

Supporting Information

MoS₂ nanoflower-decorated reduced graphene oxide paper for high-performance hydrogen evolution reaction

Chong-Bo Ma,^{a,b,†} Xiaoying Qi,^{c,†} Bo Chen,^{a,d,†} Shuyu Bao,^a Zongyou Yin,^a Xuejun Wu,^a Zhimin Luo,^a Jun Wei,^{*c} Hao-Li Zhang^{*b} and Hua Zhang^{*a}

^a School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798, Singapore

^b State Key Laboratory of Applied Organic Chemistry (SKLAOC), College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou, 730000 (P. R. China)

^c Singapore Institute of Manufacturing Technology, 71 Nanyang Drive, Singapore 638075, Singapore

^d Environmental Chemistry and Materials Group, Nanyang Environment and Water Research Institute, Interdisciplinary Graduate School, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798, Singapore

*Corresponding author. E-mail: HZhang@ntu.edu.sg; Haoli.zhang@lzu.edu.cn; jwei@SIMTech.a-star.edu.sg

[†]These authors contributed equally to this work.

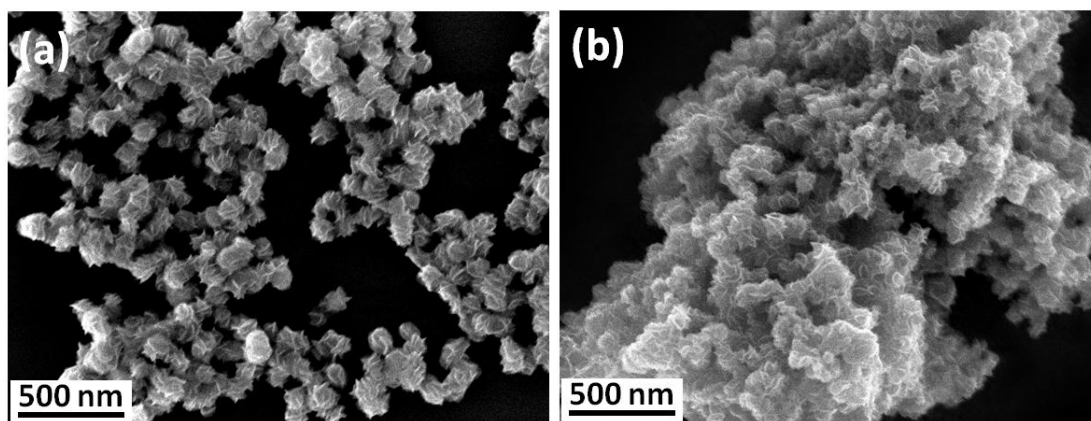


Figure S1. SEM images of (a) MoS₂NFs and (b) MoS₂AGs, which were synthesized in presence and absence of TOP, respectively.

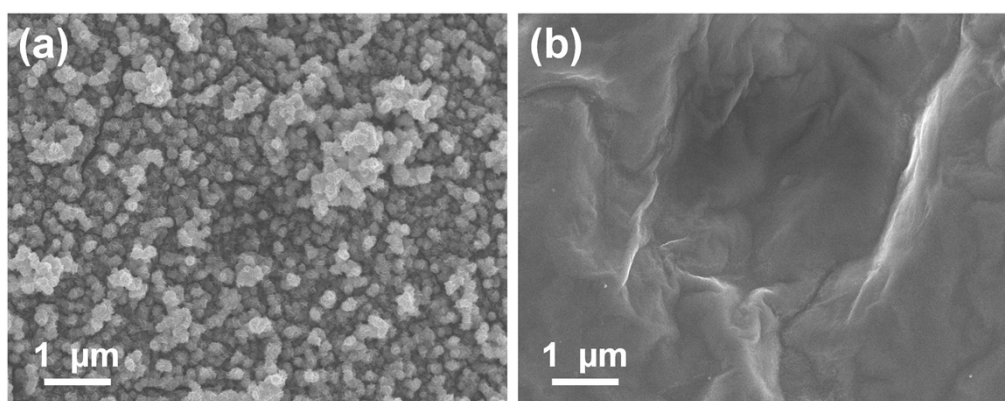


Figure S2. SEM images of the top view of (a) MoS₂NFs/rGO which was prepared in the presence of TOP, and (b) pure rGO paper.

