Supporting Information

A POROUS AROMATIC FRAMEWORK FUNCTIONALIZED WITH LUMINESCENT IRIDIUM(III) ORGANOMETALLIC COMPLEXES FOR TURN-ON SENSING OF $^{99}T_CO_4^-$

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Figure S1. ^{1}H-NMR spectrum of Ir(ppy)$_2$(2,2'-Br$_2$-5,5'-bpy)$^+$(Cl)$^-$ in CDCl$_3$.

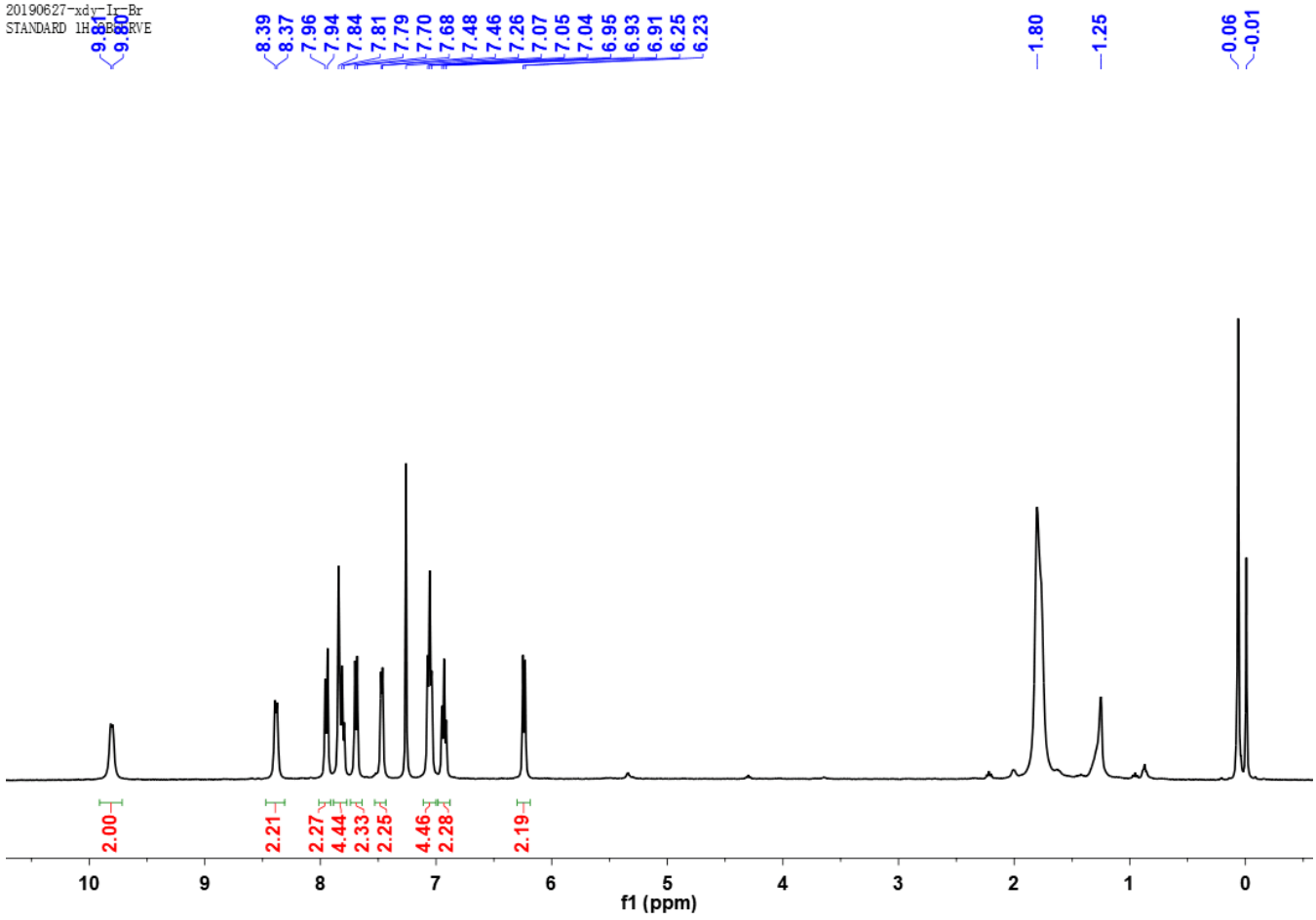


Figure S2. TGA curve of Ir-PAF.

