

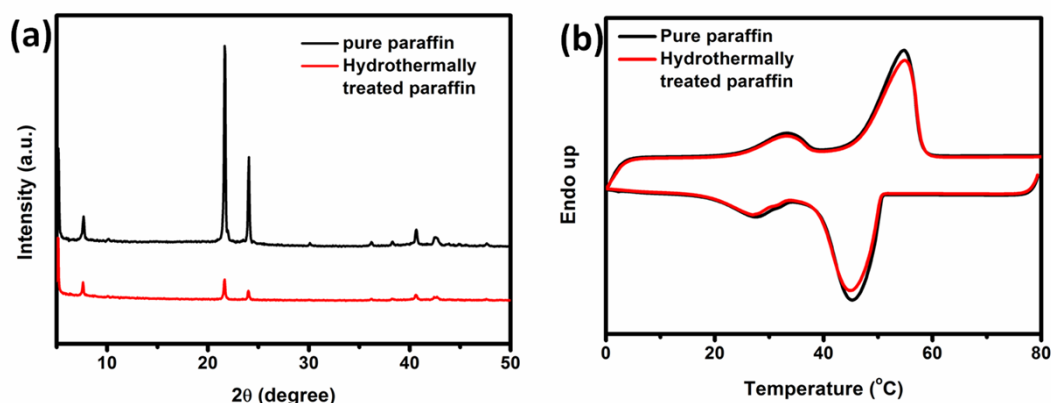
*Supplementary Information for*

## Core-shell-like structured graphene aerogel encapsulating paraffin: Shape-stable phase change material for thermal energy storage

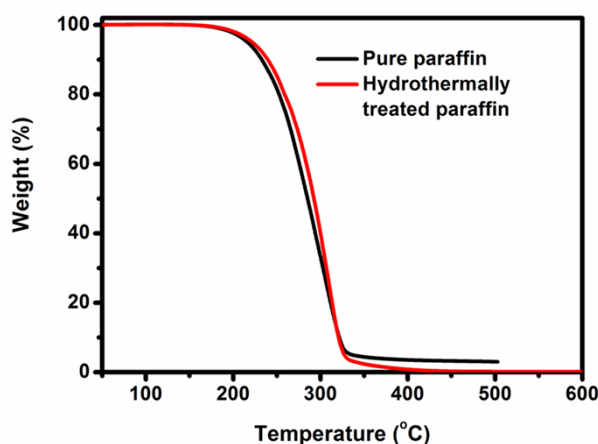
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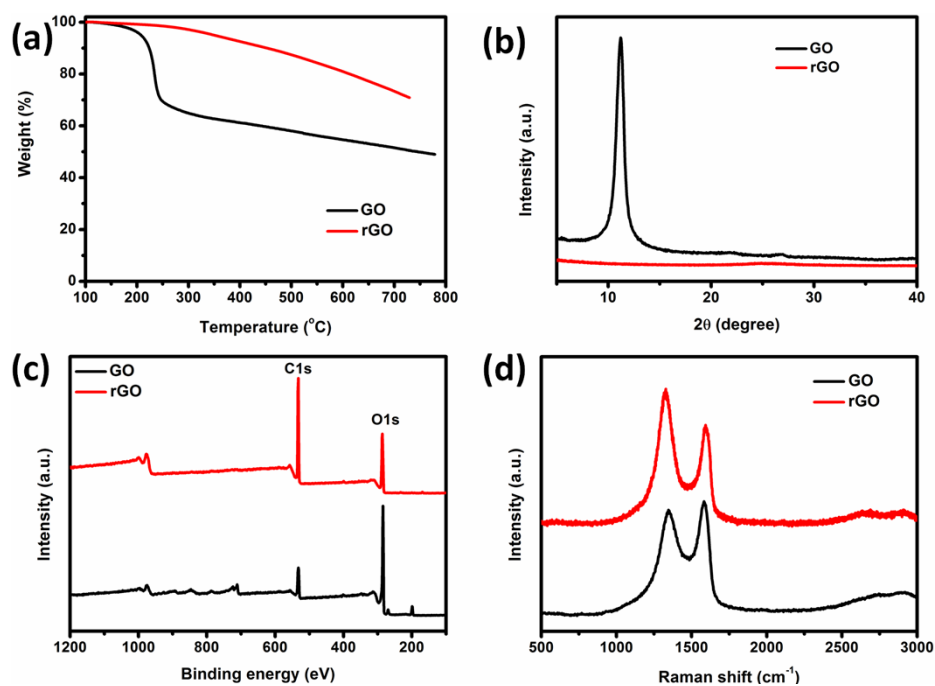
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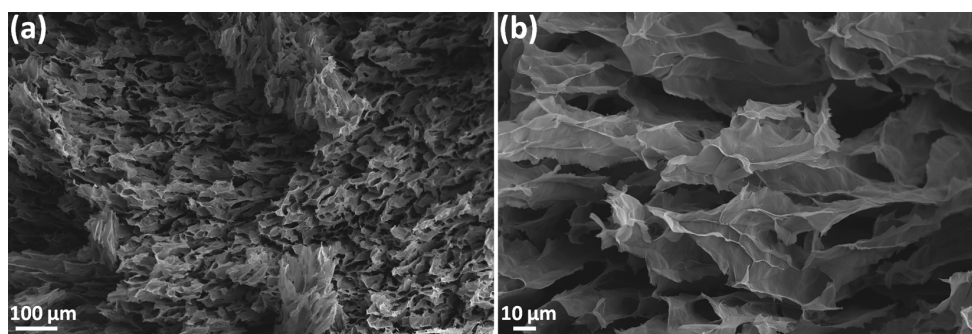
**Fig. S1** (a) XRD patterns and (b) DSC curves of pure paraffin and the hydrothermally treated paraffin. The almost identical curves suggest that paraffin used in this work is thermally stable during the modified hydrothermal process.



