Supporting information

A highly sensitive "on-off" time-resolved phosphorescence sensor based on aptamer functionalized magnetite nanoparticles for cadmium detection in food samples

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Figure S1. Length distribution of Zn_2GeO_4 :Mn synthesized at 2, 4, 6, 8 h (A-D); Width distribution of Zn_2GeO_4 :Mn synthesized at 2, 4, 6, 8 h (E-H).



Figure S2. EDS elemental mapping of Zn_2GeO_4 :Mn synthesized at 2 h (A), 4 h (B), 6 h (C), 8 h (D). High-resolution Zn_{2P} XPS spectra of Zn_2GeO_4 :Mn synthesized at 2 h (E), 4 h (F), 6 h (G), 8 h (H).



Figure S3. High-resolution Ge_{2p} XPS spectra of Zn_2GeO_4 :Mn synthesized at 2 h (E), 4 h (F), 6 h (G), 8 h (H). High-resolution O_{1s} XPS spectra of Zn_2GeO_4 :Mn synthesized at 2 h (E), 4 h (F), 6 h (G), 8 h (H).

Table S1.	The seq	uences of l	oiotin la	belled (Cd ²⁺ -binding	aptamer	(ssDNA),	and its	black hole
quencher	$1 (BHQ_1)$) labelled o	omplen	nentary	strand.				

Sequence							
biotin labelled Cd ²⁺ -binding aptamer	5'-Biotin-						
	ACCGACCGTGCTGGACTCTGGACTGTTGT						
	GGTATTATTTTGGTTGTGCAGTATGAGCG						
	AGCGTTGCG-3'						
black hole quencher 1 (BHQ1) labelled	5'-BHQ1-						
complementary strand	CGCAACGCTCGCTCATACTGCACAACCAAA-3'						

Table S2. The quantum yield (QY) Zn₂GeO₄:Mn synthesized at 2, 4, 6, 8 h.

	2 h	4 h	6 h	8 h
Quantum yields (%)	8.42	12.22	14.18	17.82