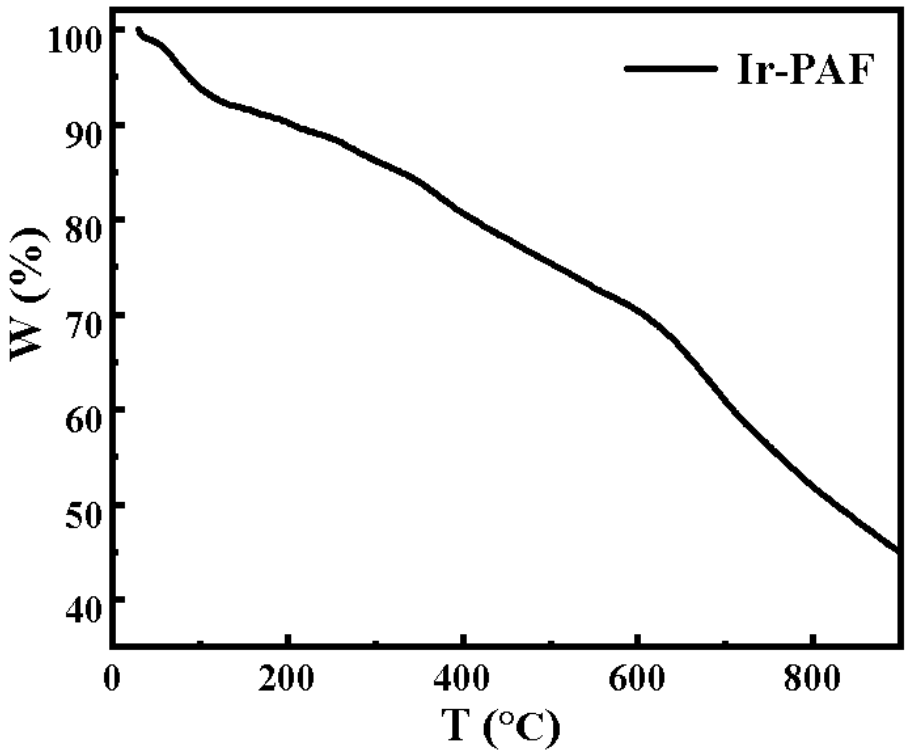


Figure S3. UV absorption spectrum of Ir-PAF.

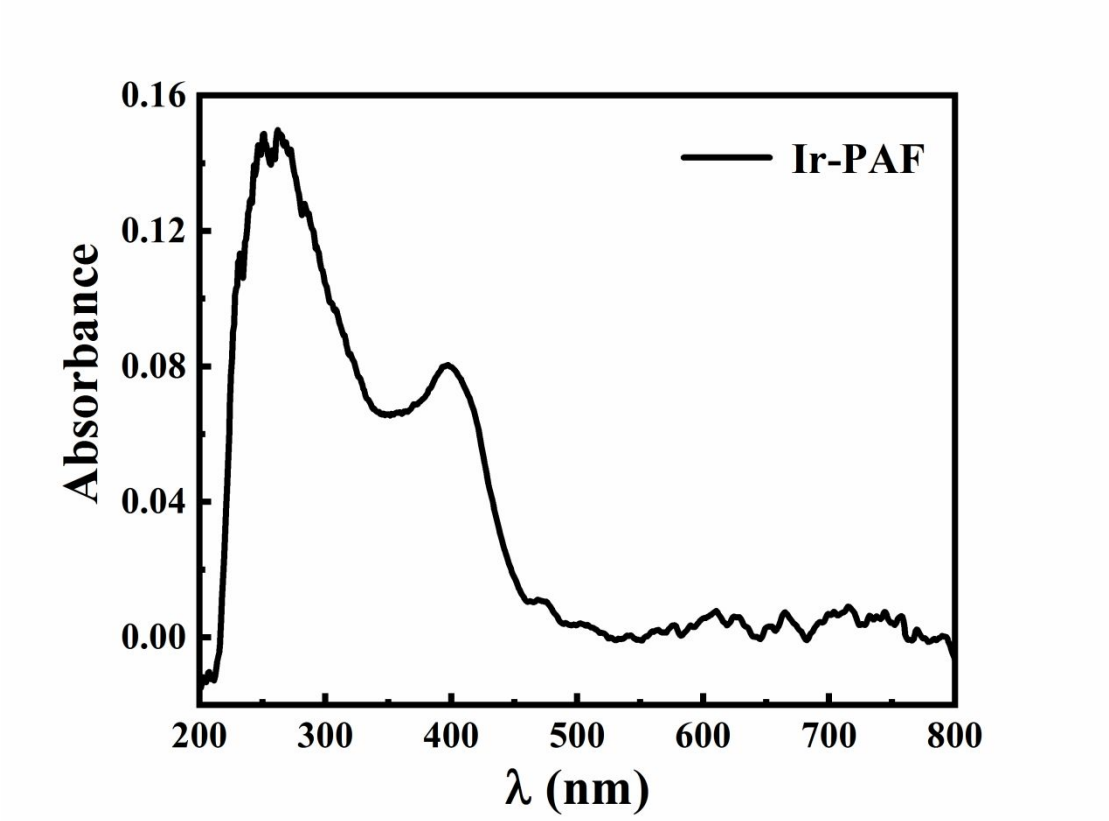


Figure S4. EDS of ReO_4^-@Ir-PAF.

