Supporting Information

Core-shell MoS_2@graphene composite microspheres as stable anode for Li-ion batteries

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As shown in Figure S1, the content of graphene in the MoS_2@graphene was calculated to be 4.7 wt.%. The weight loss of MoS_2@graphene composites in air can be mainly attributed to the combustion of carbon and transformation of MoS_2 to MoO_3 [I]. Let the weight percentage of MoS_2 in the MoS_2 @graphene to be x. Assuming the graphene content is completely removed after combustion, based on the formula of $0.916x = 0.873$ [II]. Therefore $x = 0.953$. From this calculation, the graphene content is ~4.7%.

[I] C. Schuffenhauer, G. Wildermuth, J. Felsche and R. Tenne, Cheminform, 2004, 35, 19-32.

[II] X. Y. Yu, H. Hu, Y. Wang, H. Chen and X. W. Lou, Angew Chem Int Ed Engl, 2015, 54, 7395-7398.

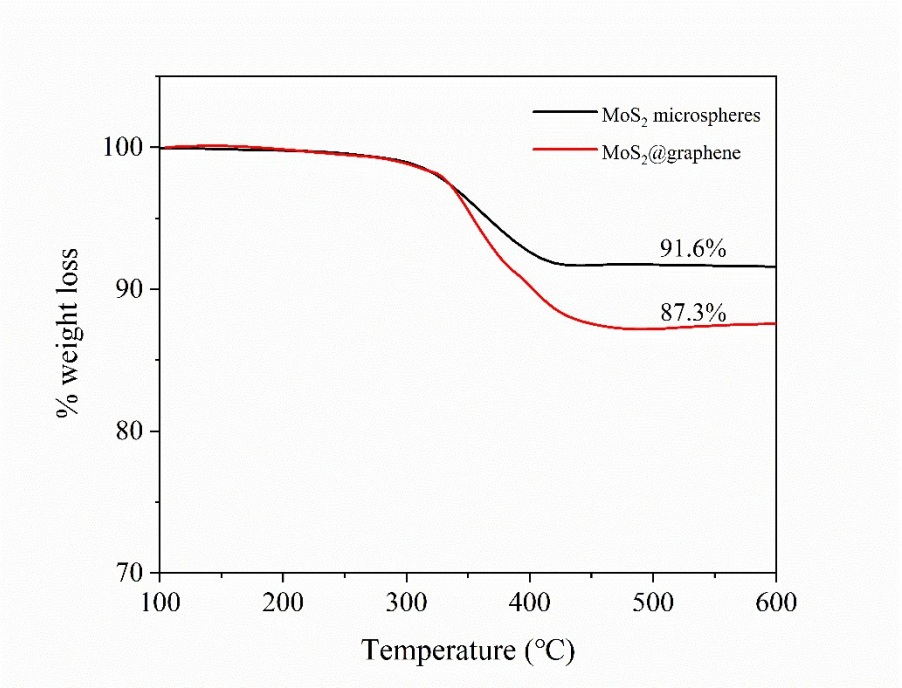

Figure S1 TG curves of MoS_2@graphene and MoS_2 microspheres as performed in air.

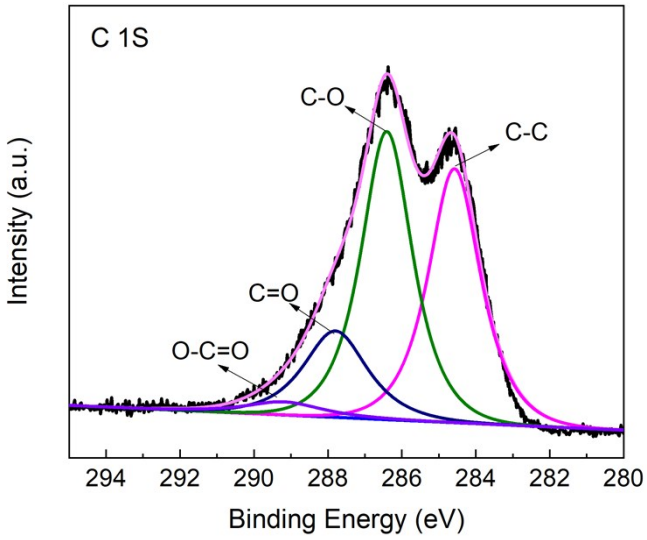

Figure S2 XPS spectra of C 1s of GO.

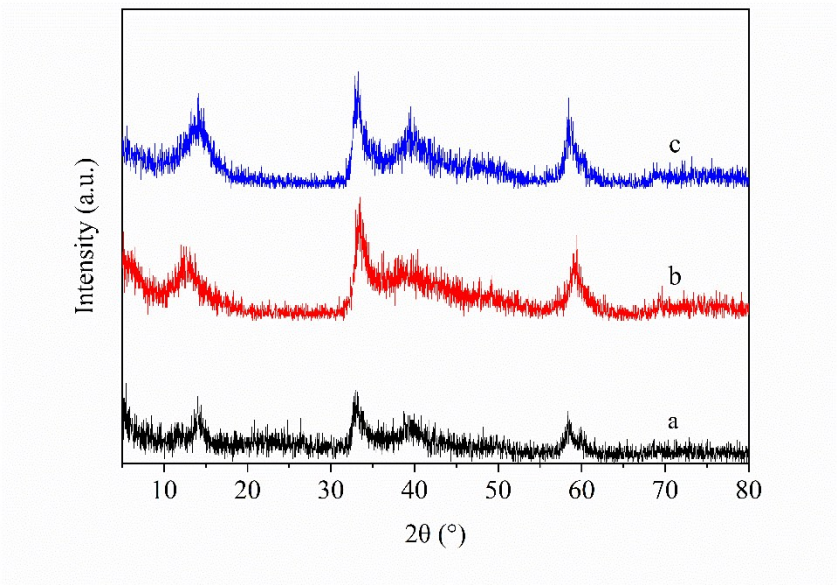

Figure S3. XRD patterns of MoS_2 microspheres prepared at different temperature (a) 180 °C; (b) 200 °C; (c) 220 °C

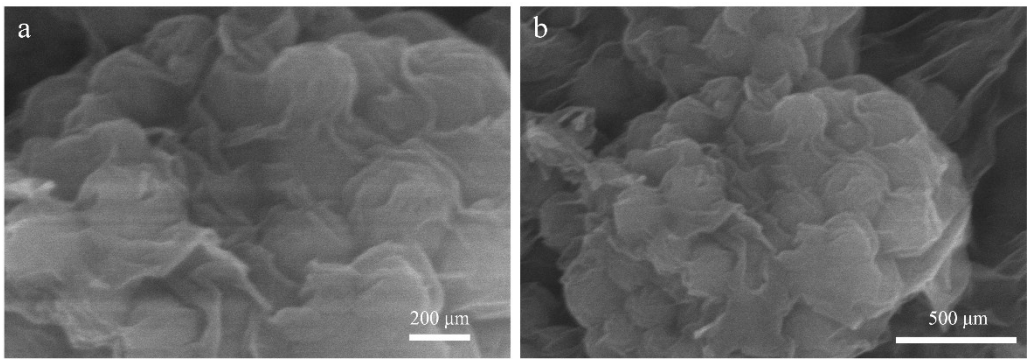

Figure S4 SEM images of MoS_2@graphene