Electronic supplementary information for

Synergistic Nanofibrous Adsorbent for Uranium Extraction from Seawater

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Supplementary Tables

Table S1. Composition of composite mats with different PAO content prepared by electrospinning

	PAO content / wt%	PVDF content / wt%	PAAc content / wt%
PVDF-g-PAAc	0	74.4	25.6
AC-AO-33	33	49.8	17.2
AC-AO-51.9	51.9	35.8	12.3
AC-AO-65.7	65.7	25.5	8.8
AC-AO-89.4	89.4	7.9	2.7
PAO	100	0	0

Table S2. Comparison of different nanofibrous adsorbents prepared by electrospinning

Sample	PAO content / wt%	PAAc content / wt%	Porosity / %	Hydrophilicity	Uranium uptake / mgU g^{-1} ads
PVDF	0	0	85.6	Very poor	0.1
PVDF-g-PAAc	0	25.6	75.8	Poor	1.19
DF-AO-56.6	56.6	0	69	Good	1.35
AC-AO-51.9	51.9	12.3	64.5	Good	3.17
PAO	100	0	52.7	Excellent	1.85

Table S3. Optimized distances (in Å) between U and axial O atoms and the distances between U and

ligand atoms (O and N atoms).

Complexes	R(U=O(axial))	R(U-O(AO^-))	R(U-N(AO^-))	R(U-O(AC^-))
$[UO_2(CO_3)_2(AO)]^{3-}$	1.824	2.357	2.453	
$[UO_2(CO_3)(AO)_2]^{2-}$	1.826	2.353	2.447	
$[UO_2(AO)_3]^-$	1.826	2.349	2.441	
$[UO_2(CO_3)_2(AC)]^{3-}$	1.812			2.324
$[UO_2(CO_3)(AC)_2]^{2-}$	1.802			2.532
$[UO_2(AC)_3]^-$	1.790			2.496
$[UO_2(CO_3)(AO)(AC)]^{2-}$	1.814	2.334	2.423	2.549
$[UO_2(AO)_2(AC)]^-$	1.816	2.328	2.421	2.531
$[UO_2(AO)(AC)_2]^-$	1.804	2.302	2.400	2.515

Supplementary Figures

Figure S1. The flow-through adsorption test in lab-scale simulated seawater adsorption system

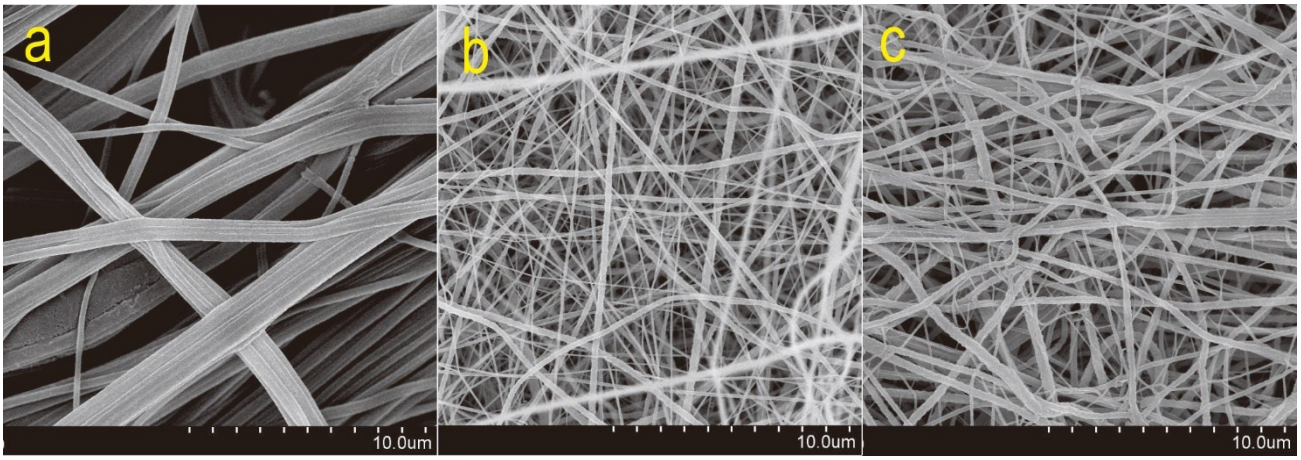

Figure S2. SEM images of (a) PAO mat, (b) PVDF-g-PAAc mat, and (c) AC-AO-51.9 composite mat

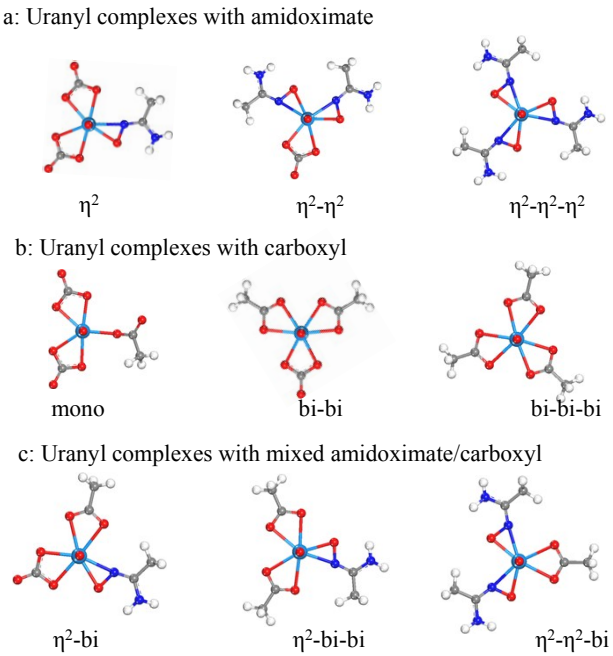

Figure S3. Optimized structures for uranyl complexes with amidoximate, uranyl complexes with carboxyl and uranyl complexes with mixed amidoximate/carboxyl

References

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