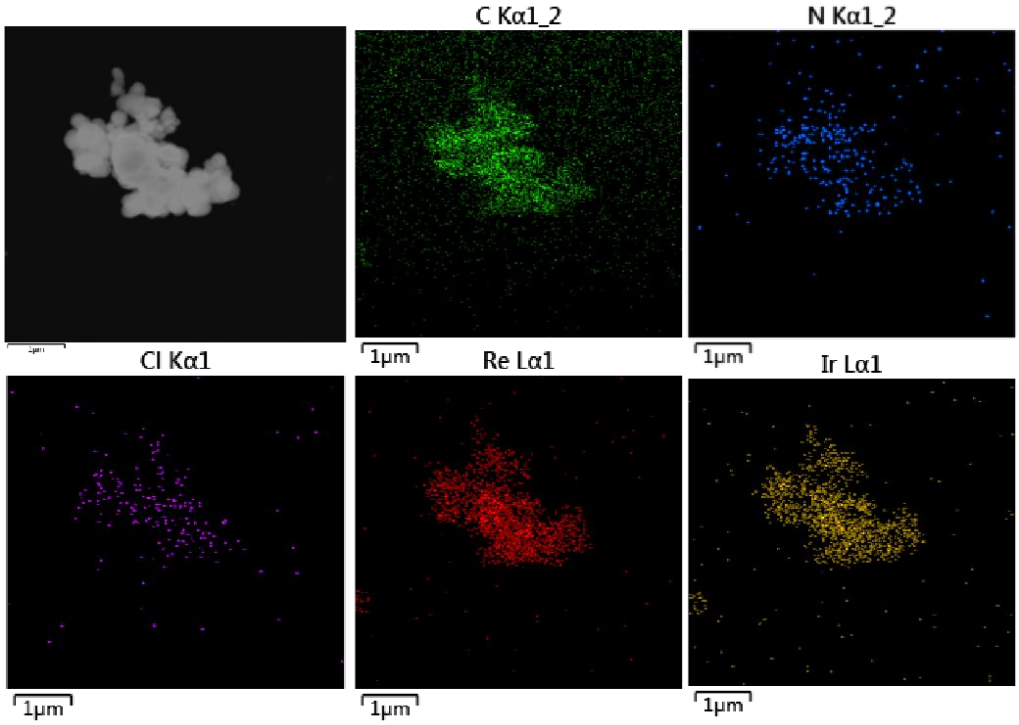


Figure S5. The emission intensity of Ir-PAF before and after adsorbing ReO_4^- in different solid-to-liquid ratios.

