

Supplementary Materials

V₆O₁₃ Micro-Flower Arrays Grown In Situ on Ni Foam as Efficient Electrocatalysts for Hydrogen Evolution at Large Current Densities

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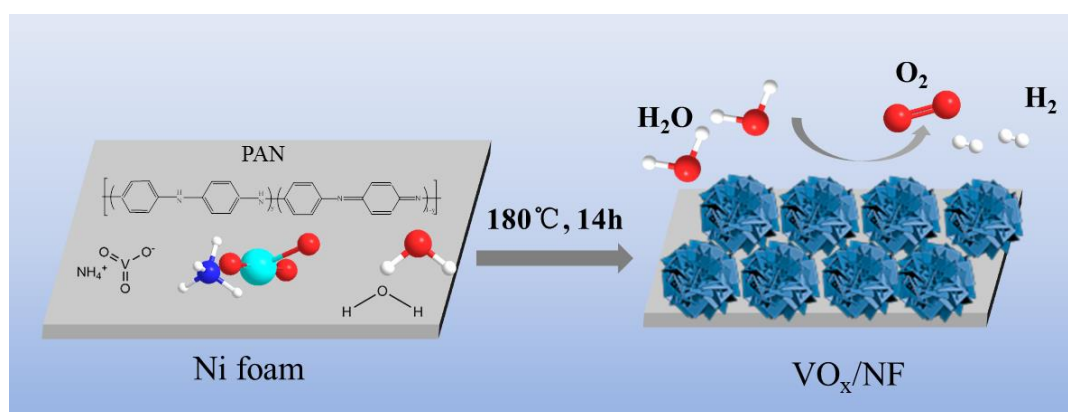


Figure S1. Synthetic strategy and schematic illustration of the construction of VOX/NF.