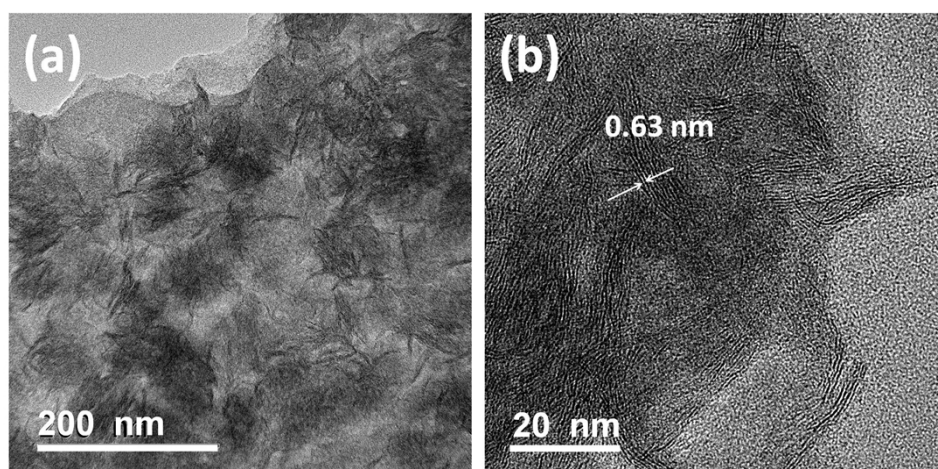


Figure S3. (a) TEM image of the top view of MoS₂NFs/rGO. (b) HRTEM image of the edge of MoS₂NFs/rGO.

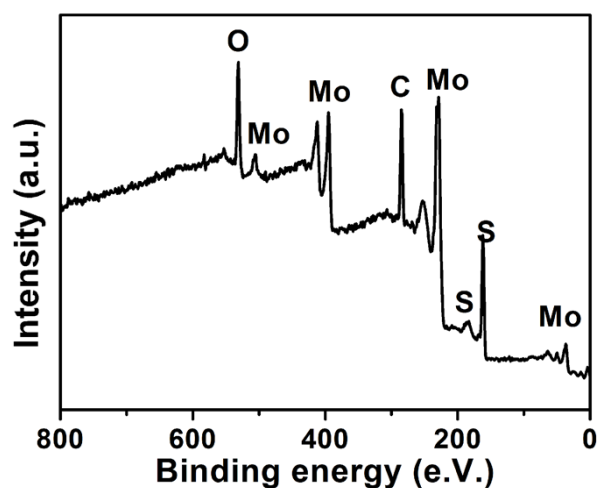


Figure S4. XPS survey spectrum of MoS₂NFs/rGO.

