Supporting Information

Two Zinc(II)-Based coordination polymers as Luminescent Sensors for detecting Salicylaldehyde with High Sensitivity and Selectivity

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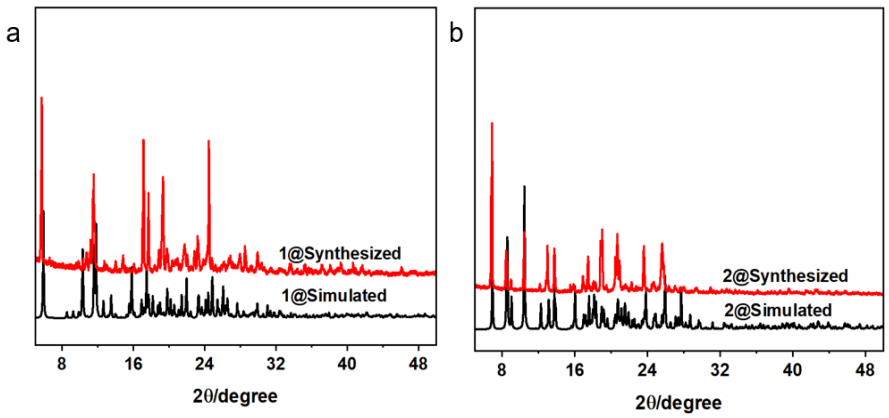

Figure S1 The X-ray powder diffraction patterns of **1** (a) and **2** (b).

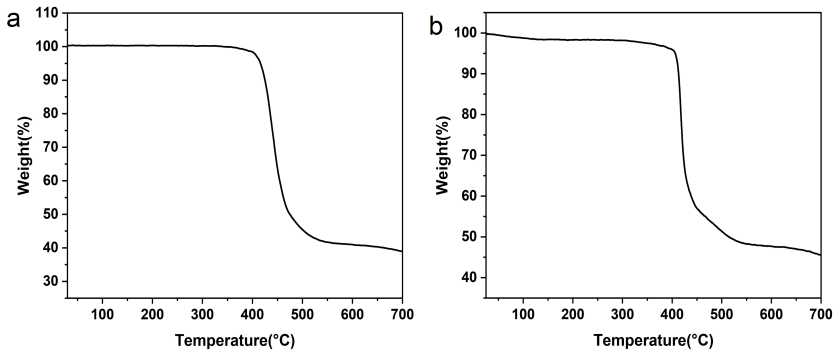

Figure S2 TGA of **1** (a) and **2** (b).

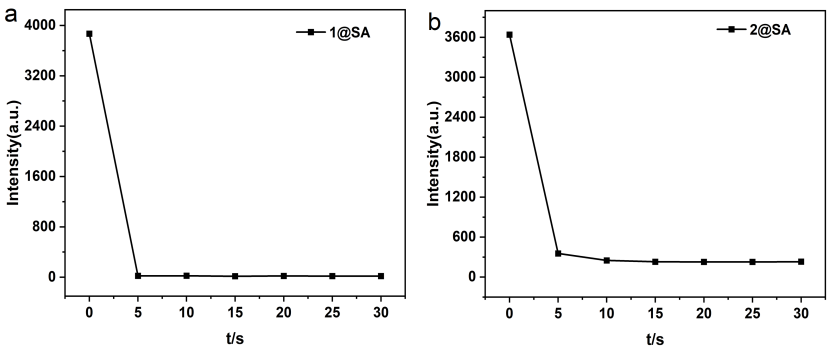

Figure S3 Fluorescence intensity curves of coordination polymers over time **1** (a) and **2** (b).

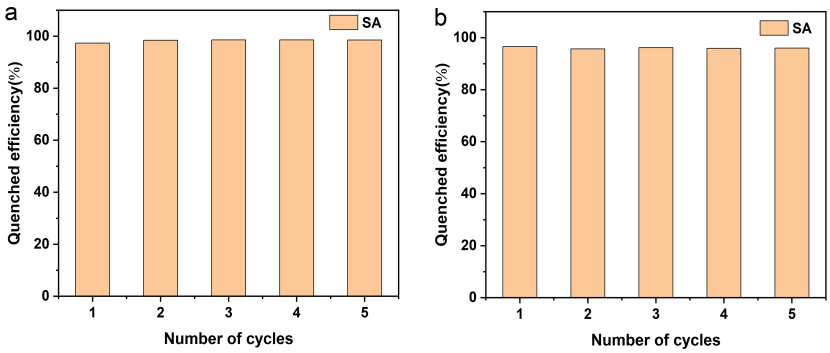

Figure S4 The recyclability of **1** and **2** were tested for 5 consecutive cycles in the presence of SA.

