

**Supporting Information**

**Hierarchical CoMoS<sub>3.13</sub>/MoS<sub>2</sub> Hollow Nanosheet Arrays as  
Bifunctional Electrocatalysts for Overall Water Splitting**

Chunhong Qu, Jian Cao\*, Yanli Chen, Maobin Wei, Xiaoyan Liu, Bo Feng, Shuting Jin, Ao Xu, Doudou Jin, Lili Yang\*

<sup>a</sup>College of Physics, Jilin Normal University, Changchun 130103, PR China

<sup>b</sup>National Demonstration Center for Experimental Physics Education, Jilin Normal University, Siping 136000, PR China

<sup>c</sup>Key Laboratory of Preparation and Application of Environmental Friendly Materials Ministry of Education, Jilin Normal University, Changchun, 130103, PR China

Corresponding author E-mail: [caojian\\_928@163.com](mailto:caojian_928@163.com), [llyang1980@126.com](mailto:llyang1980@126.com), Phone: +86 434 3290009, Fax: +86 434 3294566

## **1. Preparation of ZIF-67/CC:**

Prior to the preparation, the carbon cloth (20 mm × 30 mm) was washed through sonication in 3.0 M HCl, acetone and deionized water several times to remove surface impurities, followed by drying at 60 °C for 6 h under vacuum.

0.582 g of  $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$  and 1.314 g of 2-methylimidazole were dissolved in 40 ml of deionized water under magnetically stirring for 1 h. A cleaned carbon cloth (20 mm × 30 mm) was immersed in the mixed solution for 4 h at room temperature to obtain the purple ZIF-67/CC, which was washed 3 times with deionized water and ethanol, and dried at 60 °C for 6 h.

