

Supporting Information

All electrochemical fabrication of MoS₂/graphene counter electrodes for efficient dye-sensitized solar cells

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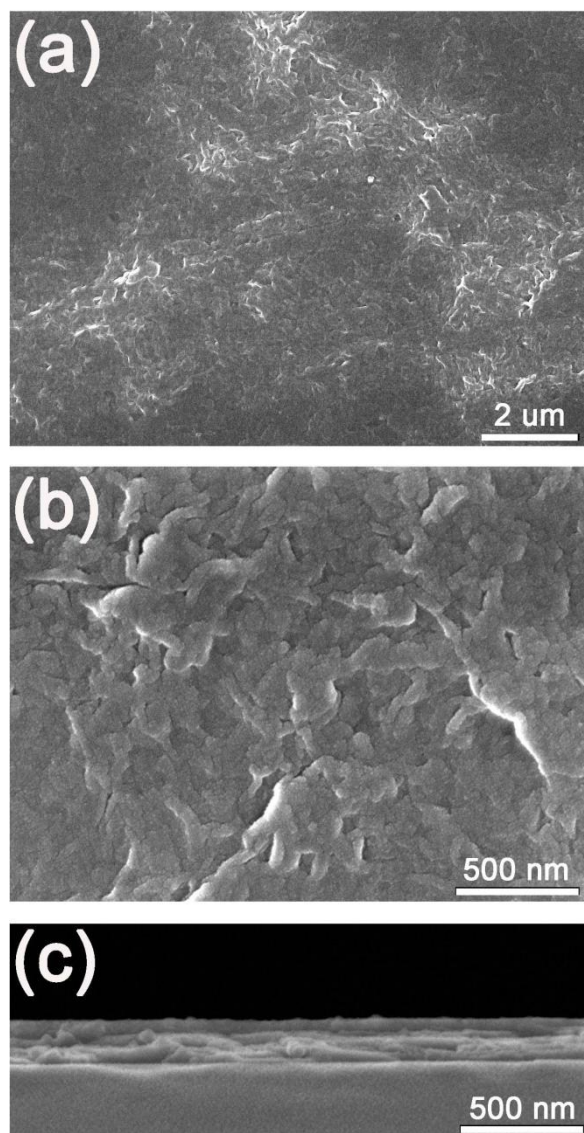


Fig. S1 (a, b) SEM images of graphene film on FTO substrate at different magnifications. (c) Cross-section SEM image of graphene film CE.

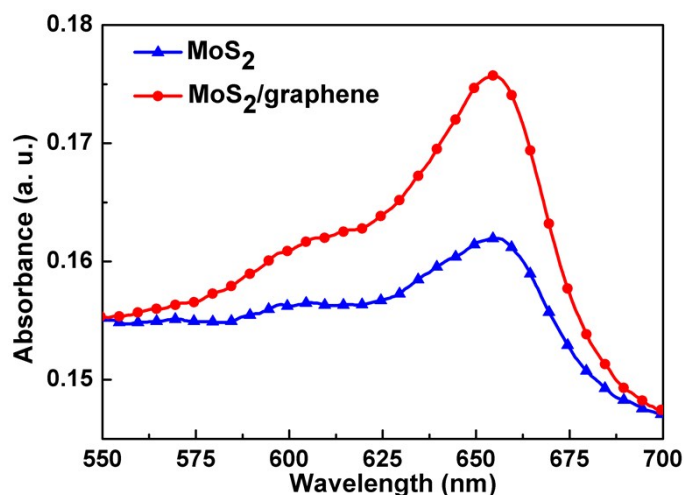


Fig. S2 Optical absorbance of solutions (alcohol) containing methylene blue detached from the MoS₂ CE and MoS₂/graphene composite CE (both with 0.64 cm² area).

The method to compare the surface area of MoS₂/graphene composite with MoS₂

We used an indirect method to compare surface area of MoS₂/graphene composite with MoS₂. First, MoS₂ CE and MoS₂/graphene composite CE with the same area of 0.64 cm² were immersed into the same methylene blue solution for two hours. Then, these two CEs were washed by alcohol. After that, they were ultrasonically dispersed for 60 min in 1 mL alcohol to detach the absorbed methylene blue. Finally, we tested the optical absorption spectrum of the alcohol solutions containing methylene blue detached from the MoS₂ CE and MoS₂/graphene composite CE (Fig. S2†).

We compared the surface area of MoS₂ and MoS₂/graphene CE by contrasting optical absorbance (Fig. S2†). As we can see that the optical absorption peak of solution containing methylene blue detached from MoS₂/graphene composite is higher than that of solution containing methylene blue detached from MoS₂, which means that the MoS₂/graphene composite adsorbed more methylene blue than MoS₂. The contrasting result indirectly proves that the MoS₂/graphene composite CE owns a larger surface area than MoS₂ CE.