## **Supplementary Information**

Effective removal of Cr(VI) through adsorption and reduction by magnetic mesoporous carbon incorporated with polyaniline

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**Preparation of SBA–15 templates.** In a typical synthesis, 8g of P123 was added into 312 mL of 2 M HCl solution and the mixture was stirred for 4 h at 35 °C until surfactant P123 full dissolution. Next, 17.2 g of tetraethyl orthosilicate was dropwise added, and followed by 20 h mechanically stirring at 35 °C. Then, the resulting gels were transferred to the Teflon–lined sealed containers and were kept at 140 °C for 24 h under static hydrothermal conditions. The as–synthesized samples were recovered by filtration and washing. Subsequently, the samples were calcined at 550 °C in air for 4 h to remove the organic template P123. Thus, the as–synthesized SBA–15 was obtained.

**Preparation of Fe/OMC.** Magnetic ordered mesoporous nanocomposite (Fe/OMC) was synthesized by following a co–impregnation method. Typically, 1.0 g of as–synthesized SBA–15 was impregnated with 10 mL of multi–component alcohol solution containing 1.08 g Fe(NO<sub>3</sub>)<sub>3</sub>.9H<sub>2</sub>O and 0.05 g oxalic acid, and then 2.0 mL of furfuryl alcohol was added dropwise into the above mixture. Following on it, the mixture thus prepared was heated at 90 °C for 10 h in air. Then, the resultant was calcinated at 900 °C for 2 h under flowing nitrogen atmosphere. Finally, the composite was recovered after dissolution of the silica framework in 2.0 mol/L of boiling NaOH solution, filtered, washed, dried at 60 °C and then stored in a nitrogen–filled glovebox until required.

Adsorbents	Surface area $(m^2/g)$	Pore size (nm)	Pore volume (cm <sup>3</sup> /g)
SBA-15	375.22	12.5	1.06
Fe/OMC	374.89	4.81	0.60
PANI-Fe/OMC	55.95	4.74	0.11

Table S1. Physical parameters of three mesoporous materials.

 Table S2. The percentage composition of each element in PANI–Fe/OMC before

 and after Cr(VI) removal.

Element compositions	С	0	Ν	Fe	Cr	Total
Before interaction	75.19%	10.64%	7.85%	6.32%	0	100%
After interaction	52.9%	30.54%	6.53%	5.82%	4.21%	100%



Fig. S1. N<sub>2</sub> sorption isotherms with inset the corresponding pore distribution curves of Fe/OMC and PANI–Fe/OMC.



Fig. S2. XPS wide scan, C 1s and Fe 2p spectra of PANI–Fe/OMC before (a, c, e) and after (b, d, f) Cr(VI) removal.



Fig. S3. Zeta potentials of magnetic mesoporous carbons as a function of solution pH.



Fig. S4. The total chromium and Cr(VI) removal by PANI–Fe/OMC. pH = 2.0; T = 298 K.



Fig. S5. Seven consecutive adsorption–desorption cycles of PANI–Fe/OMC for Cr(VI).