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

Electronic Supplementary Information (ESI)

Reduction of Graphene Oxide with L-lysine to Prepare Reduced Graphene Oxide Stabilized with Polysaccharide Polyelectrolyte

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1、UV-Vis spectra of L-Lys and CMS

Fig.S1 shows that CMS has no absorption in the ultraviolet range, and L-Lys has a maximum absorption peak (λ_{max}) of 214 nm that is on the left of the absorption peak of GO or RGO.

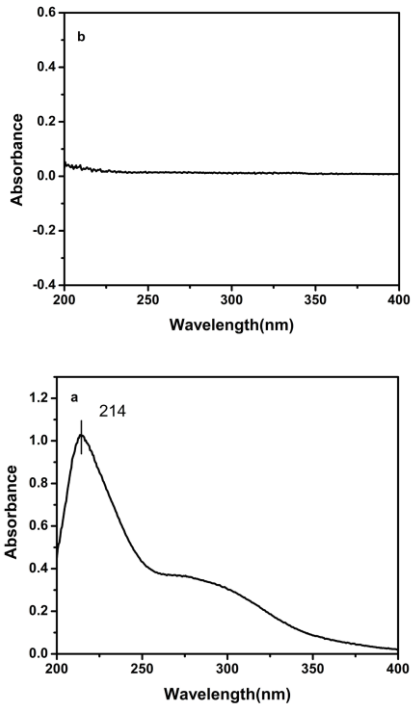

Figure S1. UV-Vis absorption spectra of L-Lys (a) and CMS (b)

2、The magnified SEM image of RGO/CMS foams.

Figure S2 clearly shows uniform distribution of RGO sheets in the CMS matrix.

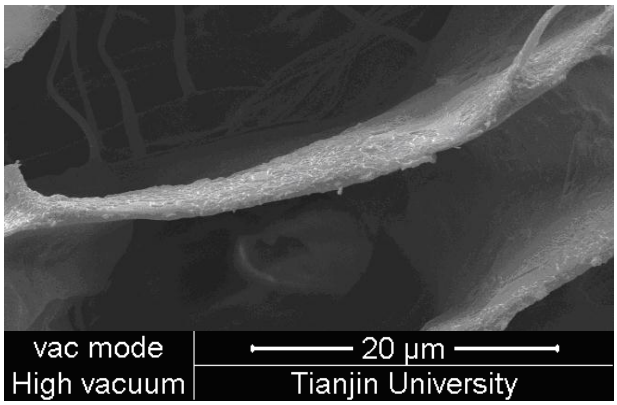

Figure S2. The magnified SEM image of the pore of RGO/CMS foams (RGO concentrations: 1%)

3、**X-Ray photoelectron spectroscopy (XPS) analysis.**

Figure S3 shows the XPS spectra of the GO, RGO and RGO with CMS. A new peak corresponding to the N1s is observed near 400.0 eV, which comes from the nitrogen in the L-Lys. It indicates that RGO is attached with L-Lys.