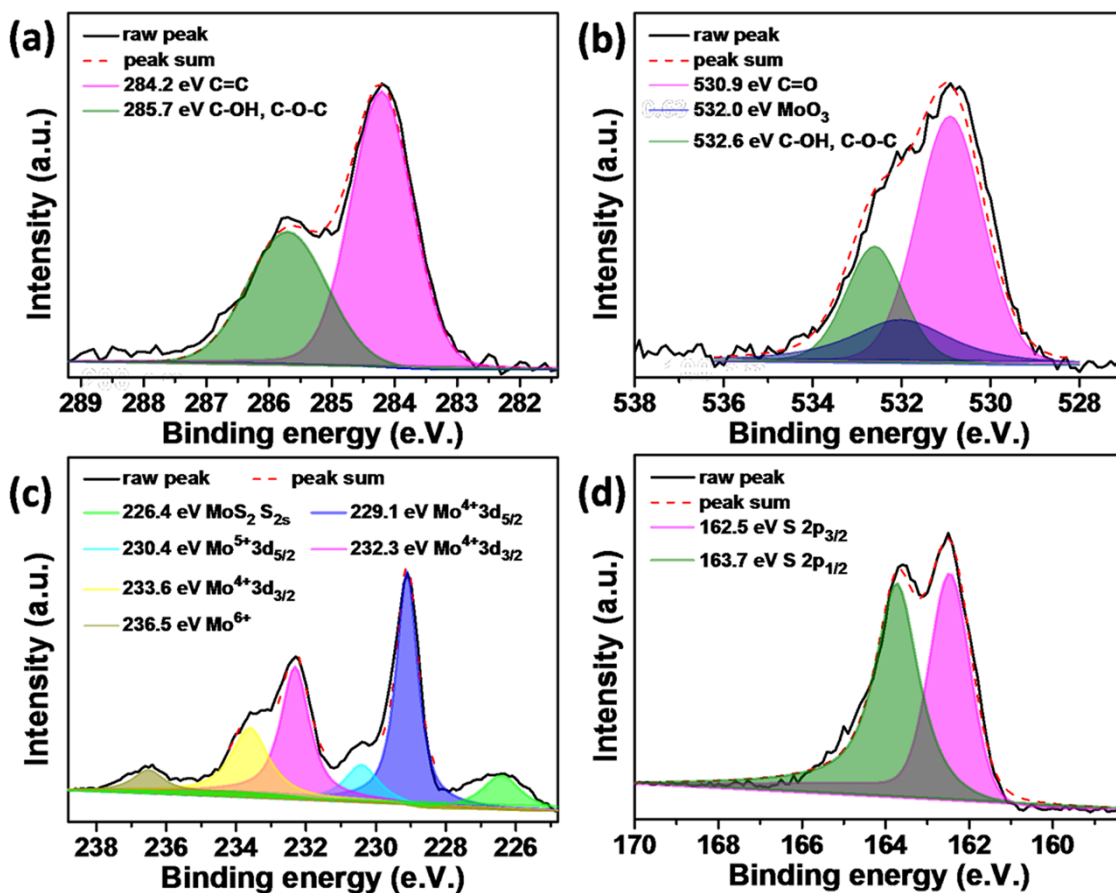


Figure S5. High-resolution XPS spectra of (a) C 1s, (b) O 1s, (c) Mo 3d and (d) S 2p on MoS₂NFs/rGO.

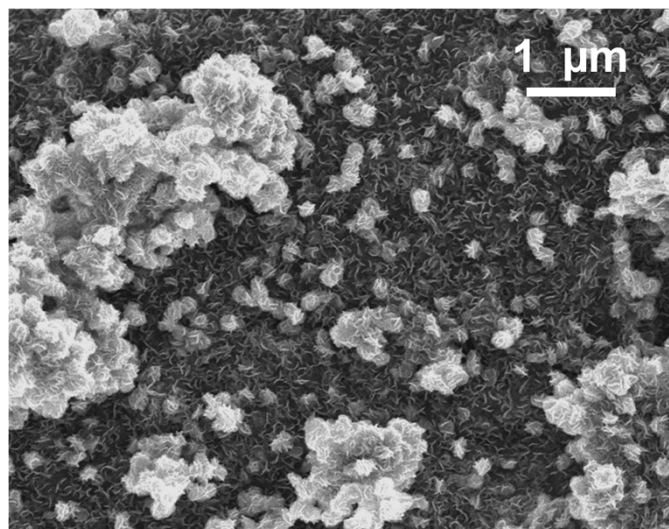


Figure S6. SEM image of the top view of MoS₂AGs/rGO which was prepared in the absence of TOP.