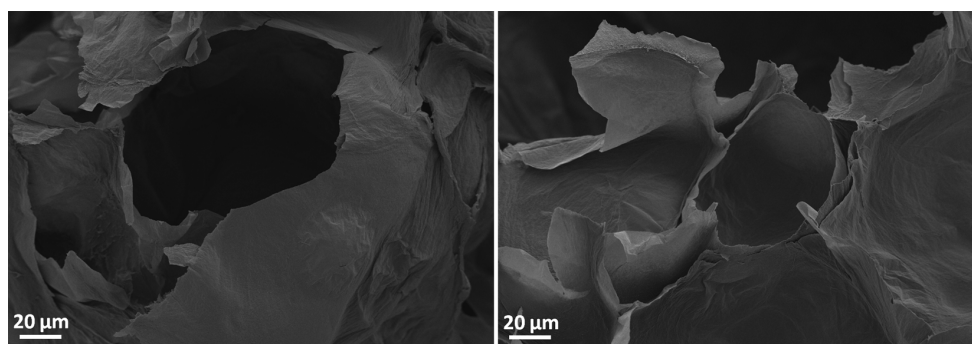
**Fig. S2** TGA curves of pure paraffin and the hydrothermally treated paraffin.



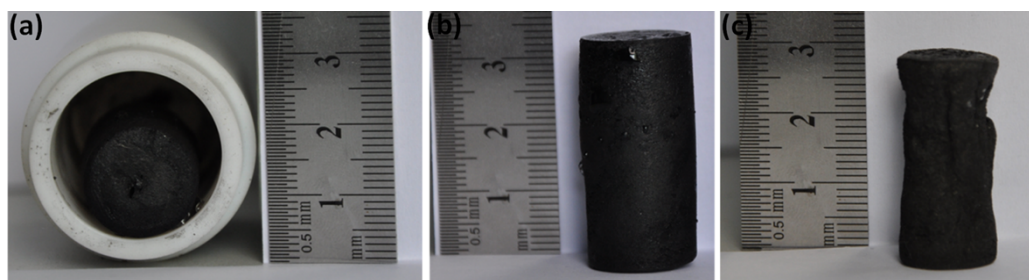
**Fig. S3** (a) TGA curves, (b) XRD patterns, (c) XPS survey spectra, and (d) Raman spectra of the raw GO and the rGO isolated from the MH-GPn.



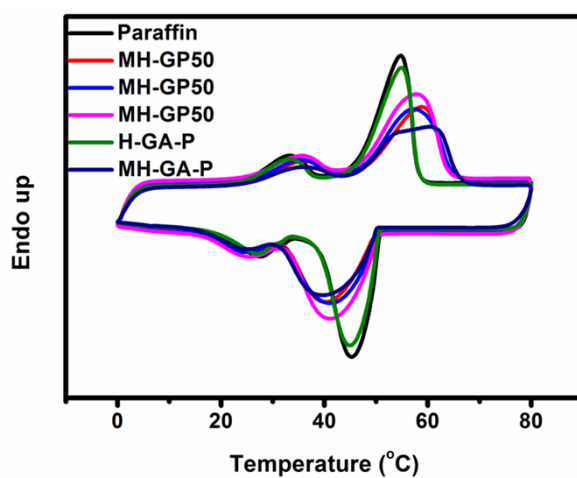
**Fig. S4** SEM images of H-GA prepared by traditional hydrothermal method at different magnifications.



**Fig. S5** SEM images of the graphene shells in MH-GP200 in which the paraffin has been removed by repeatedly washing with cyclohexane.



**Fig. S6** Photographs of the formation process of a representative sample MH-GP50. (a) the gel in the reactor, (b) the gel out of the reactor, and (c) the aerogel after removing the organic solvent and freezing drying.



**Fig. S7** DSC curves of melting and freezing of different PCMs.