## 2. Supplementary Results

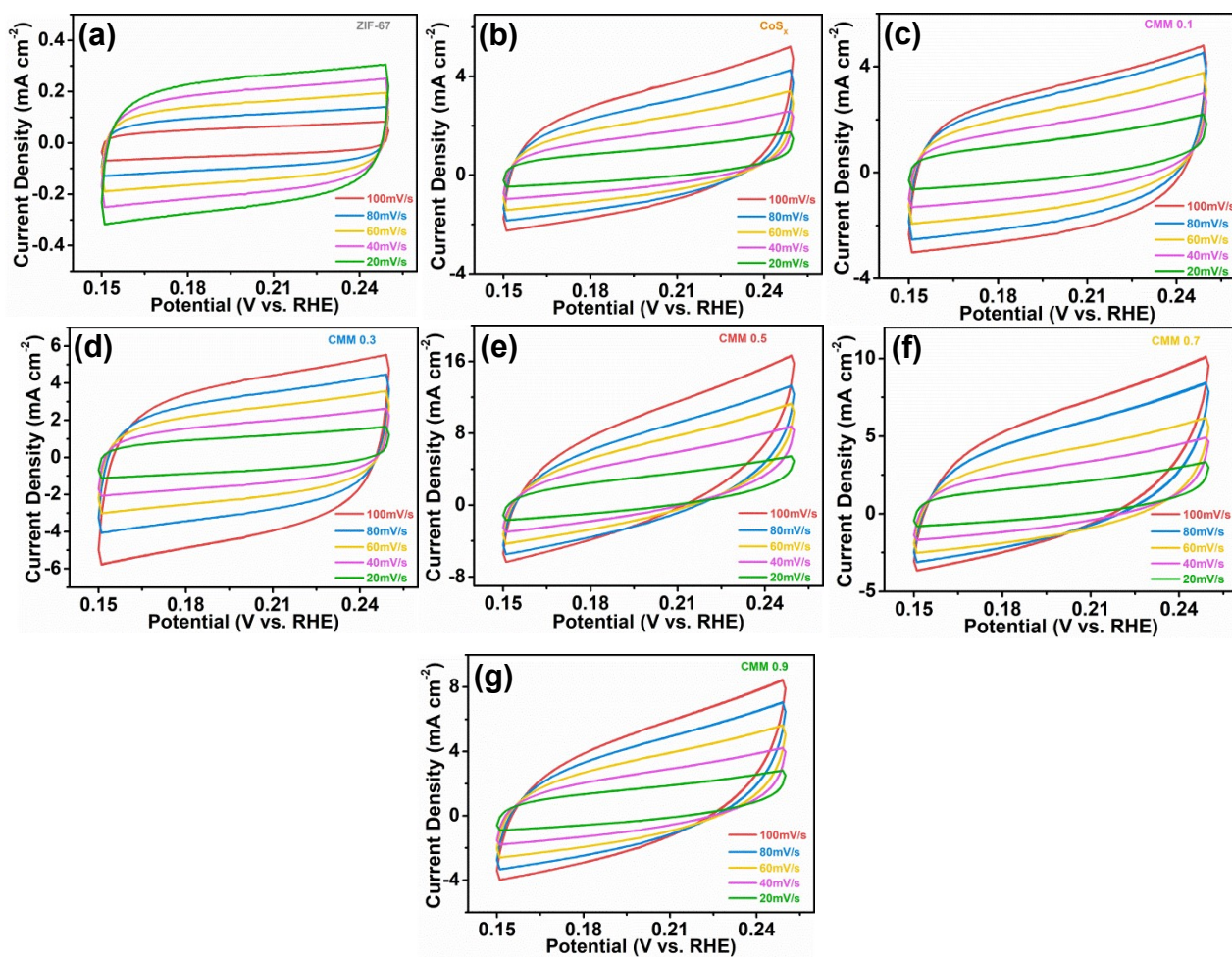


Fig. S1 Cyclic voltammetry of (a-g) ZIF-67, CoS<sub>x</sub>, CMM 0.1, CMM 0.3, CMM 0.5, CMM 0.7 and CMM 0.9 in 1 M KOH at various scan rates of 20, 40, 60, 80, 100 mV s<sup>-1</sup>.

