

## Electronic Supplementary Information (ESI)

Introducing phosphorus atoms into MoS<sub>2</sub> nanosheets through a  
vapor-phase hydrothermal process for the hydrogen evolution  
reaction

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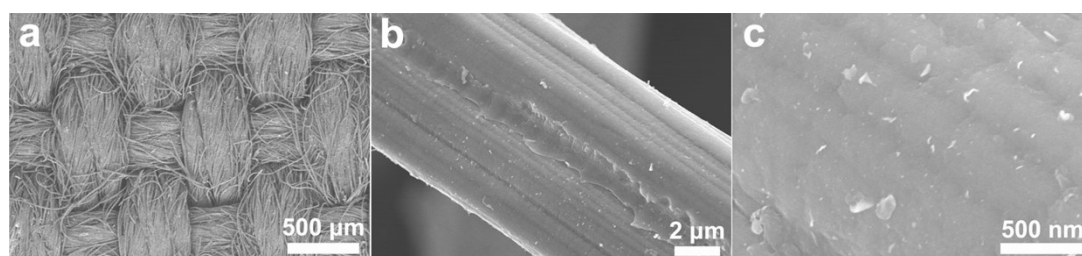
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### **Corresponding Author**

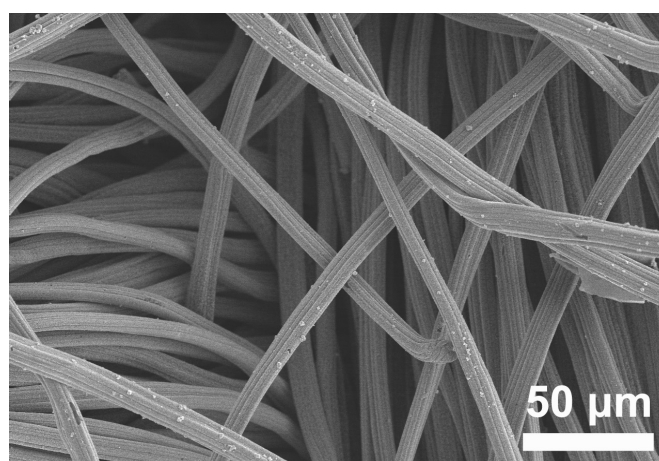
\*E-mail: mybestteacher@163.com (T. Wu)

**Table S1** XRF results of the P-doped MoS<sub>2</sub>/CFC.

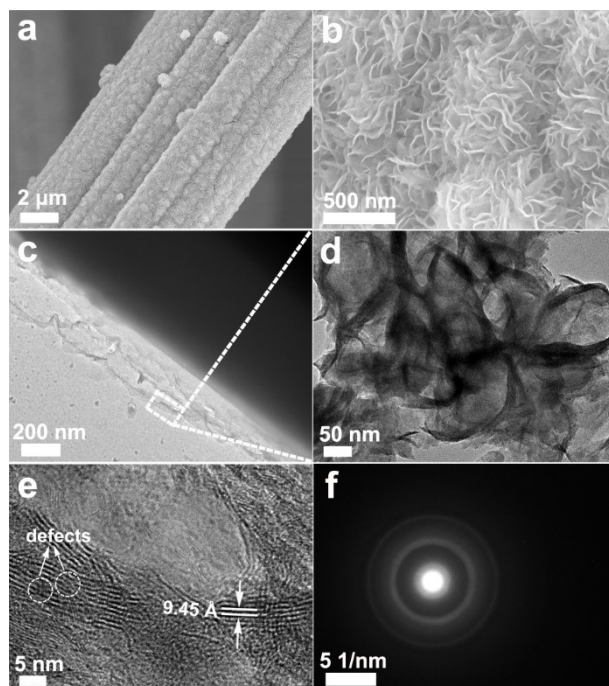
	XRF analysis (wt. %)		
	Mo	S	P
P-doped MoS <sub>2</sub> /CFC	29.7	67.4	2.2



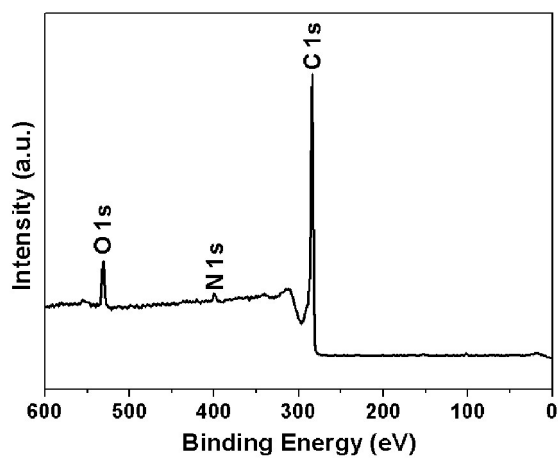
**Fig. S1** SEM image of bare CFC.



