Interconnected MoS$_2$/FeCo$_2$S$_4$ nanosheet array bifunctional electrocatalysts grown on carbon cloth for efficient overall water splitting

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Supporting information

**Figure. S1** EDX spectrum and the element analysis table (inset) of MoS$_2$/FeCo$_2$S$_4$/CC.
Figure S2 (a) The chronoamperometry test of MoS$_2$/FeCo$_2$S$_4$/CC at a constant potential of 228 mV; (b) the chronopotentiometry test of MoS$_2$/FeCo$_2$S$_4$/CC at a constant current density of 50 mA cm$^{-2}$.

Figure S3. CV curves of (a) FeCoMo-LDH/CC; (b) FeCo$_2$S$_4$/CC; (c) MoS$_2$/CC; (d) MoS$_2$/FeCo$_2$S$_4$/CC in 1 M KOH.
Figure S4 $C_{dl}$ of the MoS$_2$/FeCo$_2$S$_4$/CC, MoS$_2$/CC and FeCo$_2$S$_4$/CC.

Figure S5 Cyclic voltammogram of the MoS$_2$/FeCo$_2$S$_4$/CC in 1.0 M KOH solution at scan rate of 100 mV s$^{-1}$ in the potential range 0.6 to 1.6 V.
Figure. S6 TEM of the (a) fresh and (b) recovered MoS$_2$/FeCo$_2$S$_4$/CC.

Figure. S7 XRD pattern of recovered MoS$_2$/FeCo$_2$S$_4$/CC.

Figure. S8 XPS full spectrum of (a) fresh and (b) recovered MoS$_2$/FeCo$_2$S$_4$/CC.
Figure. S9 XPS spectra of (a) Mo 3d, (b) Co 2p, (c) Fe 2p, and (d) S 2p of recovered MoS$_2$/FeCo$_2$S$_4$/CC.