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Supporting Information:

Porous Co_3O_4 stabilized VS_2 nanosheets obtained with MOF template for efficient HER reaction

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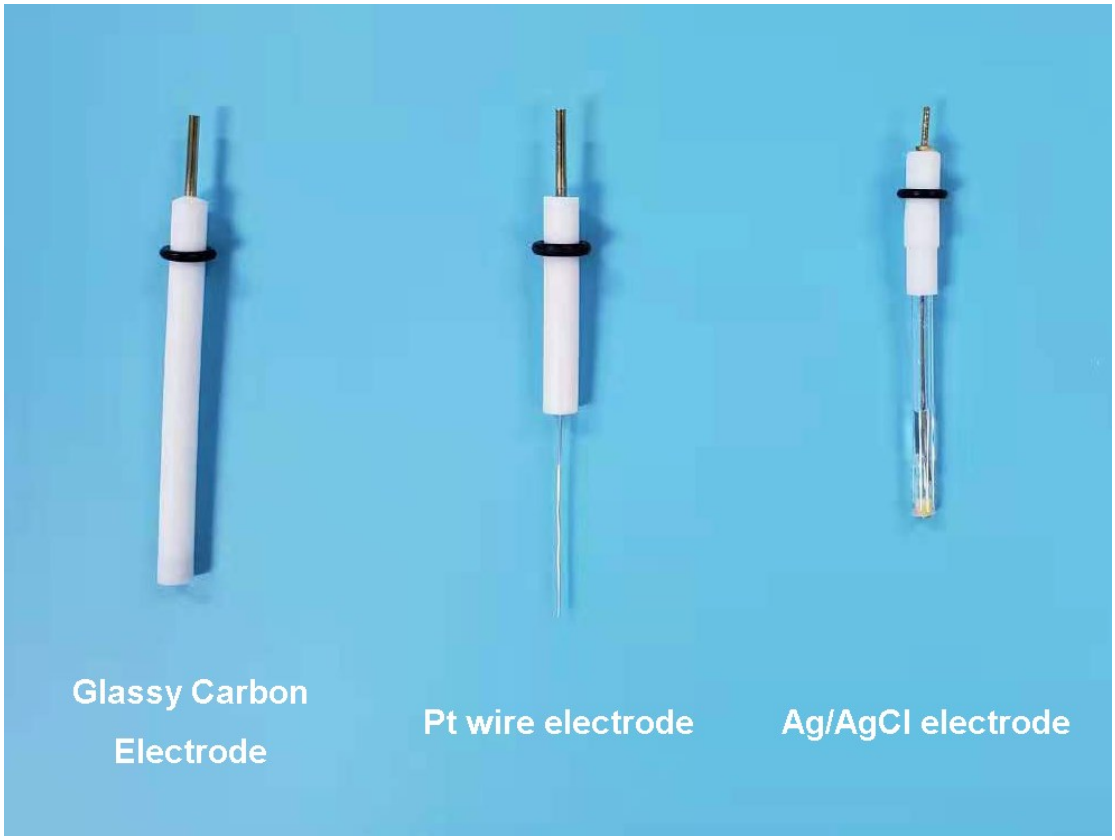

Fig. S1 Optical picture of each electrode used in the HER experiment.

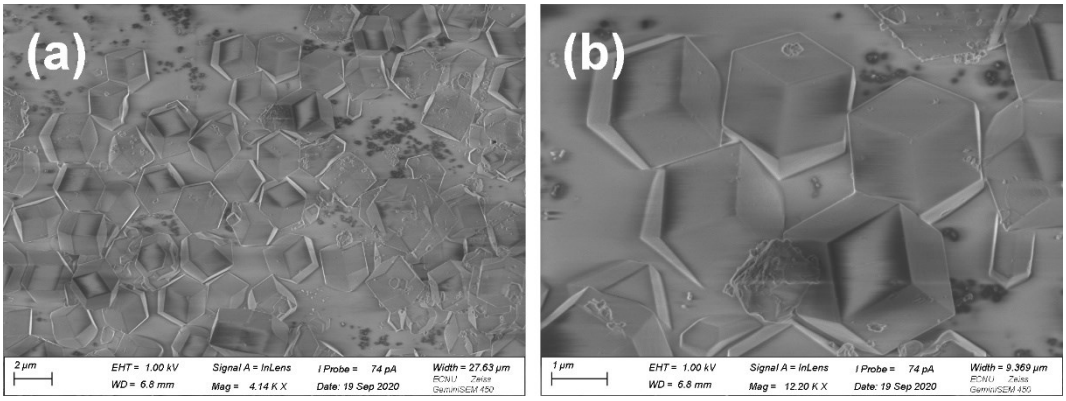

Fig. S2 (a, b) FESEM images under different magnification of Co-MOF.