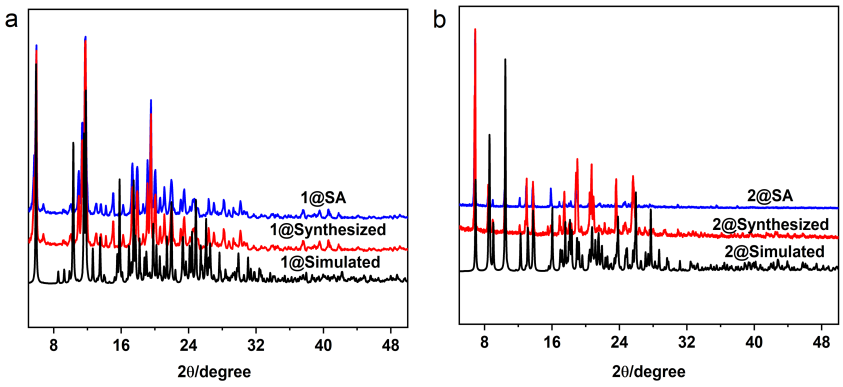

Figure S5 PXRD of **1** (a) and **2** (b) before and after detection of SA.

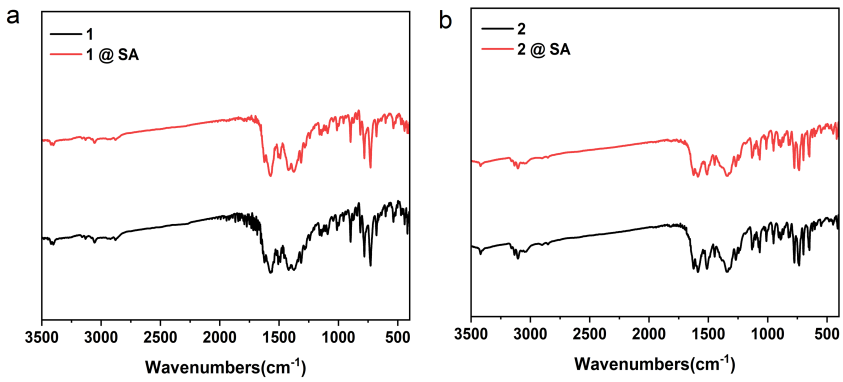

Figure S6 Infrared spectra of the coordination polymers **1** (a) and **2** (b) before and after detection of SA.

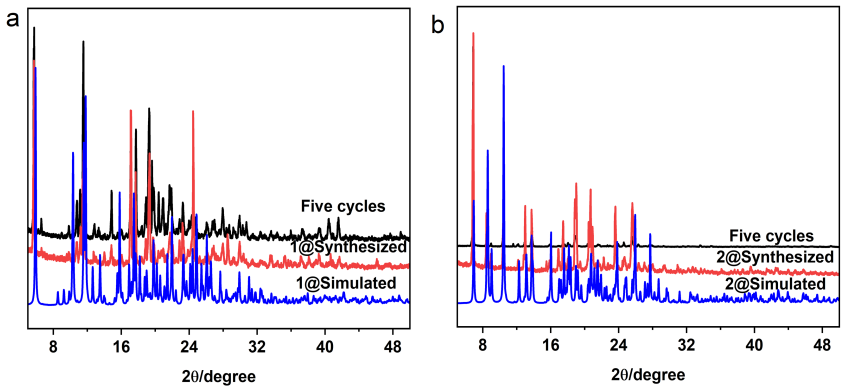

Figure S7 PXRD after five cycles of **1** (a) and **2** (b).

Table S1 Detailed crystal data and structure refinement parameters of **1** and **2.**

Complex	**1**	**2**
Chemical formula	$C_{62}H_{57}N_7O_9Zn_2$	$C_{34}H_{24}N_6O_4Zn$
M_r	1174.88	645.96
T(K)	100	100
Crystal system	Triclinic	Triclinic
Space group	$P\bar{1}$	$P\bar{1}$
a/Å	9.6377 (3)	10.1228 (5)
b/Å	15.5333 (4)	11.5907 (5)
c/Å	18.4376 (5)	13.8893 (7)
a (°)	76.307 (10)	111.631 (2)
β (°)	88.371 (10)	94.164 (2)
γ (°)	82.631 (10)	101.933 (2)
V (Å^3)	2659.60 (13)	1462.16 (12)
F (000)	1220	664
Z	2	2
R_{int}	0.075	0.070
D_{calcd} (Mg m^{-3})	1.467	1.467
Gof	1.010	1.034
Final *R* indices [$I > 2\sigma(I)$]	$R_1 = 0.0964$	$R_1 = 0.0744$
	$wR_2 = 0.0544$	$wR_2 = 0.1179$
R indices (all data)	$R_1 = 0.1187$	$R_1 = 0.0502$
	$wR_2 = 0.1424$	$wR_2 = 0.1320$
CCDC	2327505	2327511

