Supplementary material

Colorimetric sensing for sensitive detection of UO_2^{2+} via phosphorylation functionalized mesoporous silica-based controlled release system

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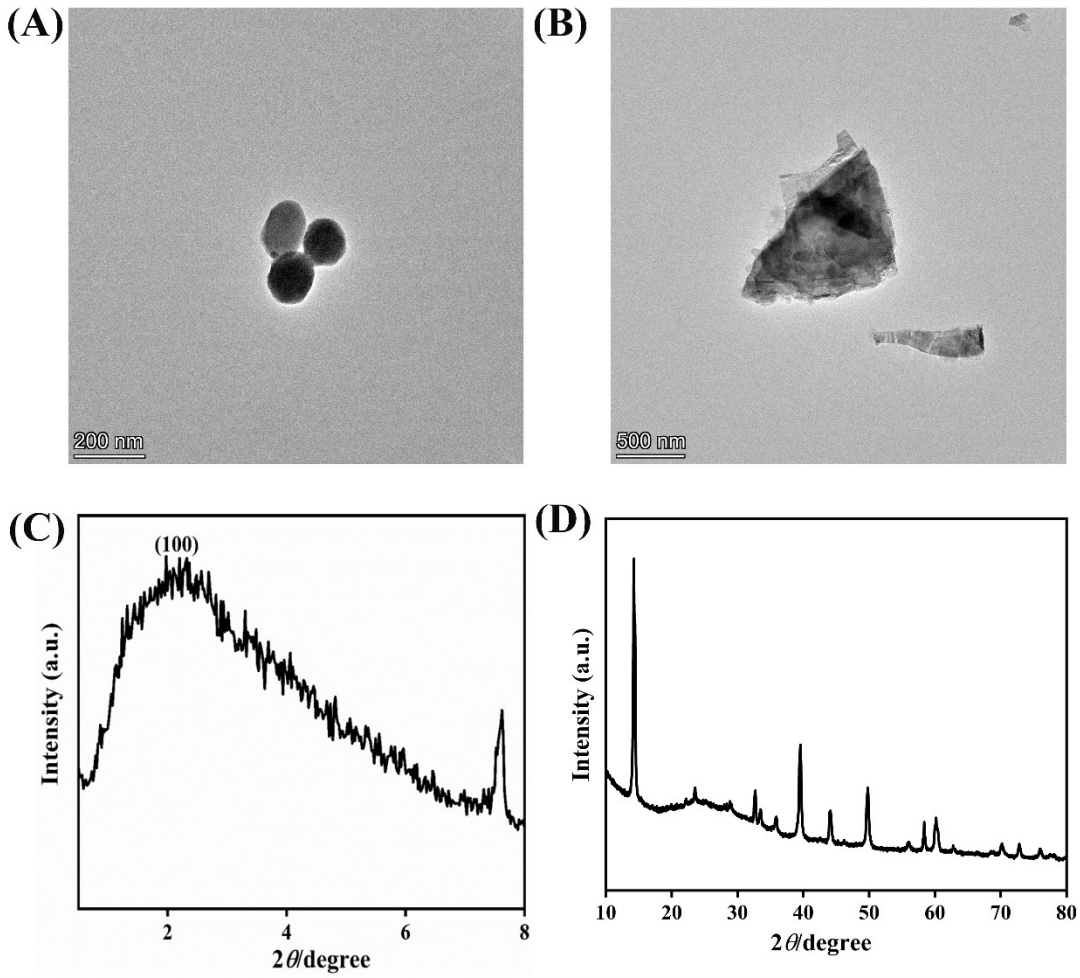

Figure S1. (A)TEM images of MSN-PO_4: (B) SEM images of MoS_2-PO_4; (C)Powder X-ray pattern of MSN; (D) Powder X-ray pattern of MoS_2-PO_4.