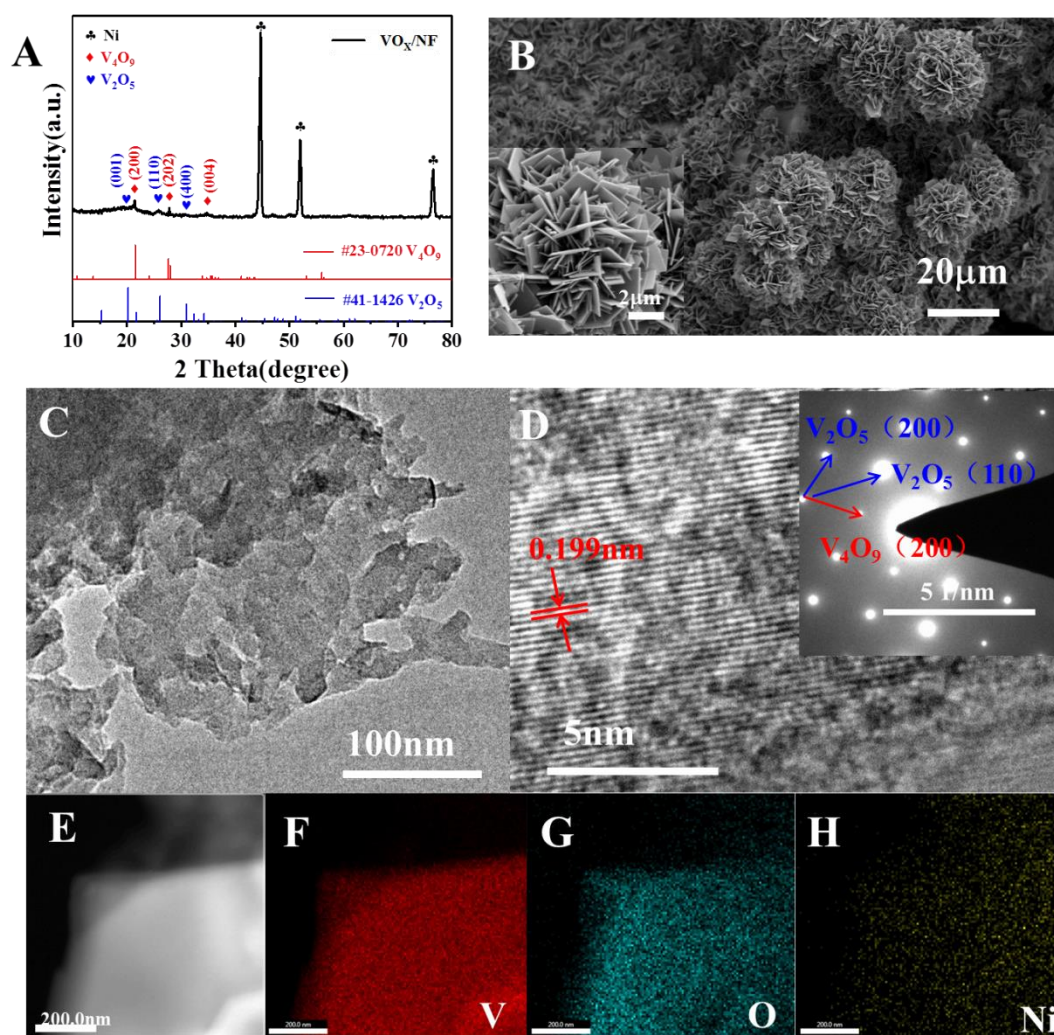


Figure S2. (A) XRD pattern of the as-synthesized VO_x/NF; (B-C) SEM and TEM images of the VO_x/NF nanosheets grown on NF substrate with different magnifications; (D) HRTEM image of VO_x/NF, with SAED pattern shown in the inset, (E-H) TEM image and the corresponding elemental mapping images of VO_x/NF.

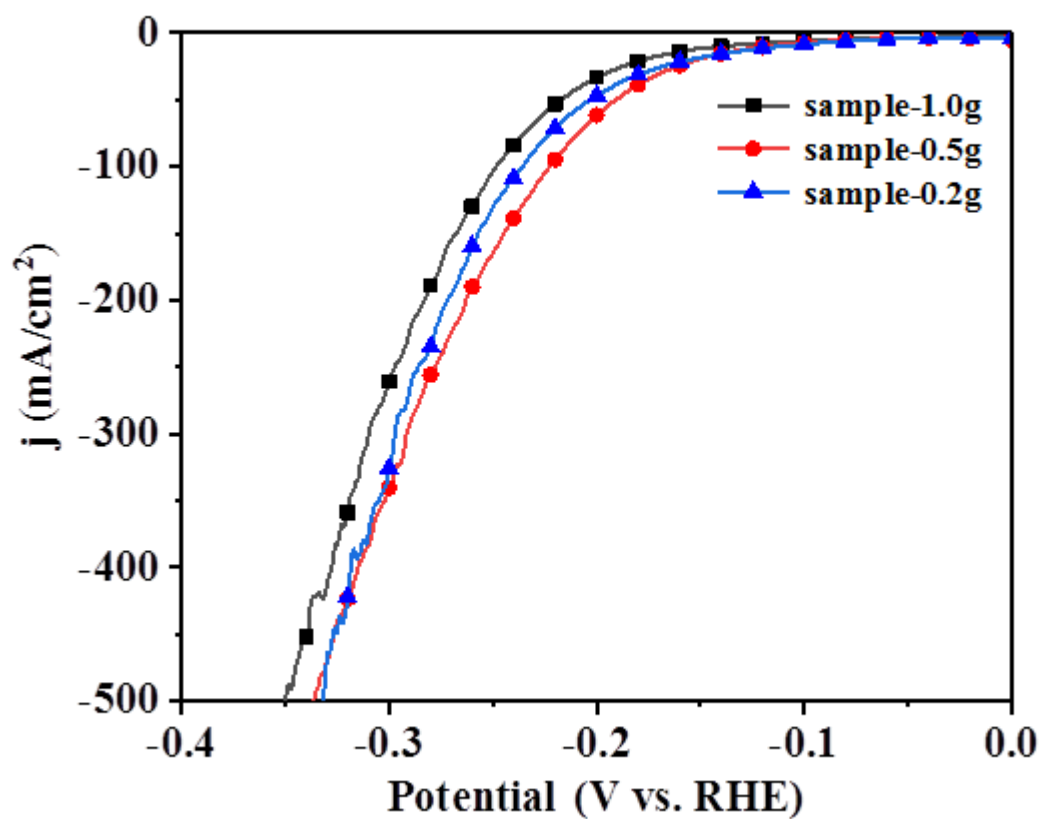


Figure S3. LSV curves of sample-0.2g, sample-0.5g and sample-1.0g for HER.