$R_1 = \Sigma||F_o| - |F_c||/\Sigma|F_o|$, $wR_2 = [\Sigma w(F_o^2 - F_c^2)^2/\Sigma w(F_o^2)^2]^{1/2}$

Table S2 Selected bond length (Å) and angles (°) of **1.**

Selected bond lengths			
Zn1—O6	1.970 (2)	Zn2—O4^{ii}	1.998 (2)
Zn1—O7^{i}	1.993 (2)	Zn2—O4	2.099 (2)
Zn1—O2	1.941 (2)	Zn2—O8	1.899 (2)
Zn1—N1	1.988 (3)	Zn2—N4	1.977 (3)
Selected bond angles			
O6—Zn1—O7^{i}	120.87 (10)	O4^{ii}—Zn2—O4	78.94 (9)
O6—Zn1—N1	97.67 (11)	O8—Zn2—O4	111.82 (10)
O2—Zn1—O6	109.15 (11)	O8—Zn2—O4^{ii}	132.22 (10)
O2—Zn1—O7^{i}	99.91 (10)	O8—Zn2—N4	108.41 (11)
O2—Zn1—N1	134.20 (11)	N4—Zn2—O4^{ii}	114.56 (10)
N1—Zn1—O7^{i}	96.94 (11)	N4—Zn2—O4	102.13 (11)

Symmetry codes: (i) −*x*+1, −*y*+1, −*z*; (ii) −*x*+1, −*y*+1, −*z*+1.

Table S3 Selected bond length (Å) and angles (°) of **2.**

Selected bond lengths			
Zn1—O1	1.979 (2)	Zn1—N2	1.997 (3)
Zn1—O4^{i}	1.991 (2)	Zn1—N5^{ii}	2.006 (3)
Selected bond angles			
O1—Zn1—O4^{i}	96.96 (8)	O4^{i}—Zn1—N2	108.16 (9)
O1—Zn1—N2	115.76 (10)	O4^{i}—Zn1—N5^{ii}	112.00 (9)
O1—Zn1—N5^{ii}	104.13 (10)	N2—Zn1—N5^{ii}	117.93 (10)

Symmetry codes: (i) *x*+1, *y*, *z*; (ii) *x*, *y*−1, *z*; (iii) *x*−1, *y*, *z*; (iv) *x*, *y*+1, *z*.

Table S4 The continuous shape measures value of **1** calculated using SHAPE 2.1.

Label Symmetry	**Zn1**	**Zn2**
PP-5	49.410	43.383
vOC-5	**35.969**	38.116
TBPY-5	39.369	37.896
SPY-5	36.636	37.858
JTBPY-5	39.317	**34.437**

Table S5 The continuous shape measures value of **2** calculated using SHAPE 2.1.

Complex	HP-6	PPY-6	OC-6	TPR-6	JPPY-6
2	48.229	33.377	41.400	**32.784**	36.515

Table S6 Comparison among various coordination polymers (CPs)sensors for SA detection.

Analyte	**CPs**	**LOD**	**Reference**
SA	{[Cd(BBIP)(CDDB)(H_2O)]·$2H_2O$}$_n$	0.051 ppm	S1
	[Zn(BBIP)(2,6-NDC)]$_n$	0.074 ppm	S2
	{[Cd(BBIP)(TBIP)]·EtOH}$_n$	0.42 ppm	S3
	{[Cd(BBZB)(bptc)$_{0.5}$]·$2H_2O$}$_n$	0.3443 mM	S4
	1	0.87 μM	this work
	2	27.03 μM	this work

Reference

S1. X. X. Zhang, D. G. Cai, Y. P. Li, Y. Q. Chen and S. J. Liu, *Cryst. Growth Des.,* 2023, **23**, 5762-5769.

S2. Y. P. Li, J. H. Zhang, X. X. Zhang and S. J. Liu, *CrystEngComm*, 2023, **25**, 6424-6433.

S3. L. H. Wu, S. L. Yao, J. Li, H. Xu, T. F. Zheng, S. J. Liu, J. L. Chen and H. R. Wen, *CrystEngComm*, 2021, **23**, 482-491.

S4. R. J. Zhang, J. J. Wang, H. Xu, Z. H. Zhu, T. F. Zheng, Y. Peng, J. L. Chen, S. J. Liu and H.R. Wen, *Cryst. Growth Des.,* 2023, **23**, 5564-5570.