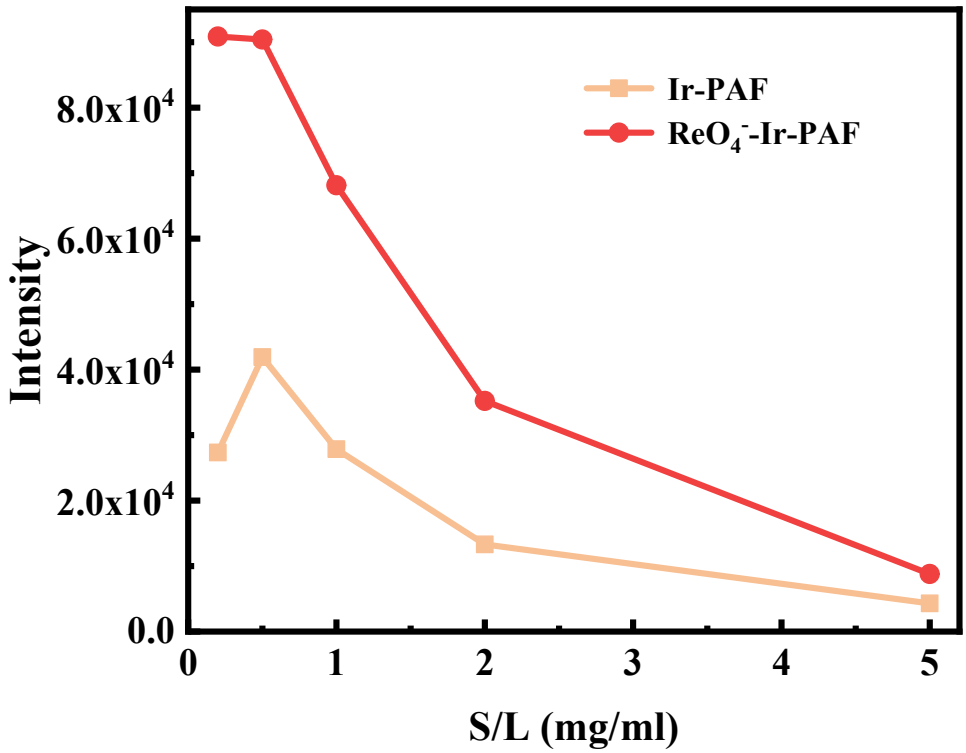


Figure S6. PXRD of Ir-PAF after irradiated by various doses of β ray.

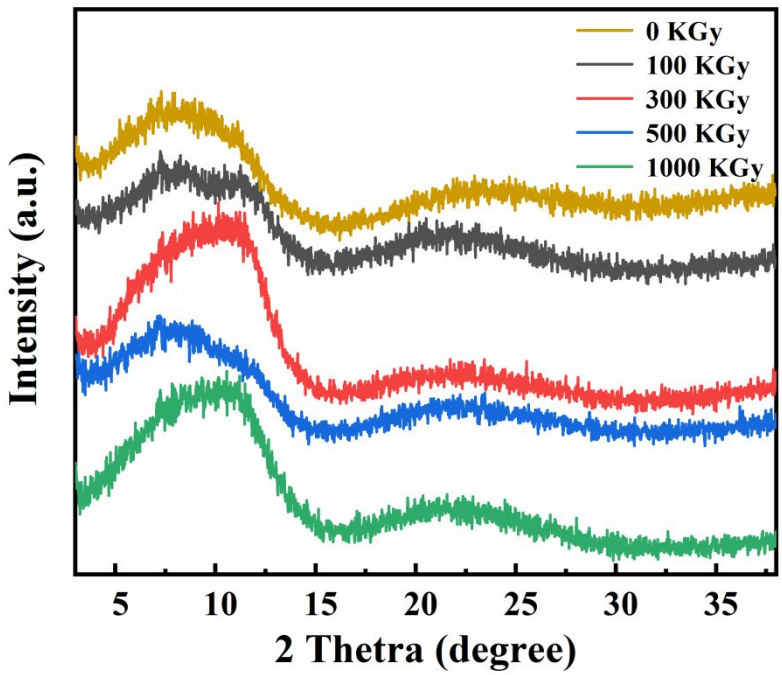


Figure S7. Fluorescence change ratio before and after perrhenate uptake with irradiated samples treated with various doses.