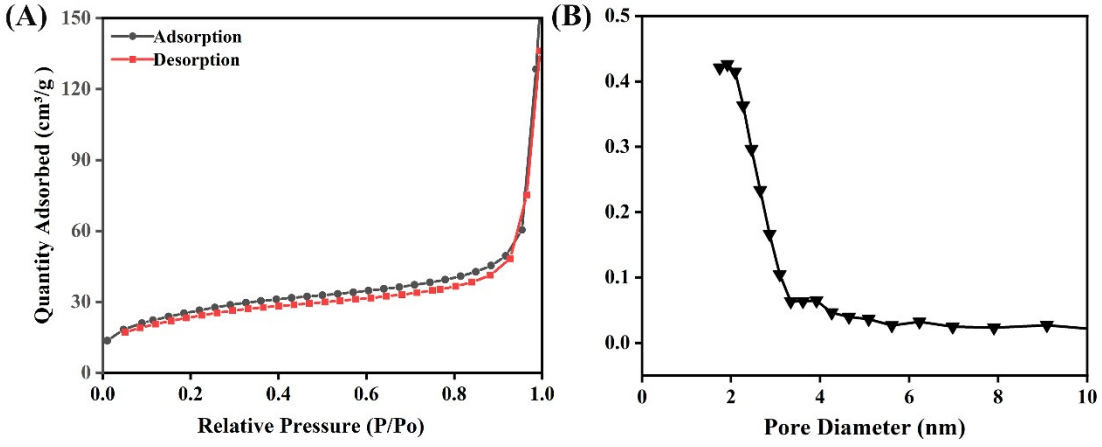

Figure S2. (A) Nitrogen adsorption-desorption isotherms; (B) Pore size distribution of MSN-PO_4.

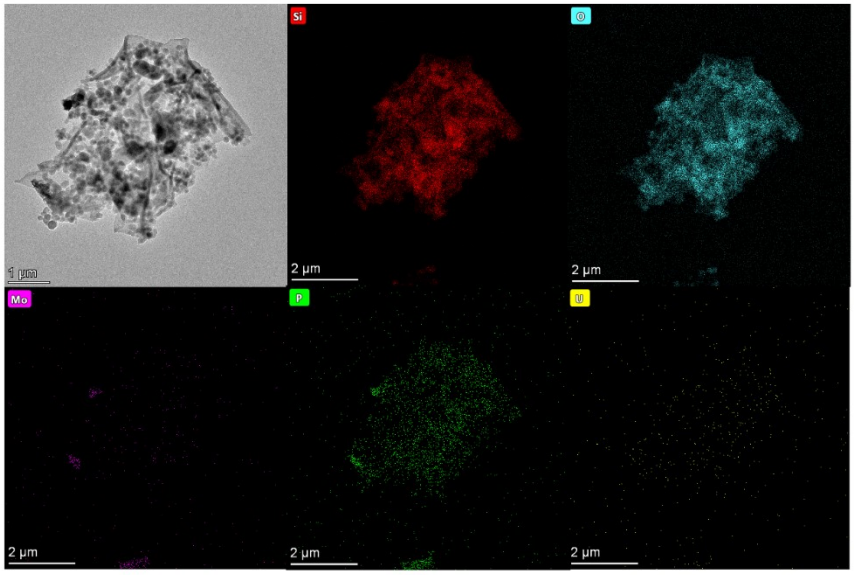

Figure S3. TEM image of MSN-PO_4-UO_2^{2+}-MoS_2-PO_4 and Si, O, Mo, P, U element energy spectrum.

Table S 1 Comparison of sensitivity for UO_2^{2+}detection by various sensors.

Functions	Sensing system	LOD (nM)	Linear range	Ref.
Colorimetric sensors	ABTS	10	0.1~100 μM	[1]
	Schiff base	1.9	0.1~100 μM	[2]
	CoA-AuNPs	6	0-1.2 μM	[3]
	AuNPs	150	0.2-10 μM	[4]
	MSNs	0.85	0.02-0.2 μM	This work
Electrochemical sensors	PBCB/GCE	0.65	2.0-90.0 nM	[5]
	Fe_3S_4-g-C_3N_4	0.22	0.05-8 nM	[6]
	Fe_3O_4@SiO_2	1.08	1.0-200 nM	[7]
	PET TMs	5.45	1.0-100	[8]
Fluorescent sensors	TPE-A	4.7	50.0-450 nM	[9]
	Ce-ATP CPNs	80	0-20 μM	[10]
	TPE-SAM	32	0-0.5 μM	[11]
	TPE-SA	11	25-350 nM	[12]
	P2	7.4	10-200 nM	[13]

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