Electronic Supplementary Material (ESI) for New Journal of Chemistry.

One-step synthesis of sulfur-containing carbon nanosheets via solution plasma process for enhanced electrochemical catalyst

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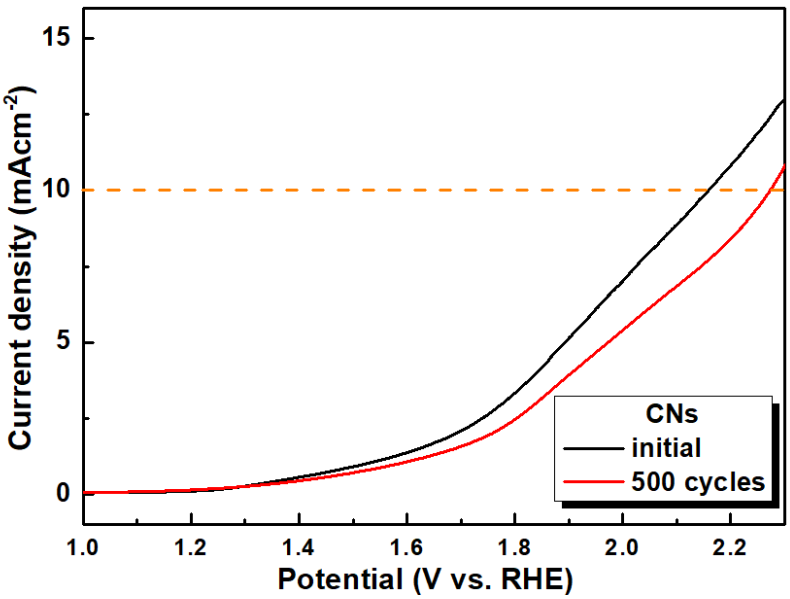

Fig. S1 Durability tests of the CNs by running the OER reaction for 500 cycles.

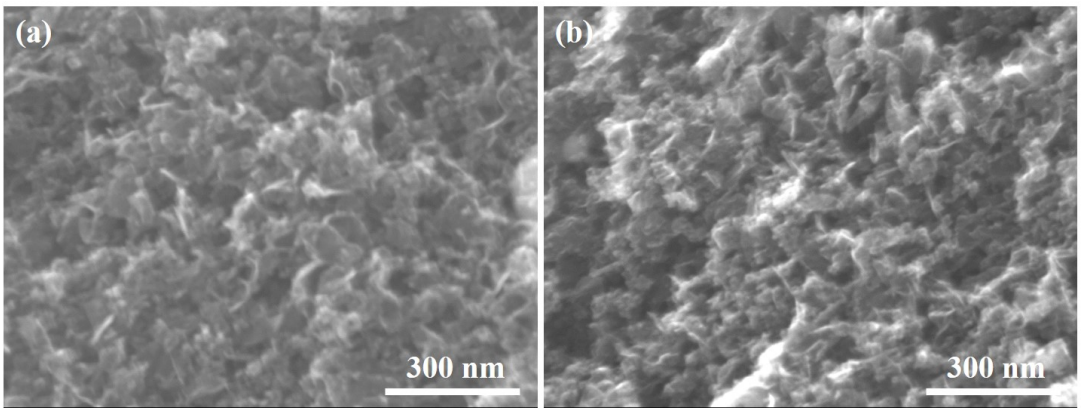

Fig. S2 SEM images after the durability test of CNs-GT, followed by rinsing with distilled water, for the (a) ORR and (b) OER.

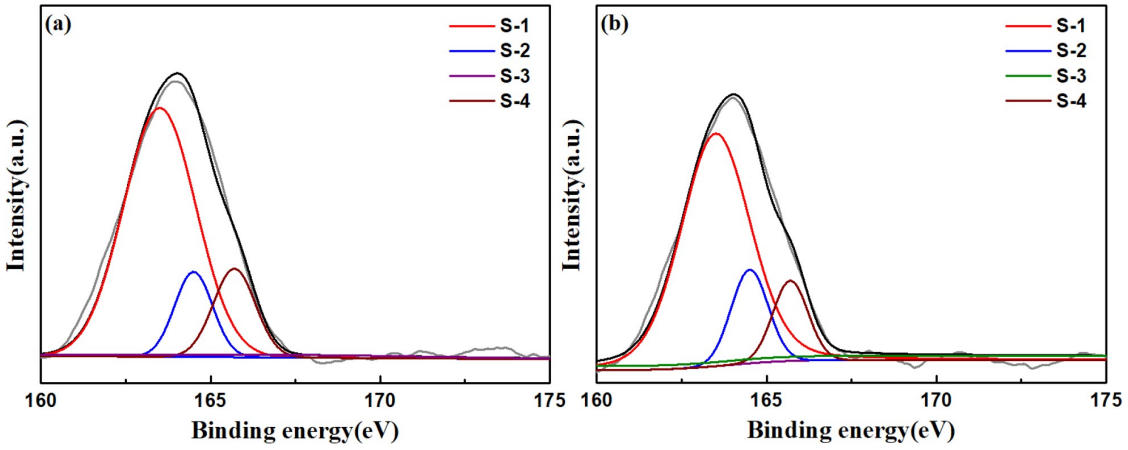

Fig. S3 XPS spectra of (a) S 2p after the durability test of CNs-GT for the ORR and (b) S 2p after the durability test of CNs-GT for the OER.

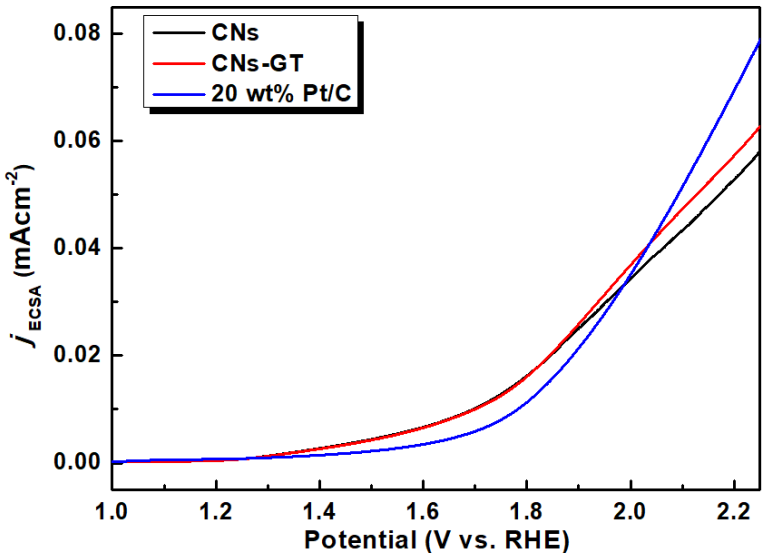

Fig. S4 ECSA-normalized OER LSV curves of CNs, CNs-GT, and Pt/C.

The ECSA-normalized current density for as prepared catalysts was calculated by

$$\text{ECSA normalized current density } (j_{ECSA}) = \text{current density} \times C_s / C_{dl}$$

where C_s is the specific capacitance.[1,2] In this study, a value of 0.04 mFcm^{-2} for *Cs* was chosen, drawing from previously reported OER catalysts in alkaline solutions.[1,2]

REFERENCES

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(2) C. C. L. McCrory, S. Jung, J. C. Peters and T. F. Jaramillo, *J. Am. Chem. Soc.*, 2013, **135**, 16977−16987.