

SUPPLEMENTARY MATERIALS

Composite Zn(II) Ferrocyanide/Polyethylenimine Cryogels for Point-of-Use Selective Removal of Cs-137 Radionuclides

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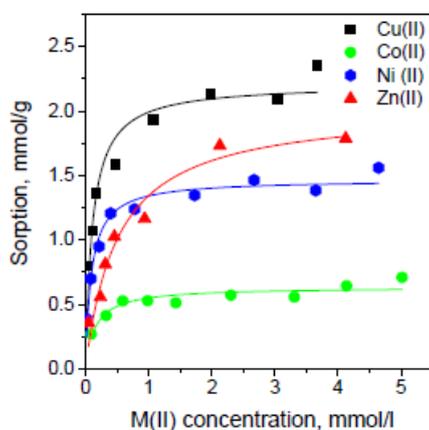
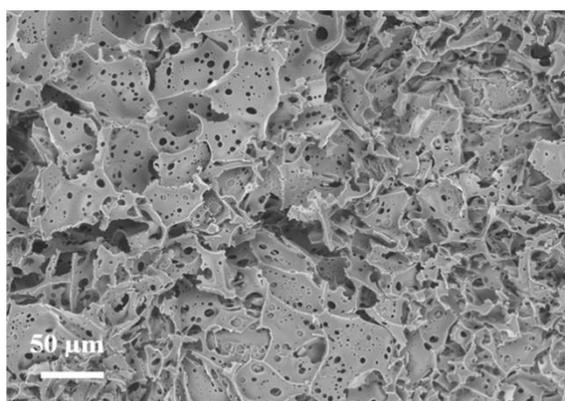
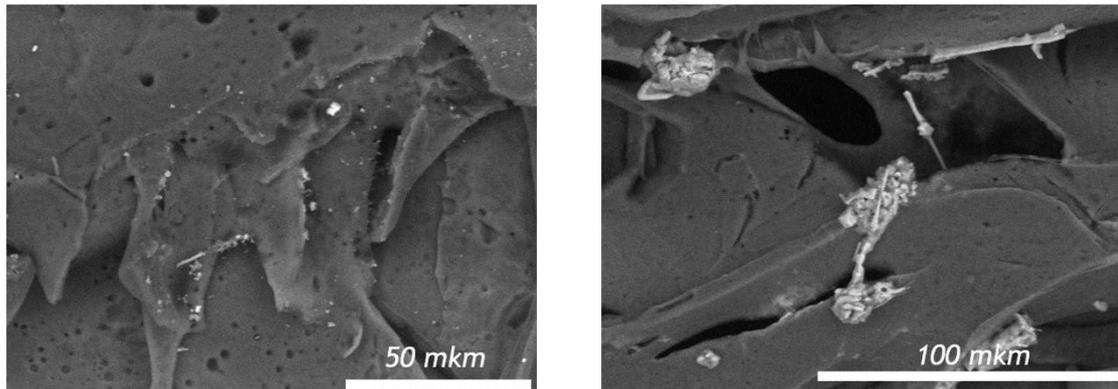


Figure S1. Isotherms of metal ions sorption on PEI cryogel cross-linked with DGEED at molar ratio DGEED:PEI 1:4, pH = 5, T = 25°C, Solid:Liquid ratio 1:1000, contact time 72 h.



(a)



(b)

(c)

Figure S2. SEM image of the composite PEI/ZnFC cryogels fabricated via Method III (a) and Method II (b, c).

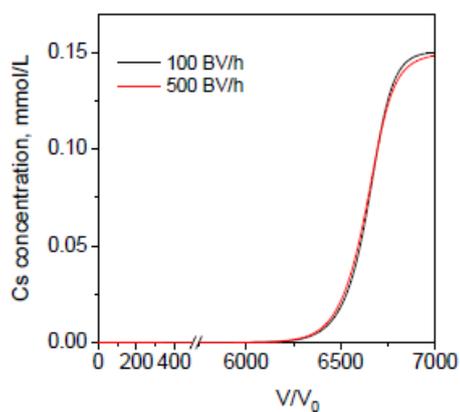


Figure S3. Theoretical (RCD-model) breakthrough curves of Cs⁺ ions sorption on PEI/ZnFC composite fabricated via Method I, 19 mgCs/L (0.14mM), monolith column diameter was 3 cm, bed length was 1.2 cm.

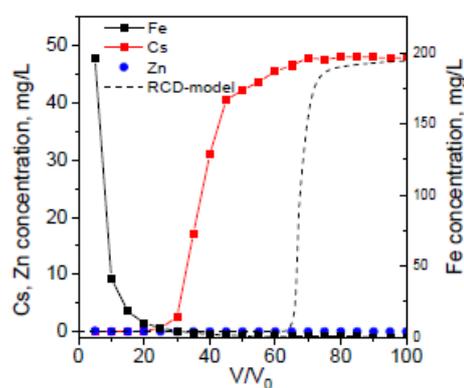


Figure S4. Breakthrough curves of Cs⁺ ions sorption on PEI/ZnFC composite fabricated via Method I and release profiles for zinc and iron, sea water, 48 mgCs/L, flow rate 100 BV/h, monolith column diameter was 0.48 cm, bed length was 6 cm: dots - experimental data, dash line - RCD-model (a). Breakthrough curve of Cs⁺ ions sorption on PEI/ZnFC composites (Method I) from the solution

containing 19 mgCs/L at flow rate 145 BV/h and release profiles for zinc, potassium and iron; column geometry as in Fig.5a.

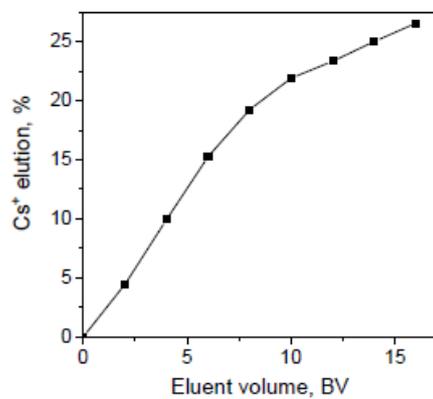


Figure S5. Elution of Cs⁺ ions from PEI/ZnFC composite fabricated via Method I using 0.1M NaOH solution, flow rate 8 BV/h.