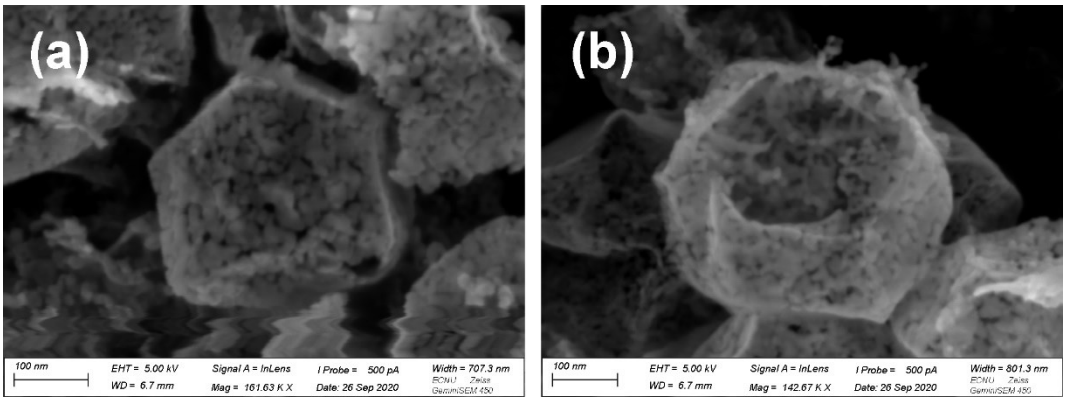

Fig. S3 (a, b) FESEM images of TS-Co_3O_4.

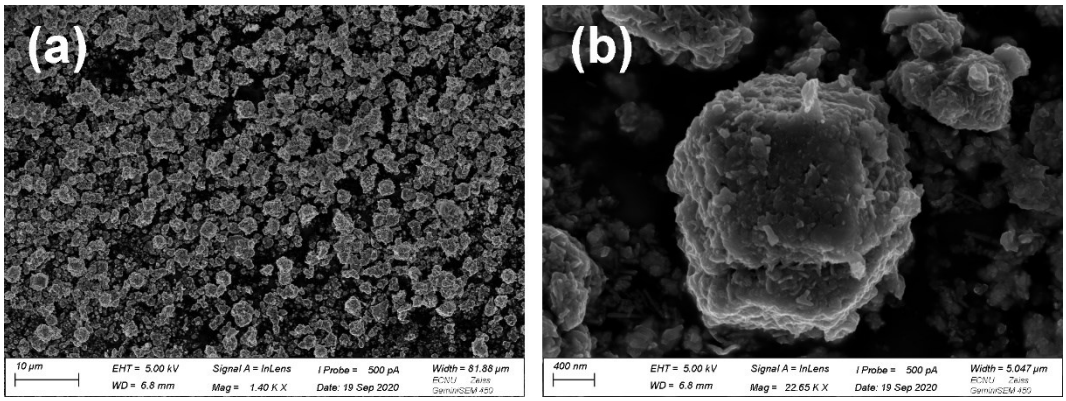

Fig. S4 (a, b) FESEM images under different magnifications of 10-TS-Co_3O_4 @ VS_2.

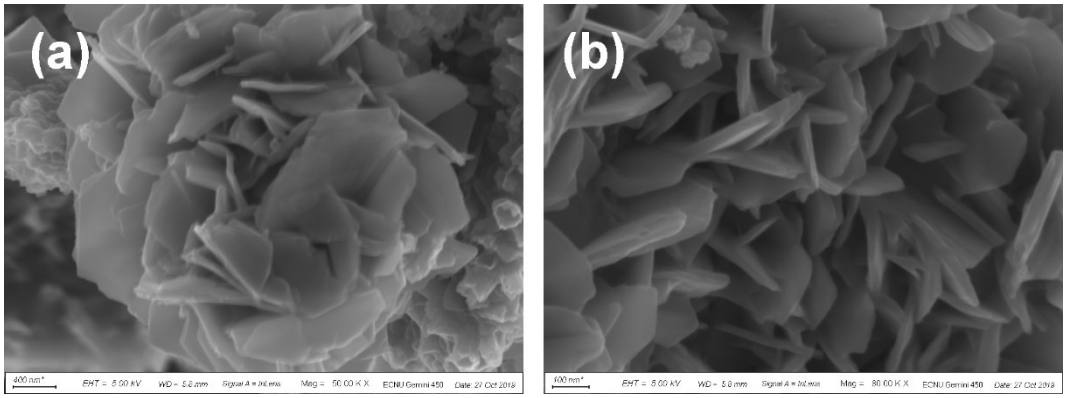

Fig. S5 (a, b) FESEM images of VS_2 under different magnifications.

