

Supplementary Material

Electrochemiluminescence resonance energy transfer between Ru-ZnMOF self-enhanced luminophore and a double quencher ZnONF@PDA to detect NSE

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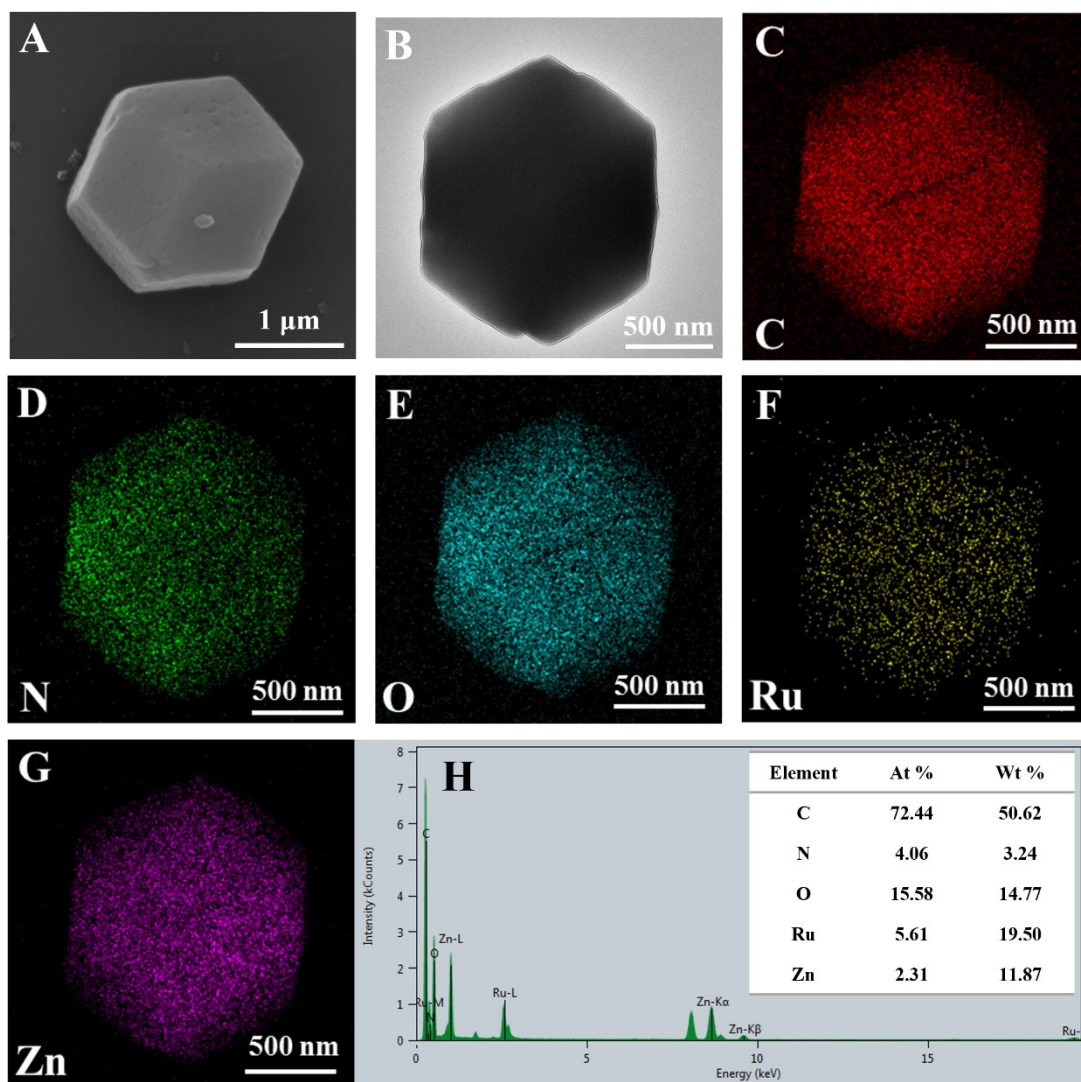


Fig. S1. (A) SEM image of Ru-ZnMOF, (B) TEM image of Ru-ZnMOF, (C-G) TEM element maps of C, N, O, Ru, and Zn of Ru-Ru-ZnMOF, and (H) EDS spectrum of Ru-ZnMOF

