanosheets for Enhanced Electrocatalytic Activities in Hydrogen Evolution Reaction

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\textbf{Figure S1.} XRD of MoS\textsubscript{2}/MoO\textsubscript{2} obtained by different hydrothermal time (6 h, 12 h, 24 h and 48 h).
**Figure S2.** Raman spectroscopic studies of MoS$_2$/MoO$_2$-6h.

**Figure S3.** SEM image of mesoporous silicon (SBA-15).

**Figure S4.** Nitrogen adsorption/desorption isotherms porous MoS$_2$/MoO$_2$-6h.
**Figure S5.** TEM image of porous MoO$_2$ with one-dimensional channels.

**Figure S6.** Small-angle XRD pattern of MoO$_2$. On the basis of Bragg equation ($2d \sin \theta = n\lambda$), where $\lambda = 0.15406$ nm, the size of the periodic structure is 5.3 nm and 4.4 nm from $\theta = 0.98^\circ$ and $\theta = 1.99^\circ$, respectively.

**Figure S7.** Polarization curves of MoS$_2$/MoO$_2$ sample obtained by different hydrothermal time (6 h, 12 h, 24 h and 48 h).
Figure S8. Nyquist plots of MoS$_2$/MoO$_2$ sample obtained by different hydrothermal time (6 h, 12 h, 24 h and 48 h) at overpotential of 200 mV.

Figure S9. Zoom-in section of the high-frequency region of the Nyquist plots in Figure 5c, where it can be seen that Rs was reduced from 7.26 Ω for MoS$_2$ to 6.23 Ω for MoS$_2$/MoO$_2$-6h.

Figure S10. Current–time plots of the MoO$_2$ electrode at the applied potential of –0.23 V (vs. RHE)
**Figure S11.** (a) HER polarization curves for the commercial 20 wt% Pt/C before and after 1000 cycles of potential sweeps. (b) Current–time plots of the commercial 20 wt% Pt/C electrode at the applied potential of −0.23 V (vs. RHE).

**Figure S12.** (a) Bubble formation on the MoS$_2$/MoO$_2$-6h modified electrode at the applied potential of −0.23V (vs. RHE). (b) Production of hydrogen gas normalized by the weight of the MoS$_2$/MoO$_2$-6h catalysts at different reaction times.