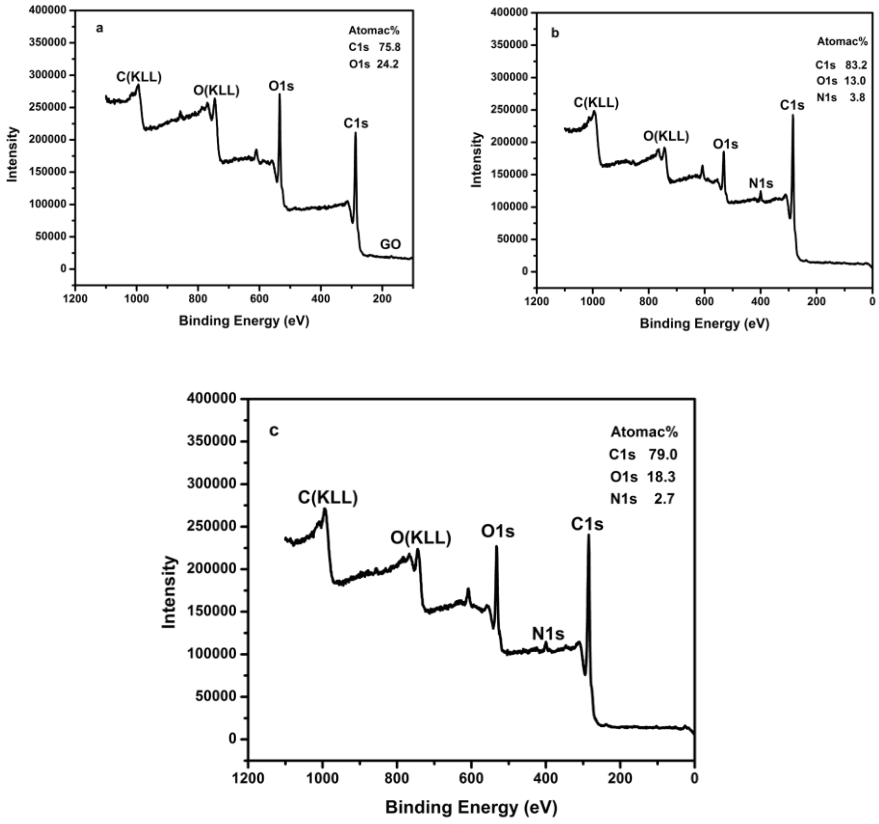

Figure S3. The XPS spectra for GO (a), RGO (b) and RGO with CMS

The desorption of Cu^{2+} from absorption materials have been reported in recently years.[S1-S4] The methods to recycle the porous RGO/CMS foams and collect the metal ions are illustrated in Figure S4.

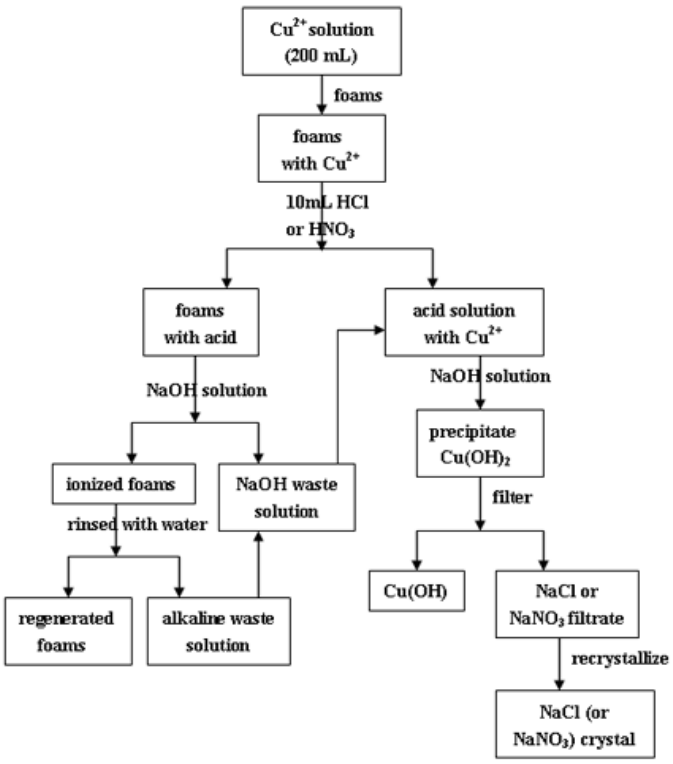

Figure S4. Illustration of the absorption and regeneration of the porous RGO/CMS foams for Cu^{2+}

Reference:

S1 N. Zhang, H. Qiu, Y. Si, W. Wang and J. Gao, *Carbon*, 2011, **49**, 827.

S2 C. Niu, W. Wu, Z. Wang, S. Lic and J. Wang, *J. Hazard. Mater.*, 2007, **141**, 209–214.

S3 L. Guo, S. F. Zhang, B. Z. Ju, J. Z. Yang and X. Quan, *Journal of Polymer Research*, 2006, **13**, 213–217.

S4 B.S. Kim and S. T. Lim, *Carbohydr. Polym.*, 1999, **39**, 217–223.