Electronic Supplementary Material (ESI) for New Journal of Chemistry.
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Support Information

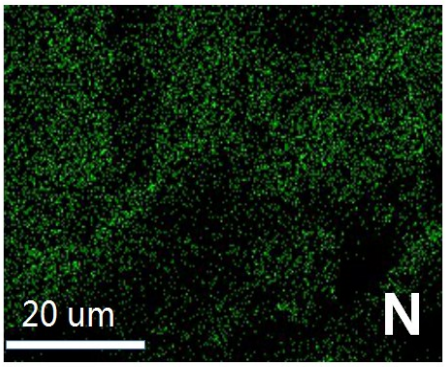

Fig S1. The mapping of N element on the MA-GH.

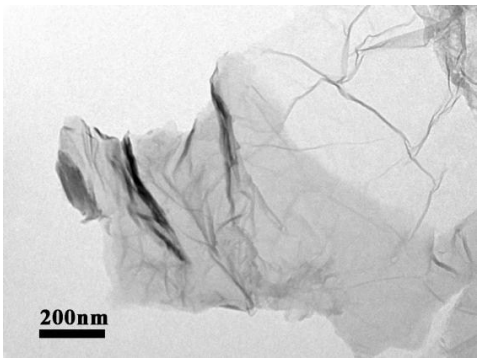

Fig S2. TEM image of MA-GH

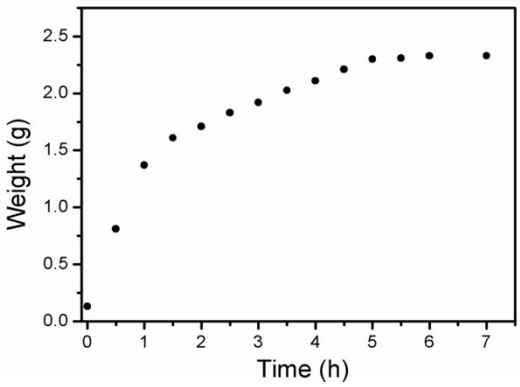

Fig S3. The mass of MA-GH after water swelling at different times.

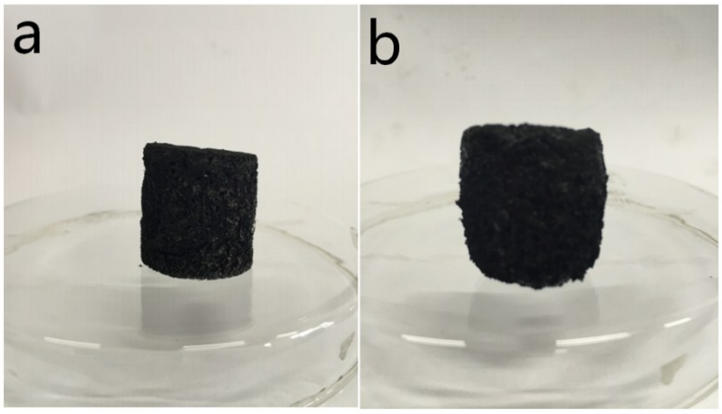

Fig S4. Photographs of dried and swollen MA-GH.

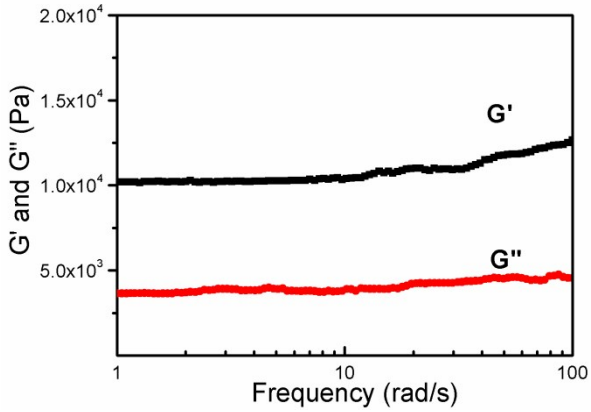

Fig S5. Dynamic rheological behaviors of MA-GH.

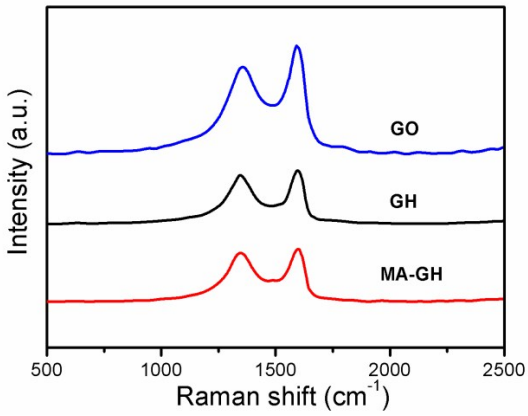

Fig S6. Raman spectra of GO, GH and MA-GH.

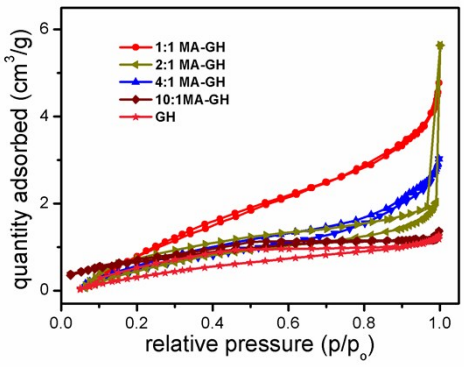

Fig S7. N_2 physisorption isotherms obtained for hydrogels with different MA ratios.