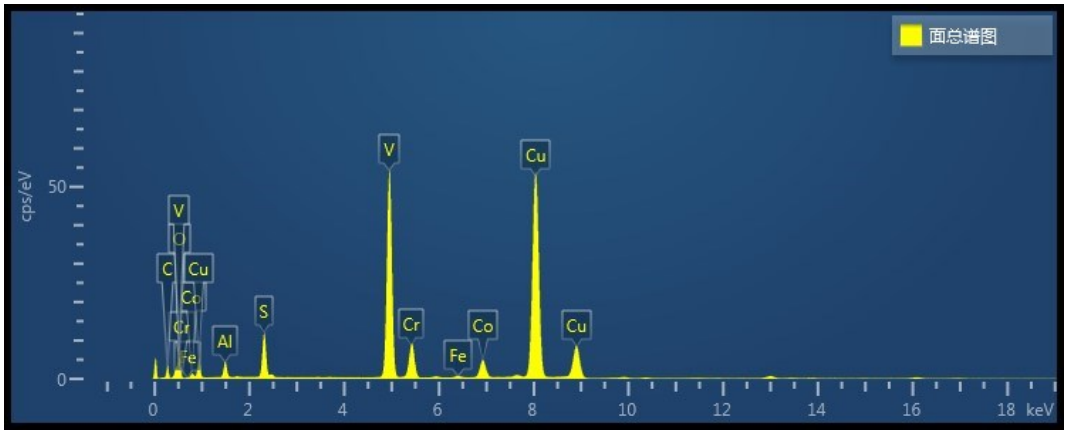

Fig. S6 EDS pattern of TS-Co_3O_4@VS_2.

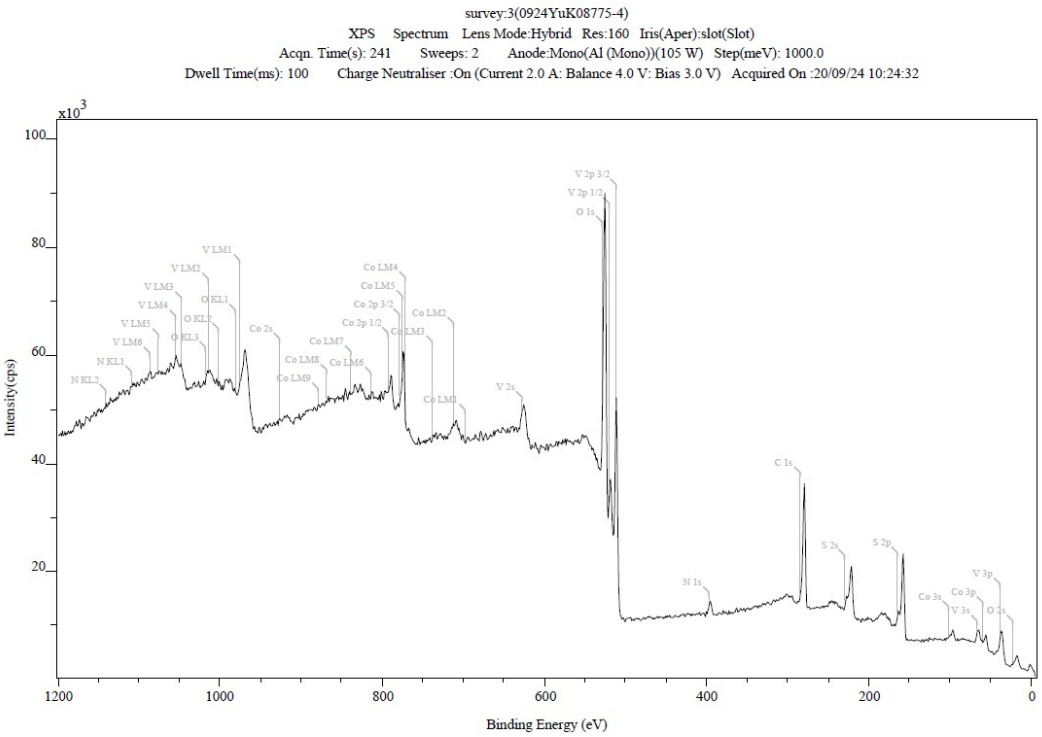

Fig. S7 XPS full pattern of TS-Co_3O_4@VS_2.

