

**Supplementary information**

**Achieving High Volumetric Energy Density in Graphite Anode through Polymer  
Coating with Improved Electrolyte Impregnation**

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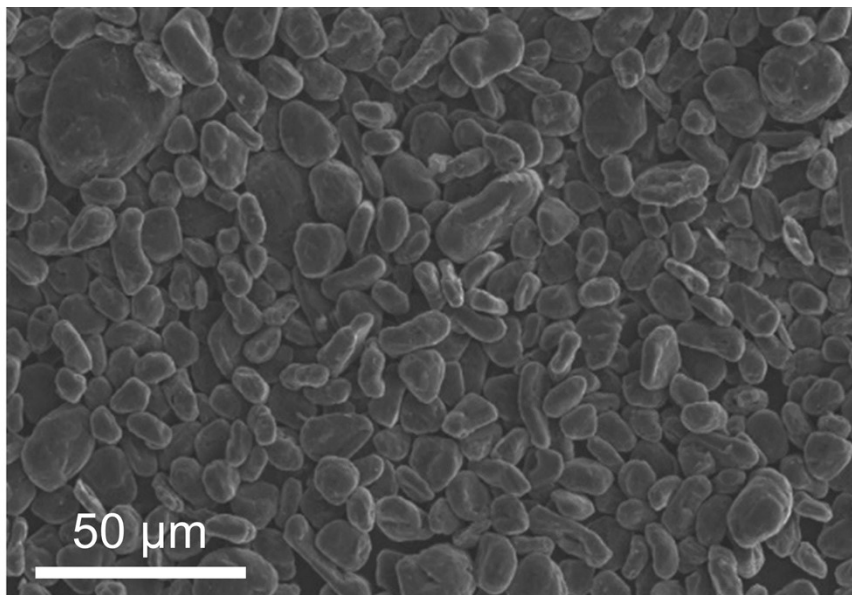
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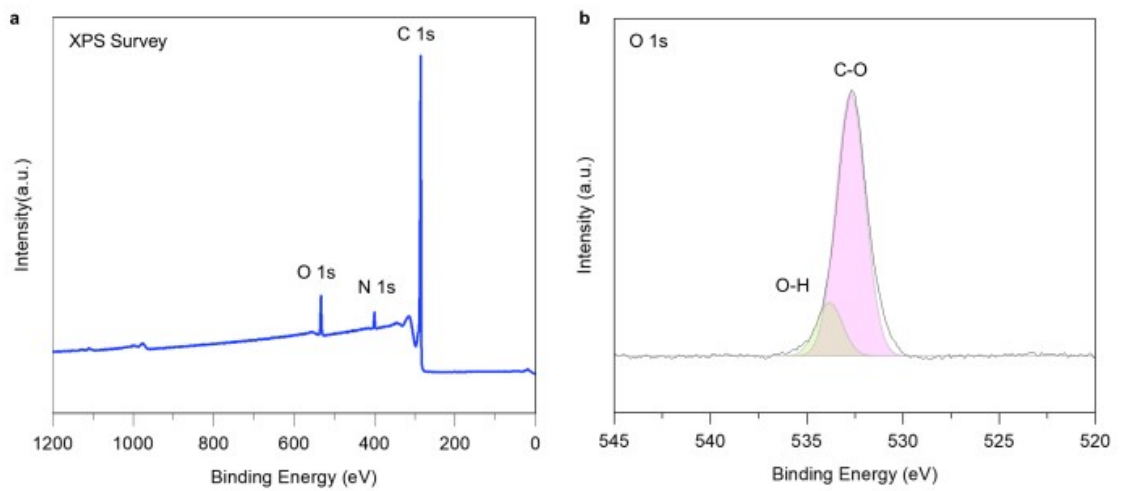
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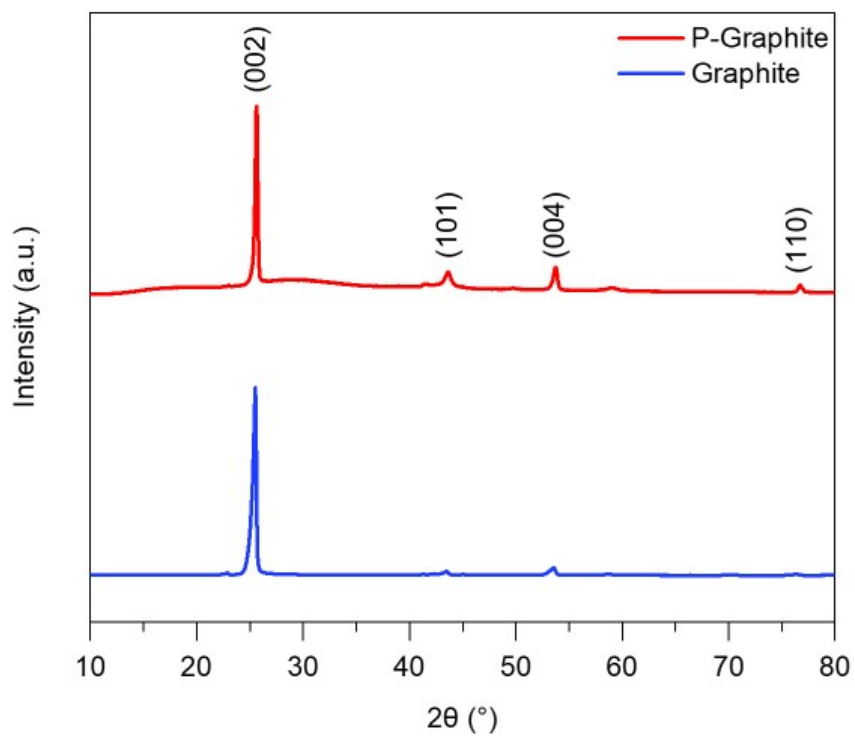
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**Fig. S1.** SEM image displaying the morphology of pristine graphite



**Fig. S2.** (a) XPS survey and (b) the XPS result of O 1s for P-graphite.



**Figure S3.** XRD results of pristine graphite and PVA-CN coated graphite.