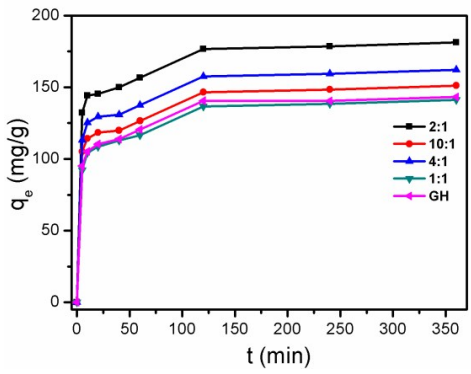

Fig S8. Effect of contact time on the uranium (VI) adsorption by MA-GHs with different MA ratios. (c_o = 100 mg/L, pH = 6, m =10 mg, v = 20 mL, T = 298 K)

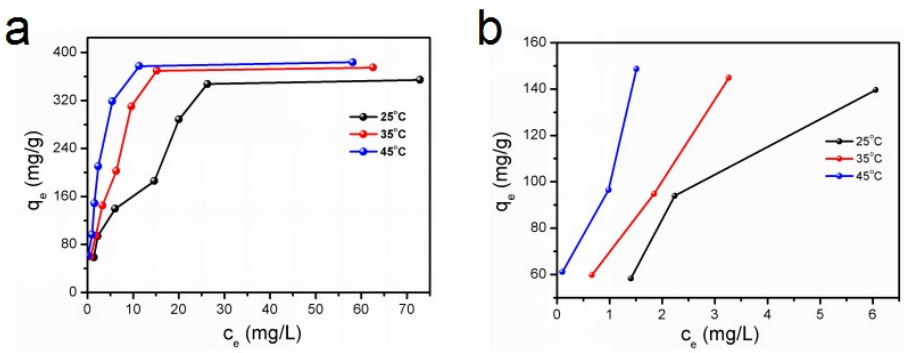

Fig S9. (a) effect of temperature on uranium (VI) adsorption by MA-GH; (b) partial enlarged detail. (c_o = 30-250 mg/L, pH = 6, m = 10 mg, v = 20 mL, t = 3 h).

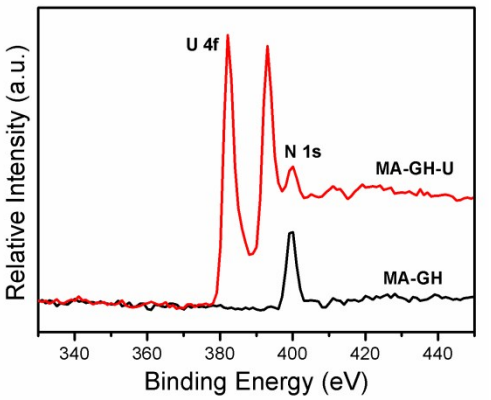

Fig. S10 Typical XPS survey spectrum in range of 330-450 eV

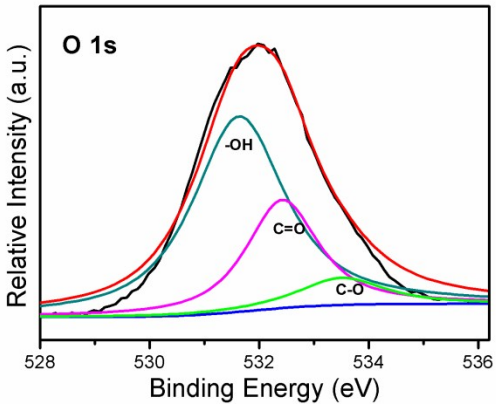

Fig. S11 The high resolution spectra of O 1s of MA-GH-U

Table.S1 Textural properties of different MA ratios hydrogels.

Materials	surface area (m^2/g)	pore diameter (nm)	pore volume (cm^3/g)
10:1 MAI-GH	207.82	4.17	0.112
4:1 MA-GH	228.10	4.23	0.109
2:1 MA-GH	254.17	4.01	0.134
1:1 MA-GH	267.15	3.94	0.137
GH	158.47	4.68	0.062

Table.S2 Kinetic parameters for the uranium (VI) adsorption onto MA-GH.

Adsorbent	C_0 (mg/L)	Pseudo-first-order			Pseudo-second-order		
		K_1 (min^{-1})	$q_{e,mod}$ (mg/g)	R^2	K_2 (g/min/mg)	$q_{e,mod}$ (mg/g)	R^2
MA-GH	100	0.1758	64.612	0.8298	0.00103	183.82	0.9989

Table.S3 Langmuir and Freundlich isotherm parameters for uranium (VI) onto MA-GH.

T(K)	Langmuir				Freundlich		
	q_{max} (mg/g)	b (L/mg)	R^2	R_L	K_F ($mg^{1-n}L^n/g$)	n	R^2
298	404.85	0.1	0.9689	0.038-0.25	58.323	2.10	0.917
308	407.51	0.211	0.9917	0.019-0.136	82.806	2.209	0.868
318	418.41	0.478	0.9978	0.008-0.065	119.235	2.451	0.83

Table.S4 Thermodynamic parameters of adsorption of uranium (VI) on MA-GH

T(k)	Δ G(kJ/mol)	Δ S(J/mol · k)	Δ H(kJ/mol)
298	-47.921		
308	-49.72	179.92	5.695
318	-51.52		

Table.S5 Desorbing agents corresponding to the desorption rate

	Desorption agent	Concentration (mol·L^{-1})	Desorption rate (%)
1	Na_2EDTA	0.1	37.2
2	NaOH	0.1	29.83
3	Na_2SO_4	0.1	14
4	CH_3COOH	0.1	53.9
5	HCl	0.1	89.33
6	$NaHCO_3$	0.1	65.13

Table.S6 Atomic compositions of MA-GH before and after uranium (VI) adsorption.

Material	Atomic percentage content (%)			
	C	N	O	U
MA-GH	40.9	42.7	16.4	0.00
MA-GH-U(VI)	38.8	38.2	12.5	10.5