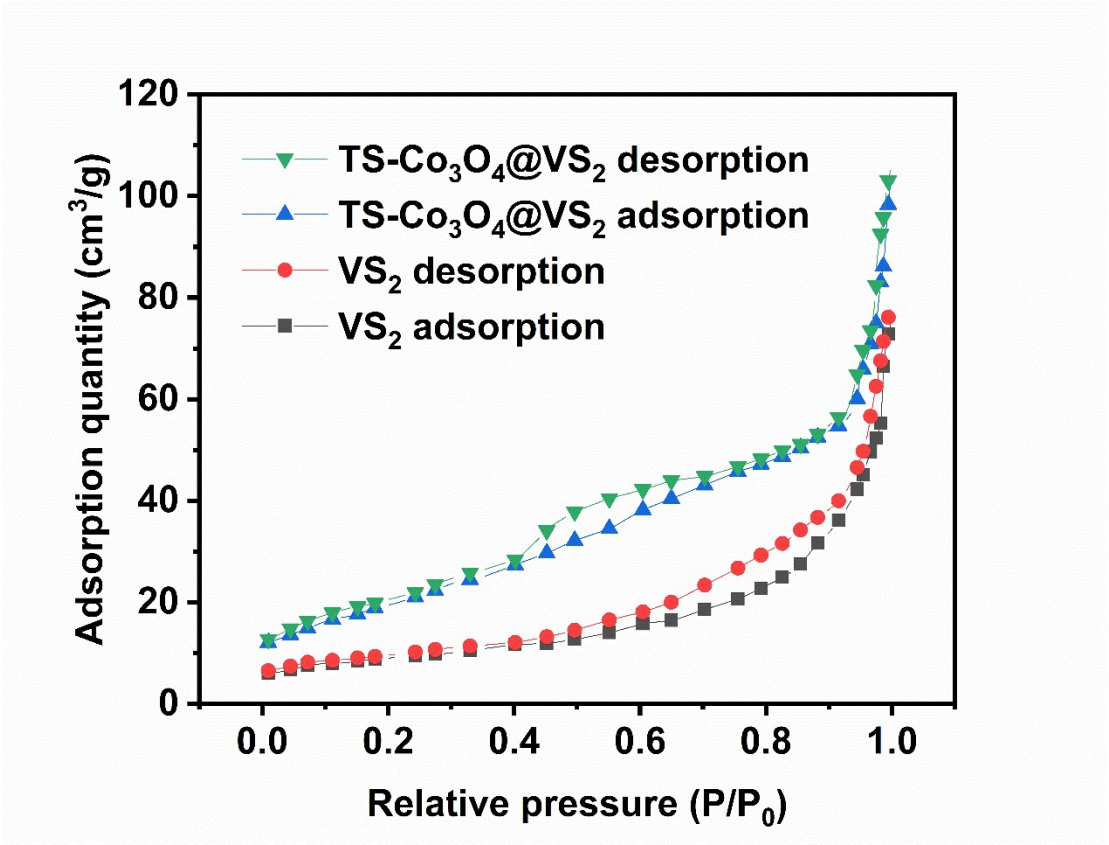

Fig. S8 BET test spectrum of TS-Co_3O_4@VS_2 and VS_2.