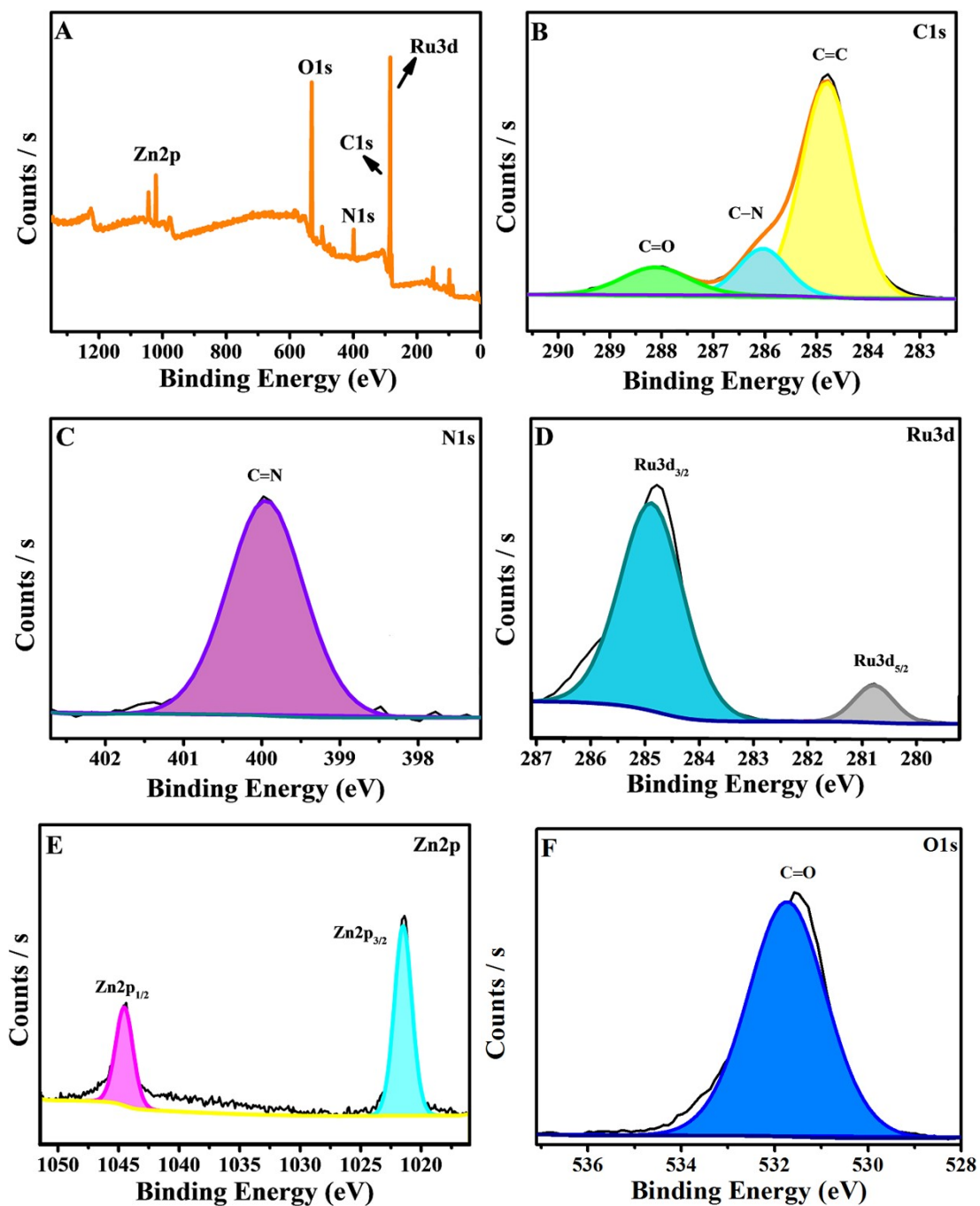


Fig. S2. (A) XPS survey spectrum of Ru-ZnMOF and (B) C 1s, (C) N 1s, (D) Ru 3d, (E) Zn 2p, and (F) O 1s spectra

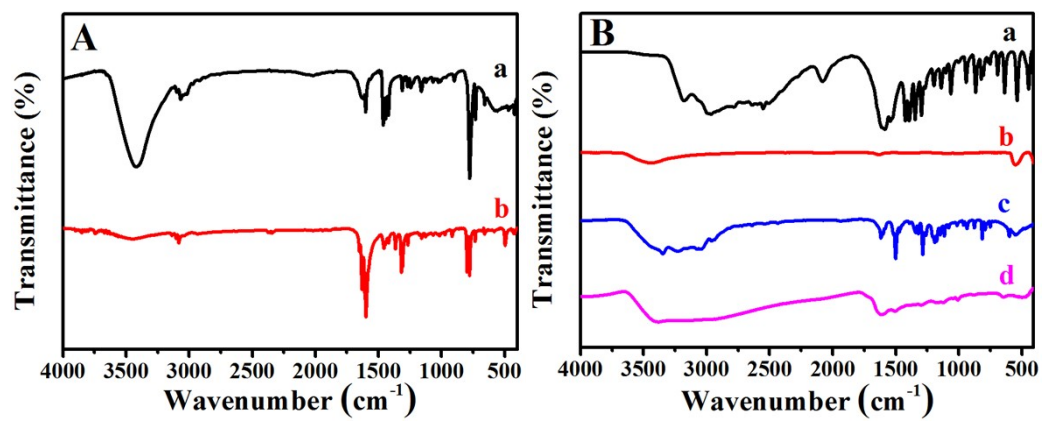


Fig. S3. FT-IR spectra: (A) Ru(bpy)₃²⁺ (a) and Ru-ZnMOF (b). (B) L-cysteine (a), ZnONFs (b), PDA (c), and ZnONFs@PDA (d).