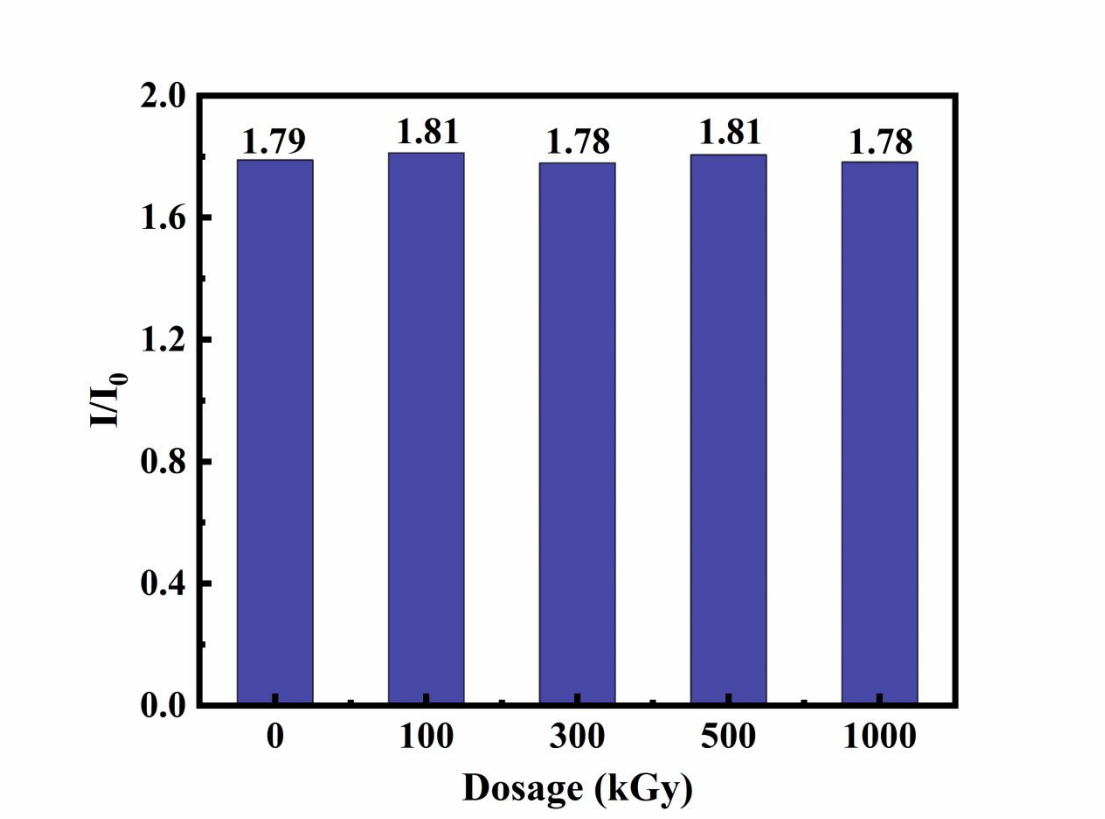


Figure S8. Solid fluorescence spectra of Ir-PAF with three adsorption/desorption cycles.