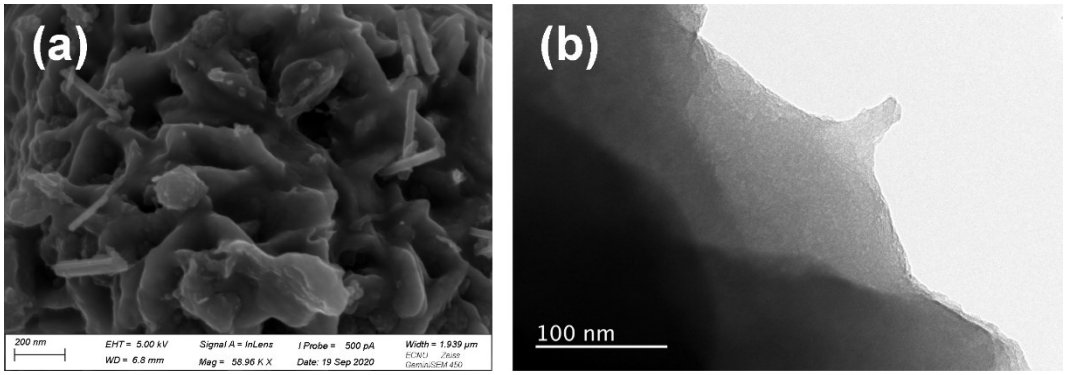

Fig. S9 (a, b) Electron micrograph of TS-Co_3O_4@VS_2 electrode material after 12 h long-term hydrogen evolution.

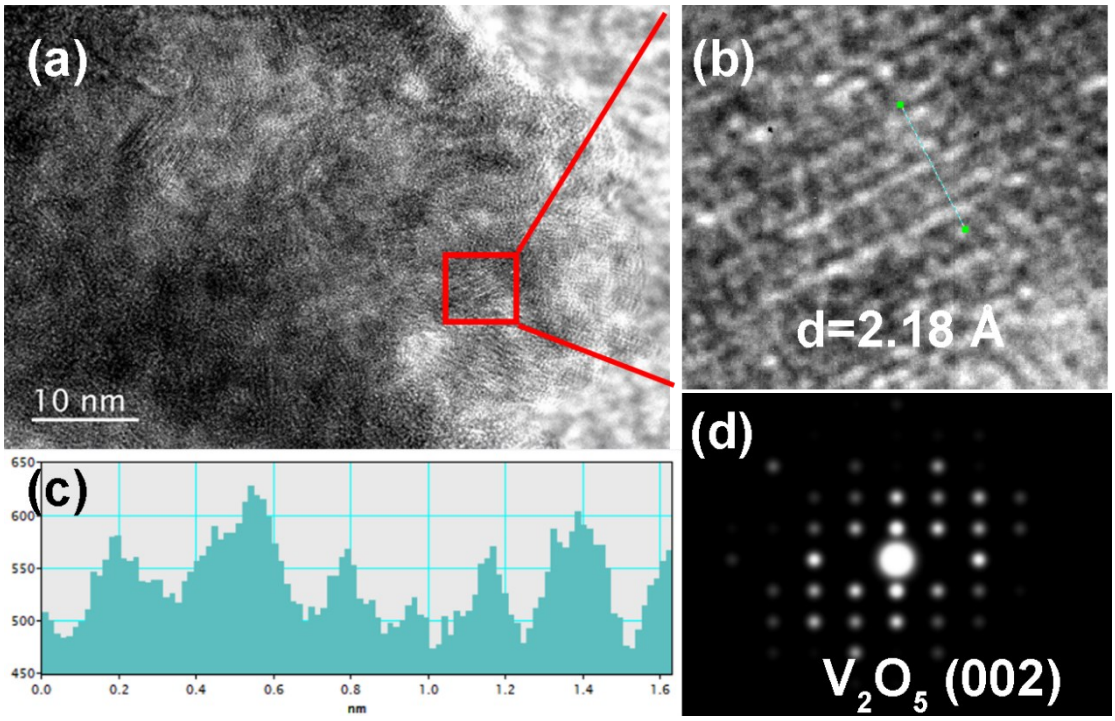

Fig. S10 (a, b) HRTEM micrograph of TS-Co_3O_4@VS_2 electrode material after 12 h long-term hydrogen evolution under different magnification. (c) Line scan result of the selected area. (d) FFT pattern of the selected area.

Table S1 The equivalent circuit component parameters of each catalyst.

Catalyst	Rs (Ω)	Rct (Ω)
VS_2	5.11	411.0
TS-Co_3O_4@VS_2	8.02	190.2

Table S2 Performance comparison of HER catalysts based on VS_2 in recent years.

S. No	Catalyst	Overpotential at 10 mA cm^{-2} (mV)	Tafel slope (mV/Dec)	References
1	VS_2 nanoflowers	400	170	1
2	Bulk VS_2	120	70	2
3	CVD grown VS_2	68	34	3
4	VS_2 nanosheets	450	201	4
5	V-MoS_2	194	59	5
6	MoS_2/VS_2	199.6	95.2	6
7	VS_2 NDs	440	101	7
8	Bio-templated VS_2	160	50	8
9	TS-Co_3O_4@VS_2	175.29	57	This work

Reference

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