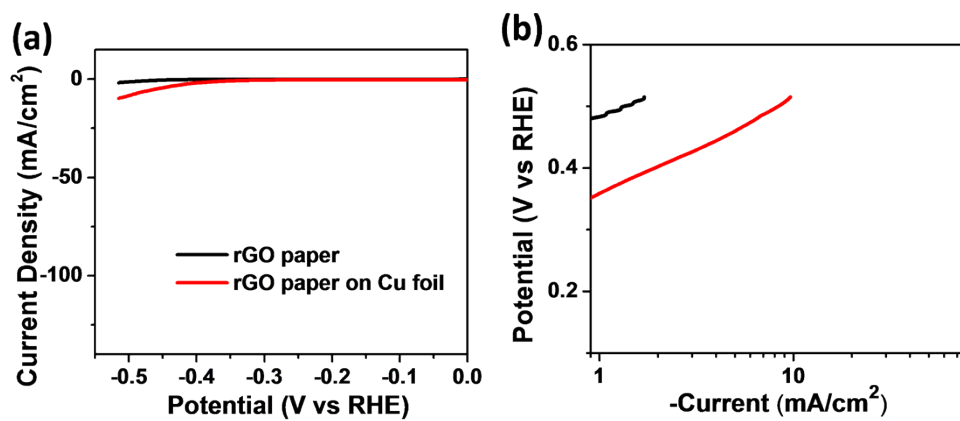


Figure S7. (a) Polarization curves of rGO paper and rGO paper supported on Cu foil. (b) The corresponding Tafel curves.

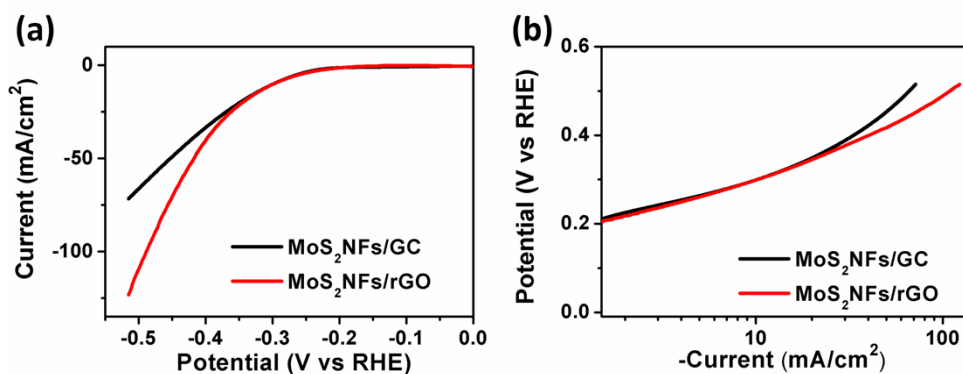


Figure S8. Polarization curves (a) and the corresponding Tafel curves (b) of MoS₂NF-modified GCE (black) and MoS₂NFs/rGO electrode (red). The catalyst loading amount is 0.116 mg/cm².

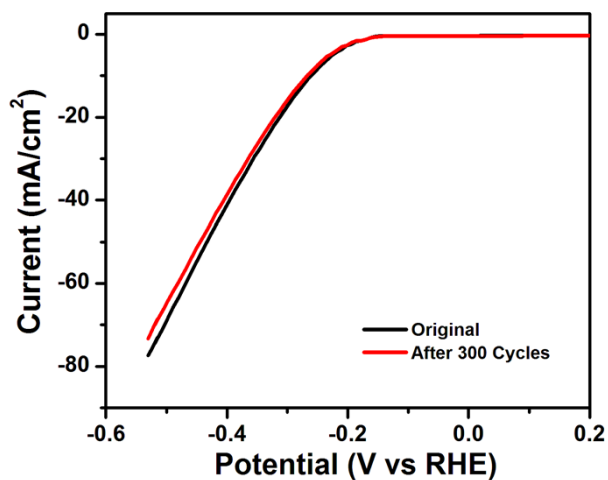


Figure S9. Durability test of MoS₂NF-modified GCE (loading amount is 0.285 mg/cm²). 5.7% of current was lost after 300 cycles.