Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

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Design of graphene-coated hollow mesoporous carbon spheres as high performance electrodes for capacitive deionization

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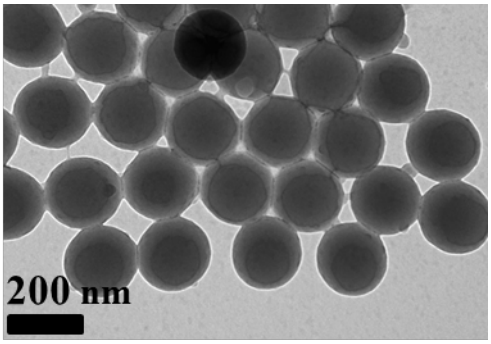

Figure S1. TEM image of PS.

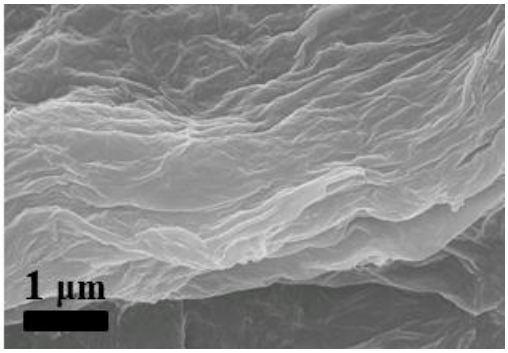

Figure S2. SEM image of GO.

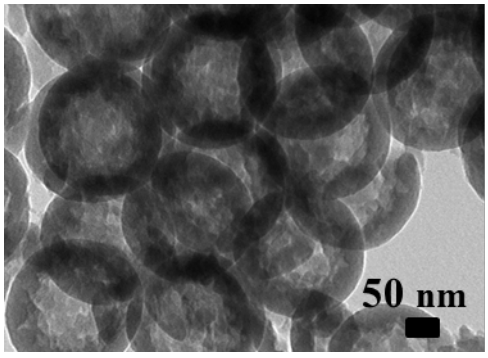

Figure S3. TEM image of HMCS.

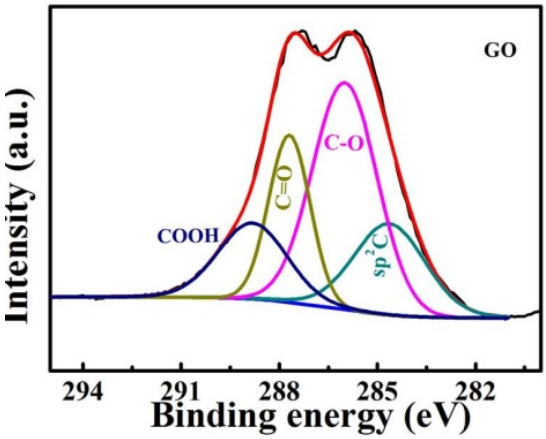

Figure S4. XPS spectrum of GO.

The C1s XPS spectrum of GO is shown in Figure S4. After oxidation, GO exhibits strong peaks of C-O (286.4 eV), C=O (287.8 eV) and COOH (288.8 eV), indicating that large amount oxygen-containing groups are introduced into the graphite sheets.

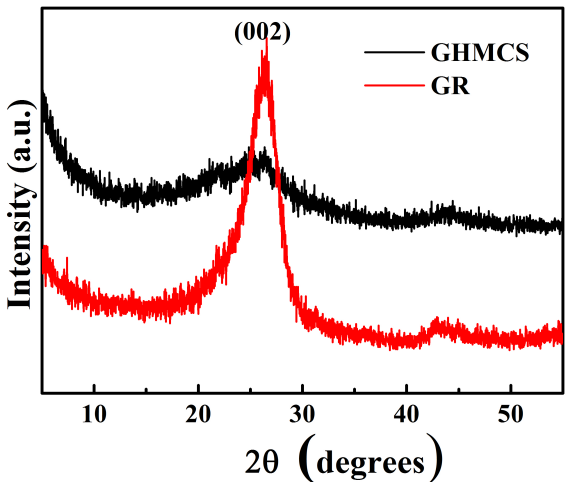

Figure S5. XRD patterns of GHMCS and GR.

For comparison, the XRD pattern of GR is shown in Figure S5. Obviously, GR shows a peak at about 2θ= 25°C, indicating the thermal reduction of GO during the calcination process. However, the (002) peak of GR is much sharper than that of GHMCS, suggesting the exfoliation degree of GR is compromised under the same experimental conditions with the absence of HMCS. Therefore, the XRD result can further demonstrate that the intercalation of HMCS is favorable to the exfoliation of graphene.

Table S1 Surface areas of each sample based on the nitrogen sorption analysis.

	Surface area (m^2 g^{-1})		
Sample	Total	External surface area	Micropore area
GR	83.2	72.7	10.5
HMCS	512.4	109.6	402.8
GHMCS	400.4	122.5	277.9