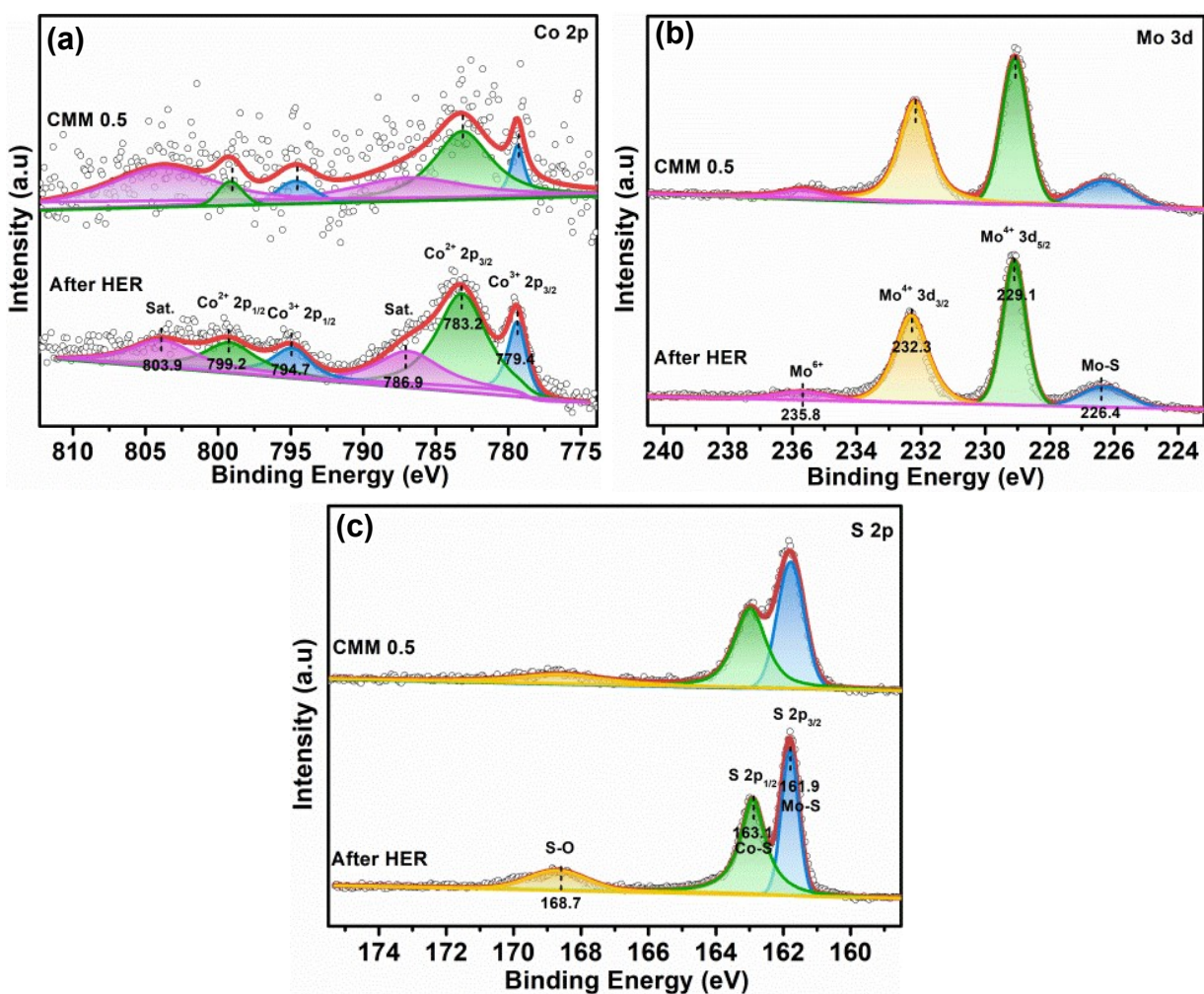


Fig. S2 (a-c) Co 2p、Mo 3d and S 2p high resolution XPS spectra of CMM 0.5 after HER test.

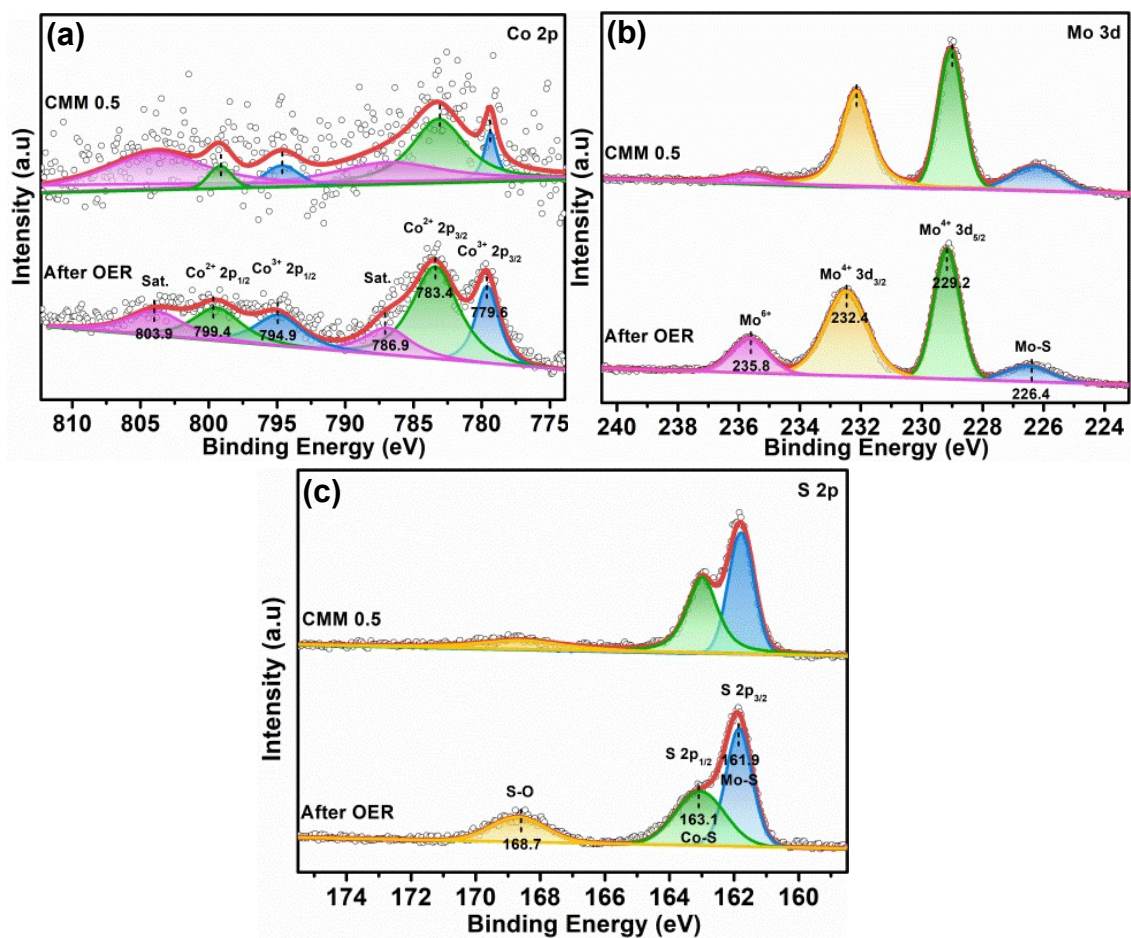


Fig. S3 (a-c) Co 2p、Mo 3d and S 2p high resolution XPS spectra of CMM 0.5 after OER test