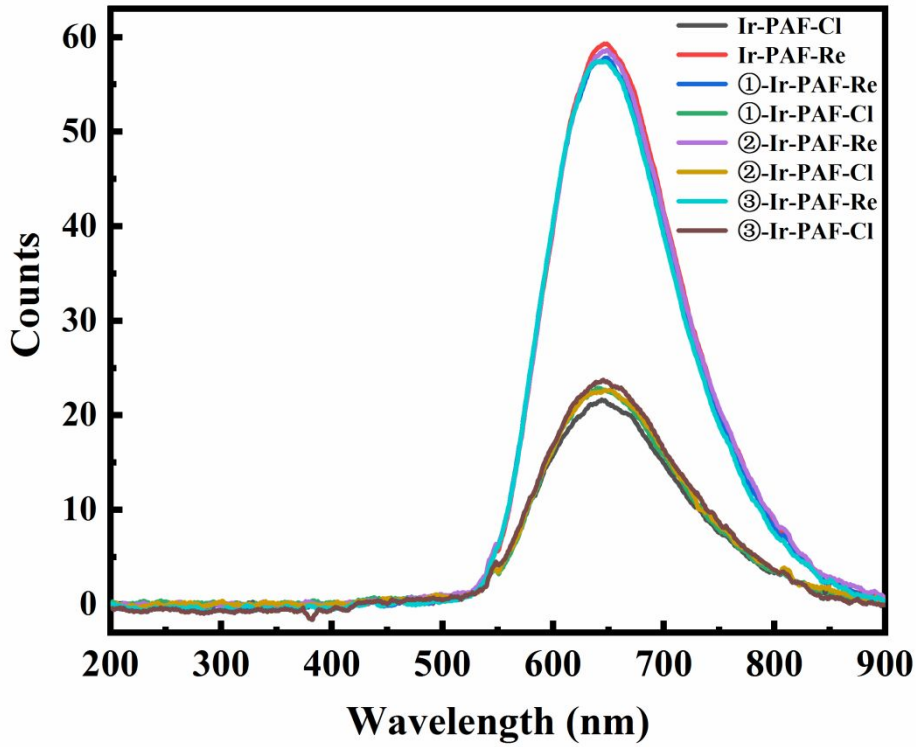
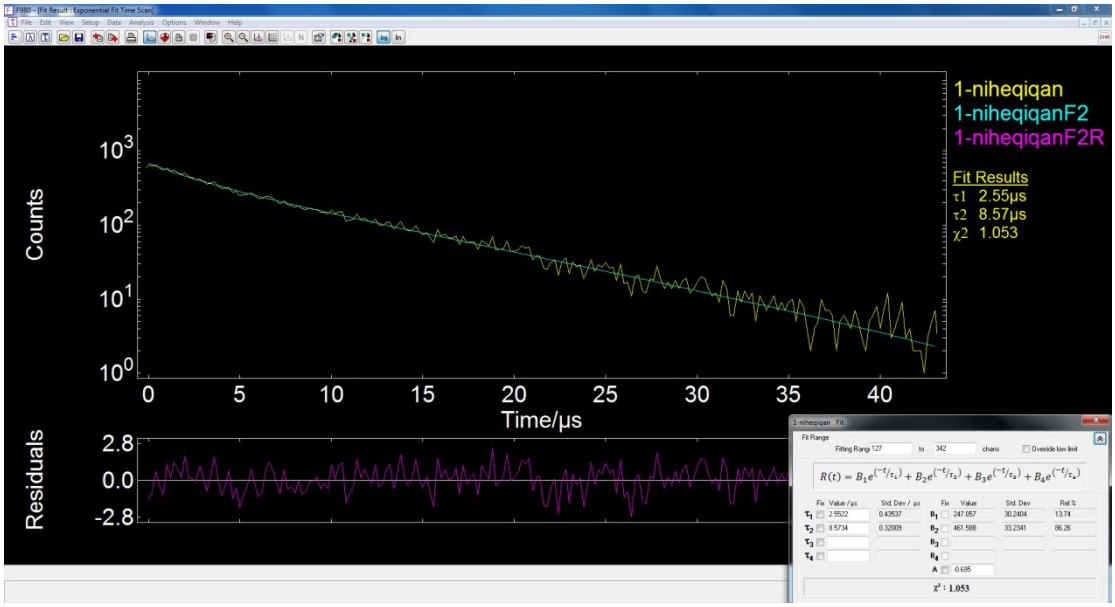
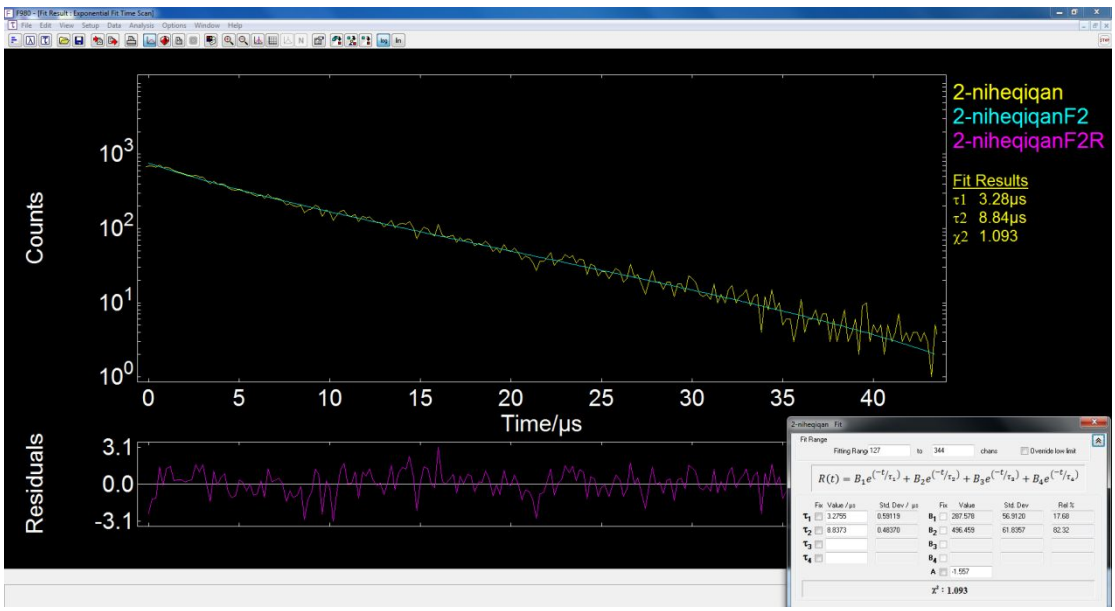