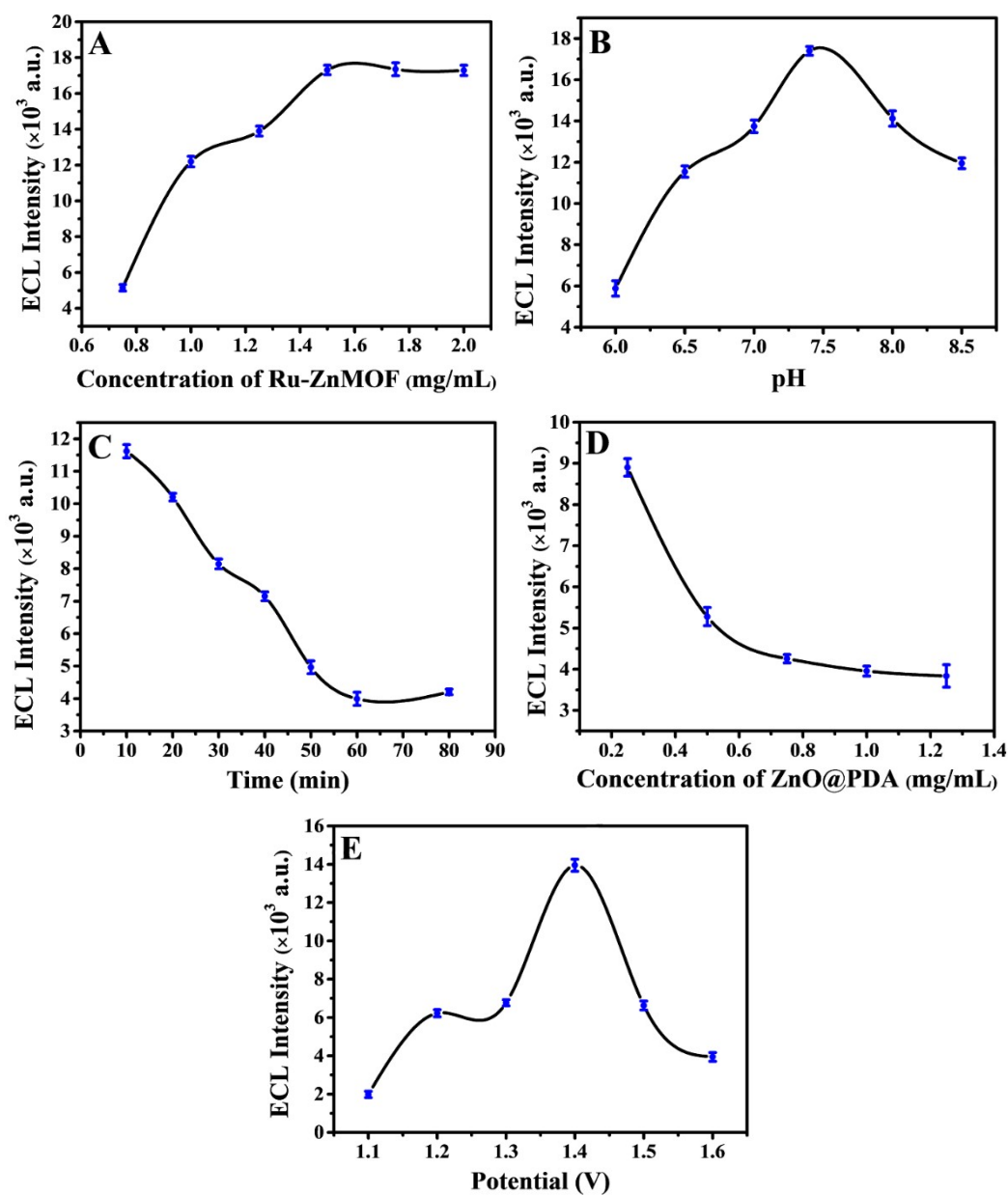


Fig. S4. (A) The concentration of Ru-ZnMOF luminophore, (B) the pH of buffer solution, (C) the incubation time of the sensor, (D) the concentration of quencher ZnONFs@PDA, (E) the potential scanning range of the sensor. (The concentration of NSE was 10 ng/mL, $n = 3$, error bar = SD.)

Table S1 Comparison of NSE measured by different methods

Method/Material	Detection range	Detection limit	Reference [#]
	(ng/mL)	(pg/mL)	
Electrochemistry/WP6@PdPt PCONs	3×10^{-3} –100	9.5×10^{-2}	[1]
Resonance light scattering assay/AuNRs	4.8×10^{-2} –150	15	[2]
Fluoroimmunoassay/PSM	1.25–80.0	625	[3]
Photoelectrochemistry/ZnCdHgSe QDs/PDPIT	1.0×10^{-3} –100	0.2	[4]
ECL/D-Fe ₂ O ₃ @Pt	7.6×10^{-5} –100	7.24×10^{-2}	[5]
ECL/Ru-ZnMOF	1×10^{-5} –100	3.3×10^{-3}	This work

References

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