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Supporting Information

Designing Multifunctional 3D Magnetic Foam for Effective Insoluble Oils Separation and Rapid Selective Dye Removal towards Wastewater Remediation

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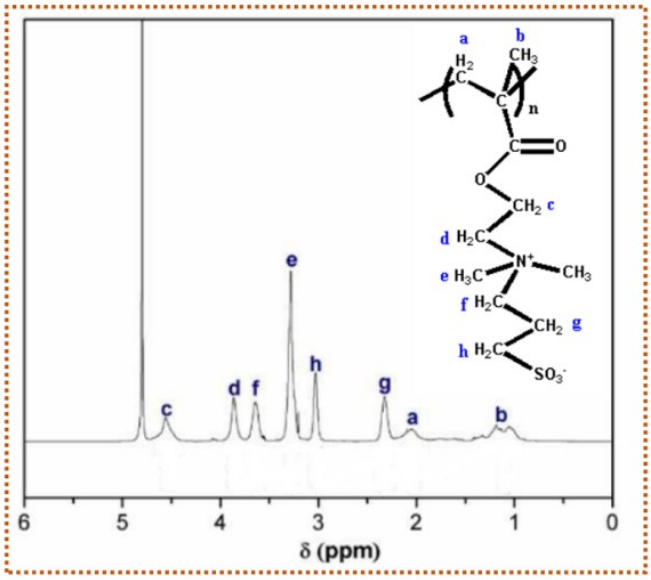

Fig. S1 1H NMR of PSBMA

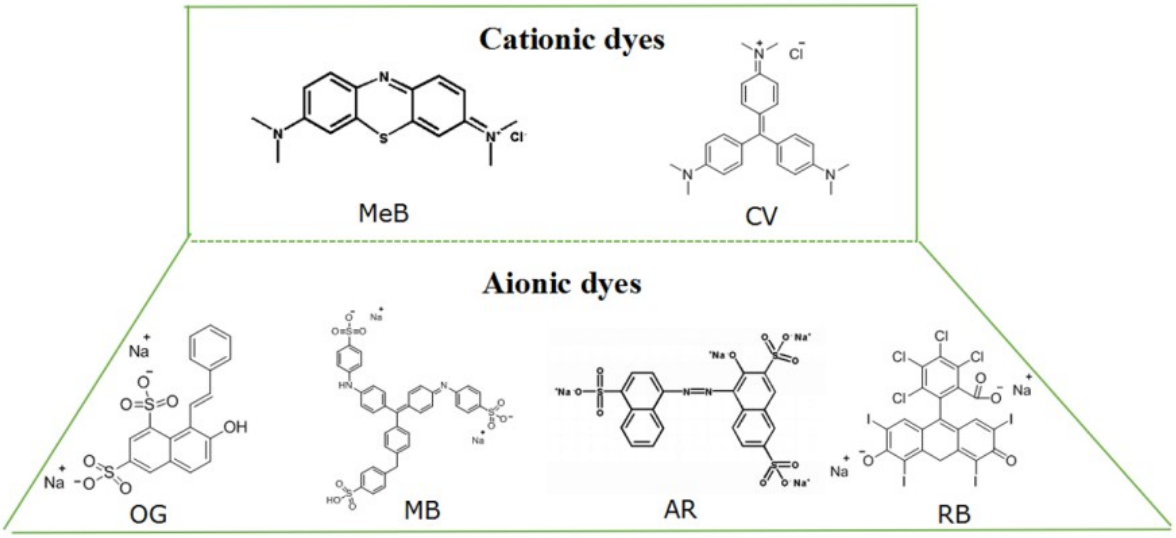

Fig. S2 Molecular structures of the anionic dyes (MB, RB, AF and OG) and cationic dyes (MeB and CV).

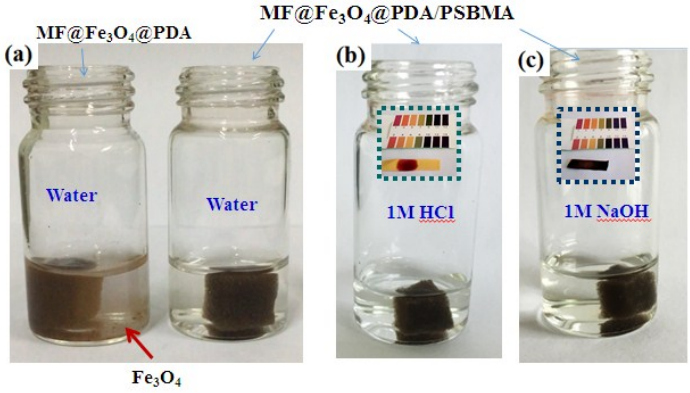

Fig. S3 Immersing MF@Fe_3O_4@PDA and MF@Fe_3O_4@PDA/PSBMA foams in water (a); Immersing MF@Fe_3O_4@PDA/PSBMA foam in 1M HCl(b) and NaOH(c) aqueous up to 24 h.

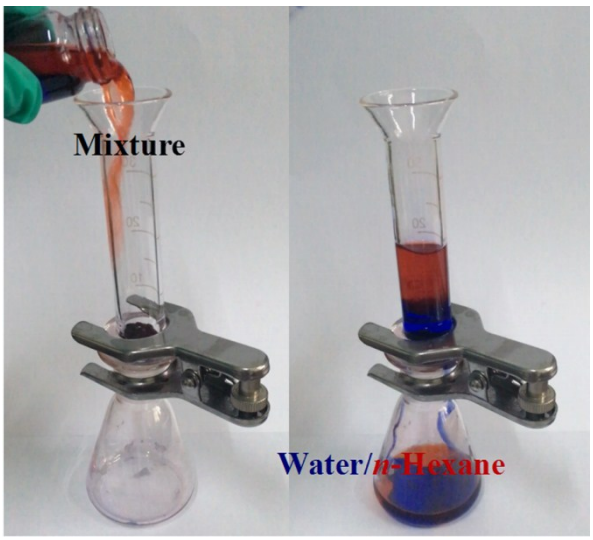

Fig. S4 Separation of n-hexane-water mixtures of MF@Fe_3O_4@PDA.