Figure S9. Fluorescence lifetime for a) Cl^-@Ir-PAF, b) NO_3^-@Ir-PAF and c) ReO_4^-@Ir-PAF.

a) Cl^-@Ir-PAF



b) NO_3^-@Ir-PAF



c) ReO_4^-@Ir-PAF

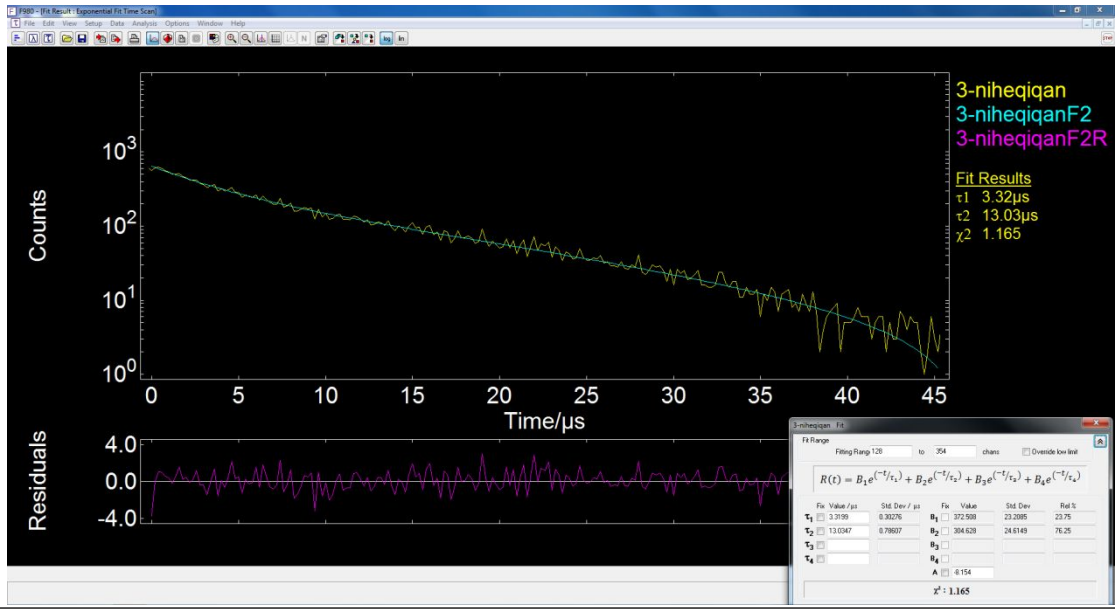
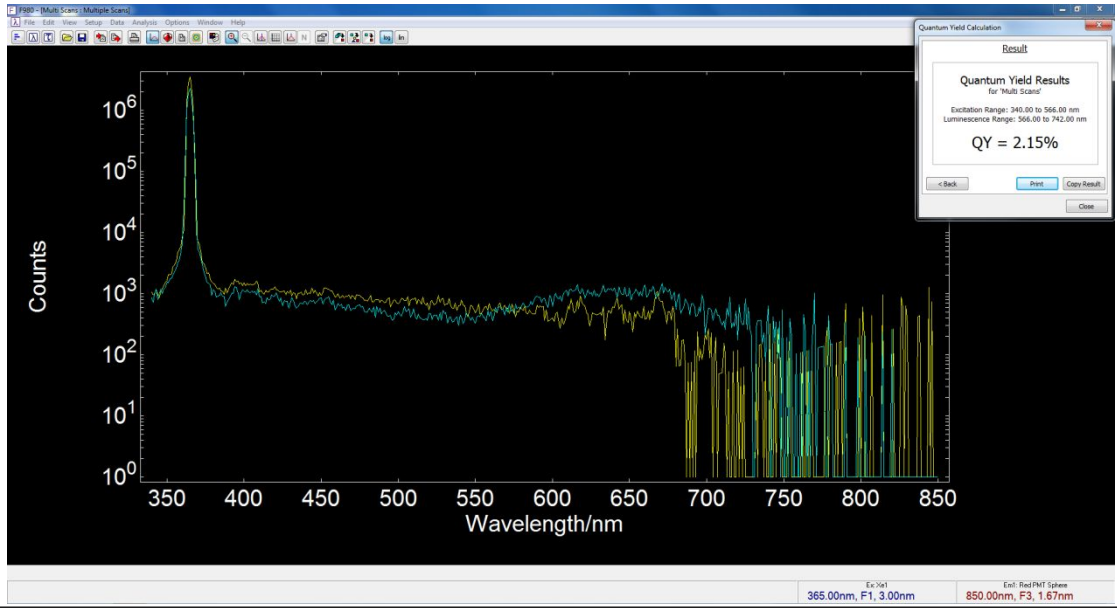
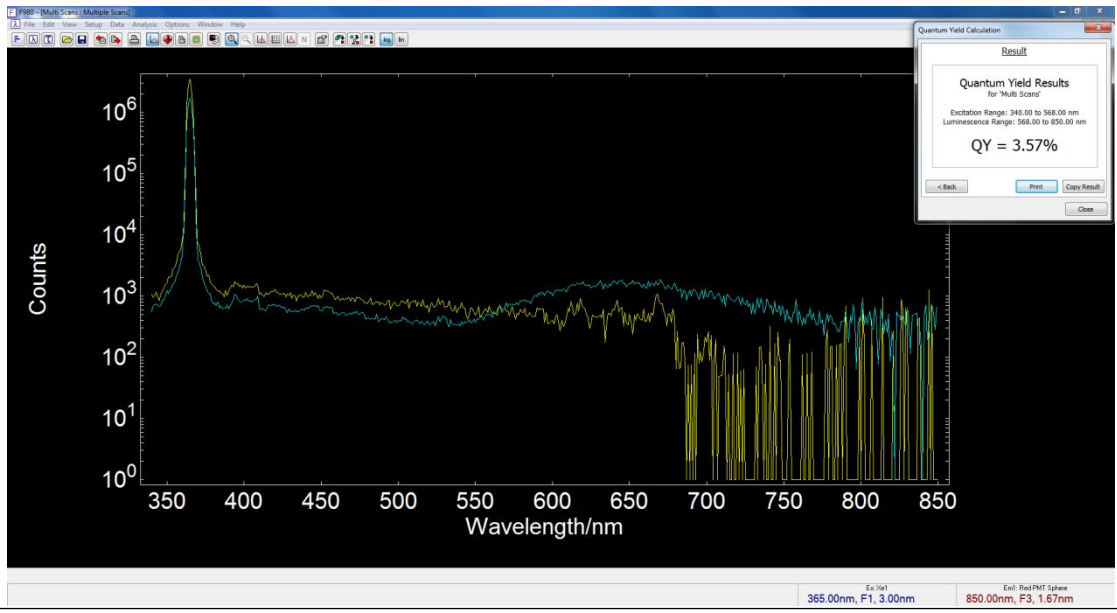