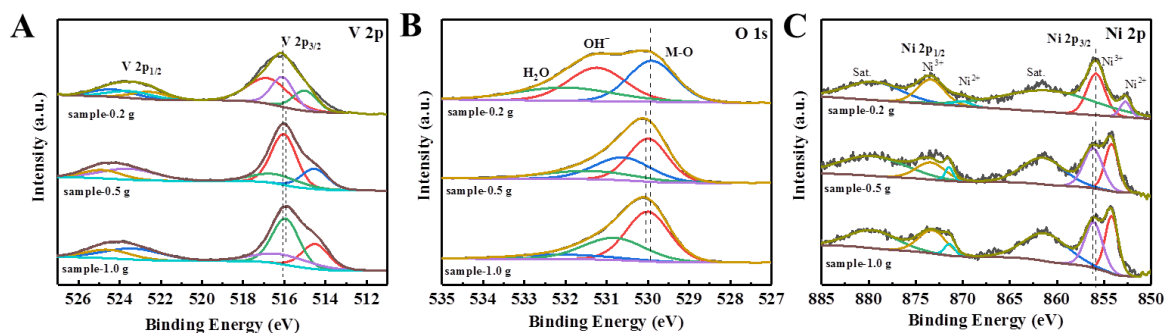


Figure S4. XPS spectra of (A) sample-0.2g, (B) sample-0.5g and (C) sample-1.0g for HER.

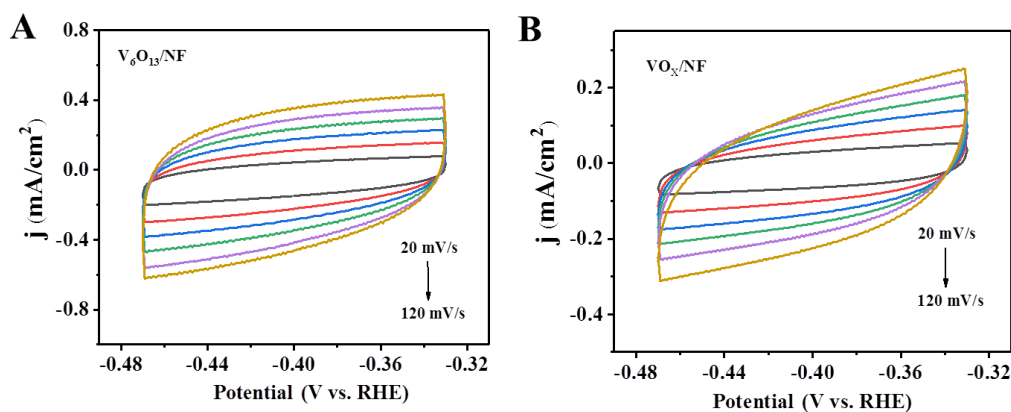


Figure S5. CV curves of V_6O_{13}/NF (A) and VO_x/NF (B).

Table S1. Comparison of the electrocatalytic activity of V_6O_{13}/NF with previously reported vanadium oxide electrocatalysts.

Catalysts	Electrolyte	Current Density (j , mA/cm ²)	Overpotential at Corresponding j (mV)	Reference
V_6O_{13}/NF	1.0 M KOH	100	125	This work
		1000	298	
$V_{10}O_{24}.nH_2O$	0.5 M H_2SO_4	10	118	Electrochim. Acta 2019, 312, 89–99 [12]
		600	405	
V_2O_5	1.0 M KOH	10	98	Chem. Eng. Sci. 2020, 227, 115915 [14]
		100	232	
$Ni_4Mo-V_2O_3/NF$	1.0 M PBS	10	39.3	J. Mater. Chem. A, 2020, 8, 12169-12176 [23]
$Ni_{0.8}/V_2O_3$	1.0 M KOH	10	44	Electrochim. Acta, 2019, 320, 134535 [24]
$Ni-V_2O_3$	1.0 M KOH	10	136	J. Energy Chem. 2020, 50, 280-285 [25]

Table S2. Fitted data from Nyquist plots of as-synthesized samples in electrocatalytic HER test.

Electrocatalysts	R_s (Ω)	R_{ct} (Ω)
V_6O_{13}/NF	2.597	1.819
VO_x/NF	2.866	2.067
NF	2.287	6.101