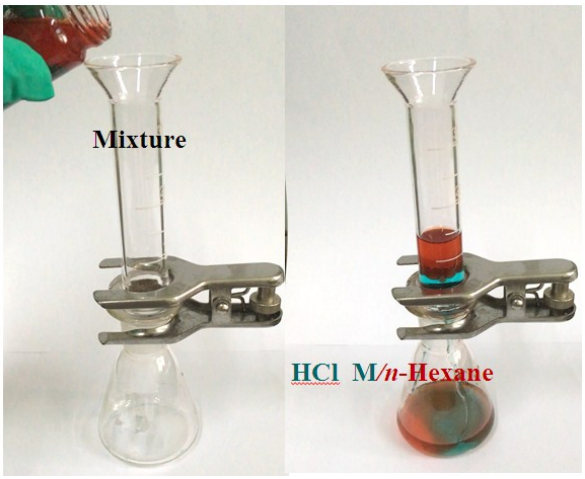

Fig. S5 Separation experiments of the MF@Fe_3O_4@PDA foam for mixtures of n-hexane and 1 M HCl.

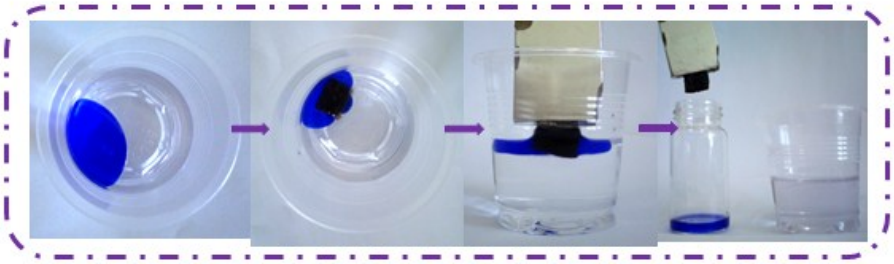

Fig. S6 Photographs of the selective absorption of water (dyed with MB) from oil

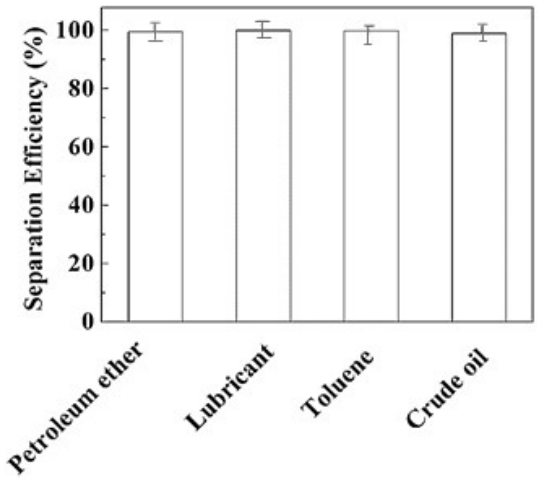

Fig. S7 The separation efficiency of different oil (Petroleum ether, Lubricant, Toluene and Crude oil) and water emulsions in 1:30 (v/v).

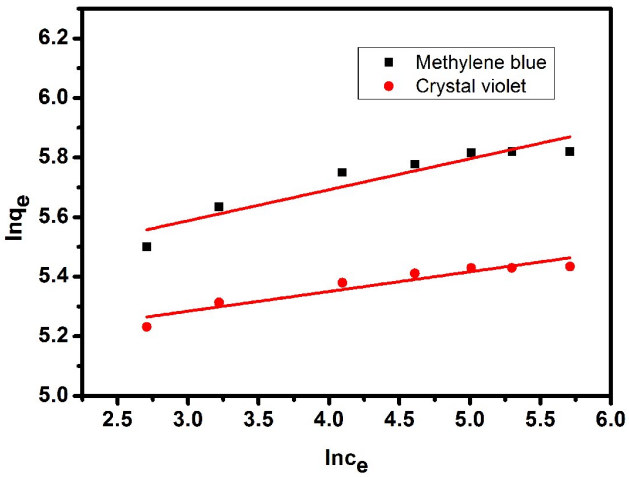

Fig. S8 Adsorption isotherms of Methylene blue and Crystal violet adsorption on MF@Fe_3O_4@PDA/PSBMA at pH = 7 fitting curves of the Freundlich isotherm model.

Table S1 The q_{max} for the adsorption of Methylene blue on various adsorbents.

Adsorbents	qmax (mg g^{-1})	Ref.
Magnetic nanoparticles (Fe_3O_4/PDA)	204.1	43
Magnetic polypyrrole nanocomposite (Fe_3O_4@PPy/RGO)	270.3	44
Polydopamine microspheres	90.7	45
Magnetic Ni/carbon (Ni/C) nanomaterials	175.2	46
Graphene nanosheet (GNS)/magnetite (Fe_3O_4) Composite	43.8	47
PDA-coated silica gels	62.5	48
Graphene−carbon nanotube	65.8	49
Magnetic MF@Fe_3O_4@PDA/PSBMA foam	336.1	This work

Table S2 The element content of the MF@Fe_3O_4@PDA/PSBMA before and after absorption Methylene blue

Sample	C1s(%)	N1s(%)	O1s(%)	$S2_P$ (%)
before absorption methylene blue	74.4	4.2	19.8	1.6
after absorption methylene blue	80.1	0.4	19.3	0.1