3-niheqiqan
3-niheqiqanF2
3-niheqiqanF2R
Fit Results
τ1 3.32μs
τ2 13.03μs
χ2 1.165
Counts
Time/μs
Residuals

Figure S10. Fluorescence quantum yield for a) Cl^-@Ir-PAF, b) NO_3^-@Ir-PAF and c) ReO_4^-@Ir-PAF.

a) Cl^-@Ir-PAF



b) NO_3^-@Ir-PAF



C) ReO_4^-@Ir-PAF

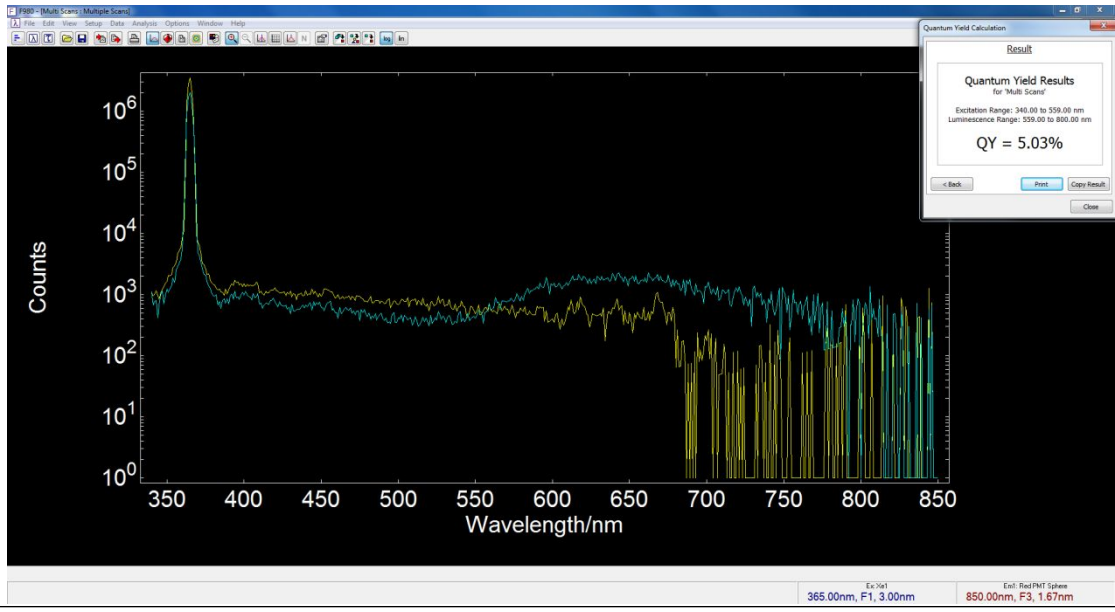

Quantum Yield Calculation
Result
Quantum Yield Results
for 'Multi Scans'
Excitation Range: 340.00 to 559.00 nm
Luminescence Range: 559.00 to 800.00 nm
QY = 5.03%
< Back
Print
Copy Result
Close
Counts
Wavelength/nm
365.00nm, F1, 3.00nm
850.00nm, F3, 1.67nm

Table S1. Detection limits for different chemical sensors.

Sensors	Detection method	Target preparation	Detection limit
MOR-1	Fluorescent	Re solution	0.36 ppm[1]
MOR-2	Fluorescent	Re solution	0.15 ppm[1]
Cage $1H_6^{6+}$	Fluorescent	Tc/Re solution (2 < pH < 4)	---[2]
Auramine O	Fluorescent	Re solution	270 μM[3]
Thioflavin-T	Fluorescent	Re solution	260 μM[4]
$1{\cdot}SbF_6$	Fluorescent	Tc solution	2.6×10^{-10} M[5]
Ir-PAF	Fluorescent	Tc/Re solution	2.99 μMThis work

Reference

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