Supporting information

Engineering Sulfur Vacancies into Fe_9S_{10} Nanosheet Arrays for Efficient Alkaline Hydrogen Evolution

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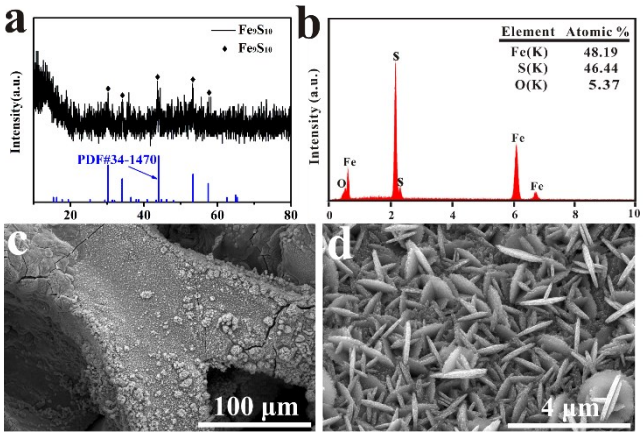

Fig. S1. (a) XRD pattern, (b) the EDS spectrum and (c, d) SEM images of Fe_9S_{10}/IF.

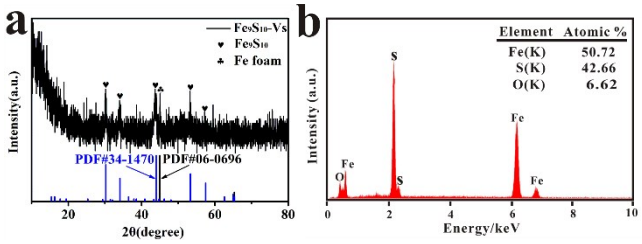

Fig. S2. (a) XRD pattern and (b) the EDS spectrum of Fe_9S_{10}-Vs/IF.

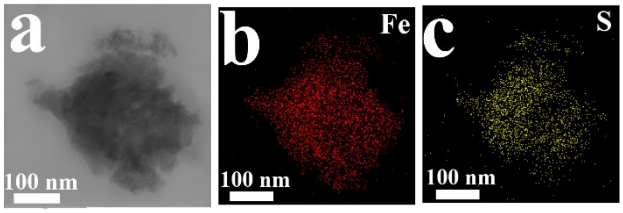

Fig. S3. (a-c) HAADF-TEM image of Fe_9S_{10}-Vs and its corresponding EDS elemental mappings images

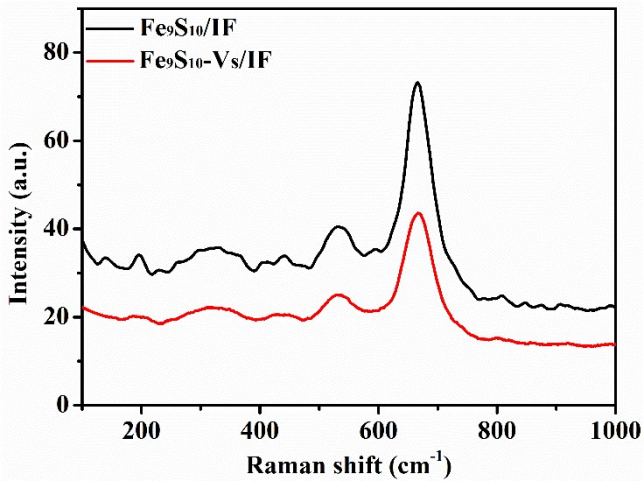

Fig. S4. Raman spectra of Fe_9S_{10}-Vs/IF and Fe_9S_{10}/IF.

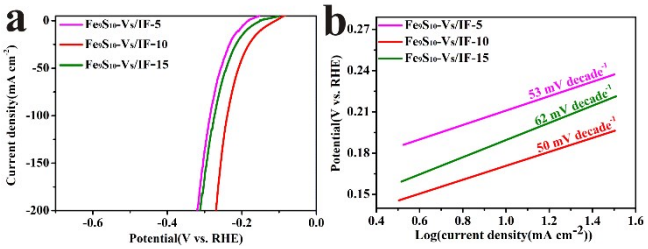

Fig. S5. (a) The LSV curves Fe_9S_{10}-Vs treated with different time durations toward HER in 1.0 M KOH. (b) Corresponding Tafel plots.