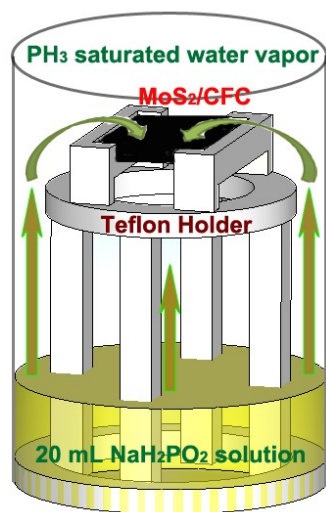
**Fig. S2** Low-magnification SEM image of MoS<sub>2</sub>/CFC.



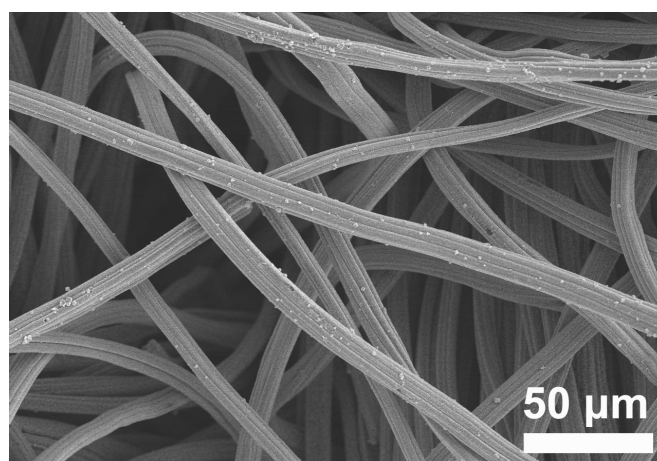
**Fig. S3** MoS<sub>2</sub>/CFC: (a) low- and (b) high-magnification SEM images; (c) TEM image of the edge of a single fiber; (d) TEM image, (e) HRTEM image and (f) the corresponding SAED pattern of the dashed rectangle area in (c).



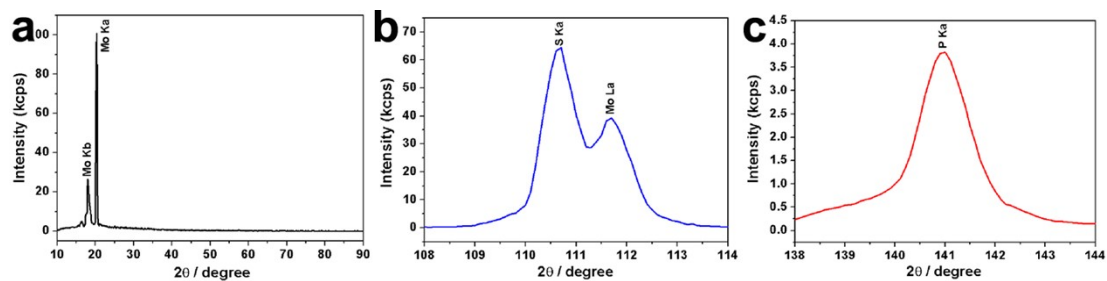
**Fig. S4** Survey XPS spectrum of CFC.



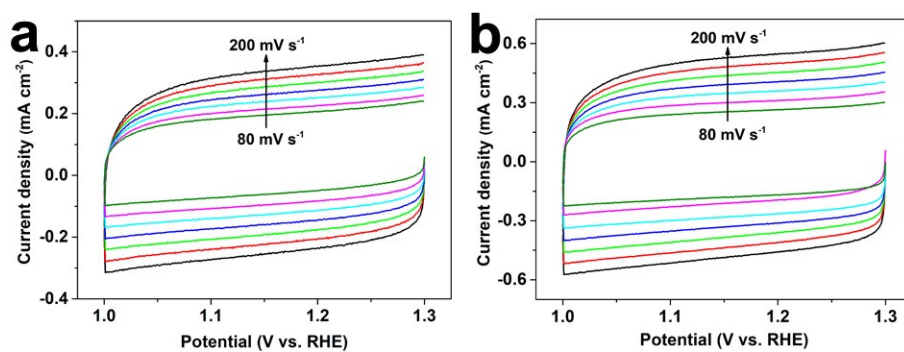
**Fig. S5** PH<sub>3</sub>-VPH experimental set up.



**Fig. S6** Low-magnification SEM image of P-doped MoS<sub>2</sub>/CFC.



**Fig. S7** XRF patterns of P-doped MoS<sub>2</sub>/CFC with different channels: (a) Ti-U, (b) S and (c) P.



**Fig. S8** Electrochemical capacitance measurements (cyclic voltammograms from 80 to 200 mV s<sup>-1</sup>)

to determine the ECSA of (a) MoS<sub>2</sub>/CFC, and (b) P-doped MoS<sub>2</sub>/CFC, respectively.