Table S1 Comparison of HER performance of CMM 0.5 with reported

electrolyte	catalyst	overpotential (mV)	current density (mA cm <sup>-2</sup> )	tafel slope (mV dec <sup>-1</sup> )	ref
1 M KOH	Co <sub>9</sub> S <sub>8</sub> @MoS <sub>2</sub>	239	10	84	5
1 M KOH	S-Co <sub>9</sub> S <sub>8</sub> @ MoS <sub>2</sub> /CNFs	122	10	66	7
1 M KOH	CoS/MoS <sub>2</sub>	180	10	72	9
1 M KOH	MoO <sub>2</sub> @MoS <sub>2</sub> @ Co <sub>9</sub> S <sub>8</sub>	160	10	80	2
1 M KOH	CoMoS <sub>4</sub> /NF	143	10	54.3	13
1 M KOH	CoMoS <sub>4</sub> -12	141	10	60.1	14
1 M KOH	Co <sub>3</sub> S <sub>4</sub> /MoS <sub>2</sub> NRs	116	10	59	15
1 M KOH	CMM 0.5	107	10	95.7	This work

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Table S2 Comparison of OER performance of CMM 0.5 with reported

electrolyte	catalyst	overpotential (mV)	current density (mA cm <sup>-2</sup> )	tafel slope (mV dec <sup>-1</sup> )	ref
1 M KOH	Co <sub>9</sub> S <sub>8</sub> @MoS <sub>2</sub>	230	10	66	5
1 M KOH	CoMo-MI-600	316	10	89.9	6
1 M KOH	NCN-CoMoS	233	10	56.3	3
1 M KOH	Co <sub>3</sub> S <sub>4</sub> @FN-Co <sub>3</sub>	250	10	78	4
1 M KOH	Co/MoC@N-C	290	10	90	8
1 M KOH	CoS/MoS <sub>2</sub>	281	10	79	9
1 M KOH	CoS <sub>2</sub> -MoS <sub>2</sub> HNAs/Ti	266	10	104	10
1 M KOH	Co <sub>1.5</sub> Mo <sub>1.0</sub> S/o- MWNTs	311	10	70	11
1 M KOH	Ru-CoMo/CFP	237	10	79	12
1 M KOH	CoMoS <sub>4</sub> /NF	256	10	68.5	13
1 M KOH	CoMoS <sub>4</sub> -12	250	10	51.9	14
1 M KOH	Co <sub>3</sub> S <sub>4</sub> /MoS <sub>2</sub>	280	10	52	15
1 M KOH	CMM 0.5	169	10	86	This work

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Table S3 Comparison of overall water splitting performance of CMM 0.5 with reported materials

electrolyte	catalyst	cell voltage (V)	current density (mA cm <sup>-2</sup> )	ref
1 M KOH	Co <sub>3</sub> O <sub>4</sub> @Mo-Co <sub>3</sub> S <sub>4</sub> - Ni <sub>3</sub> S <sub>2</sub> /NF	1.62	10	1
1 M KOH	CoS/MoS <sub>2</sub>	1.61	10	9
1 M KOH	MoO <sub>2</sub> @MoS <sub>2</sub> @Co <sub>9</sub> S <sub>8</sub>	1.62	10	2
1 M KOH	CoS <sub>2</sub> -MoS <sub>2</sub> HNAs/Ti	1.56	10	10
1 M KOH	Co <sub>1.5</sub> Mo <sub>1.0</sub> S/o-MWNTs	1.60	10	11
1 M KOH	Ru-CoMo/CFP	1.54	10	12
1 M KOH	CoMoS <sub>4</sub> /NF	1.65	10	13
1 M KOH	CoMoS <sub>4</sub>	1.51	10	14
1 M KOH	Co <sub>3</sub> S <sub>4</sub> /MoS <sub>2</sub> NRs	1.66	20	15
1 M KOH	CMM 0.5	1.507	10	This work



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