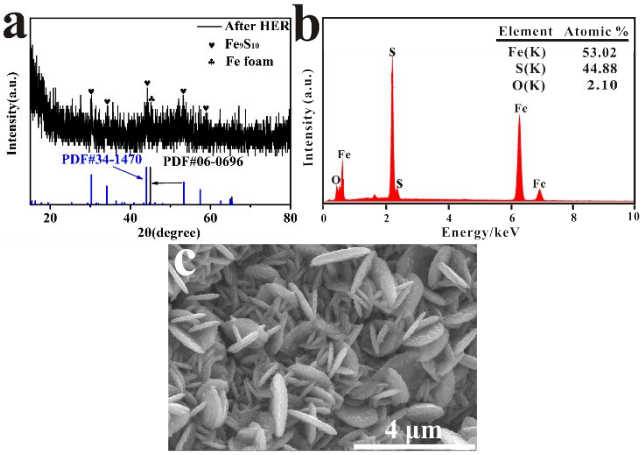

Fig. S6. (a) XRD pattern, (b) EDX spectrum, (c) SEM images of Fe_9S_{10}-Vs after a stability test for 60 h.

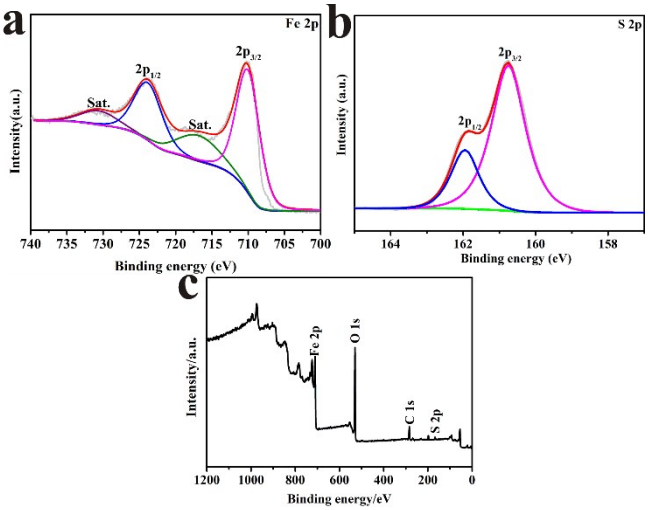

Fig. S7. (a) Fe 2p, (b) S 2p, and (c) XPS survey XPS spectra of Fe_9S_{10}-Vs after a stability test for 60 h.

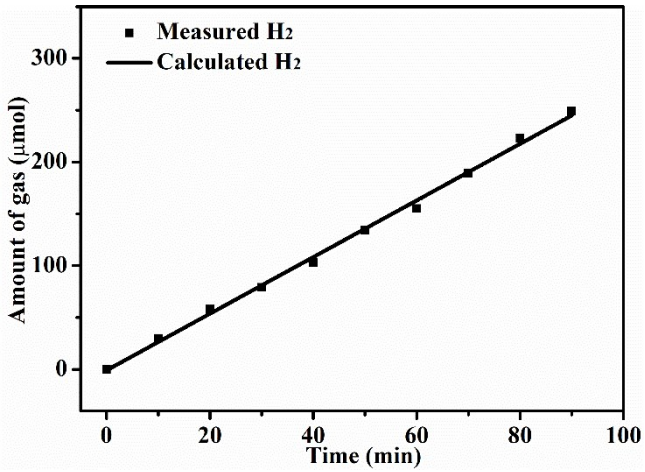

Fig. S8. Amount of H_2 measured by a drainage method.

Table S1. Comparison of the HER performance of Fe_9S_{10}-Vs/IF with other advanced HER catalysts in alkaline condition.

Catalysts	η@10 mA cm^{-2} (mV)	Tafel slope (mV dec^{-1})	Ref.
Fe_9S_{10}-Vs/IF	149	50	This work
N-FeS_2	239	154	[1]
FeS_2@C	195	128	[2]
NiFeS/NF	180	53	[3]
N-Ni_3S_2/NF	155	113	[4]
CoS_2/MoS_2	154	61	[5]
(Ni, Fe)S_2@MoS_2	130	101	[6]
MoS_2-Vs	131	48	[7]
$Co_{0.9}Ni_{0.1}S_2$	156	52	[8]

References

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