

## Supporting information for:

# Photochromism and photoresponsive luminescence with ultra high quenching efficiency of extended viologens compounds

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**Table S1** Selected bond lengths (Å) and angles (°) for compound **1**.

Bond lengths			
O2-C1	1.335(3)	O1-C1	1.212(3)
N2-C8	1.343(3)	N2-C4	1.350(3)
N2-C3	1.495(3)	N1-C10	1.366(3)
N1-C9	1.317(3)		
Bond angles			
C8-N2-C4	121.3(2)	C8-N2-C3	118.7(2)
C4-N2-C3	119.9(2)	C9-N1-C10	108.1(2)
N1-C10-C10#1	117.0(3)	N2-C4-C5	120.3(2)
N1-C9-C7	120.8(2)	N2-C3-C2	112.3(2)
N2-C8-C7	120.8(2)	O1-C1-O2	124.0(2)
O1-C1-C2	124.1(2)	O2-C1-C2	111.93(19)

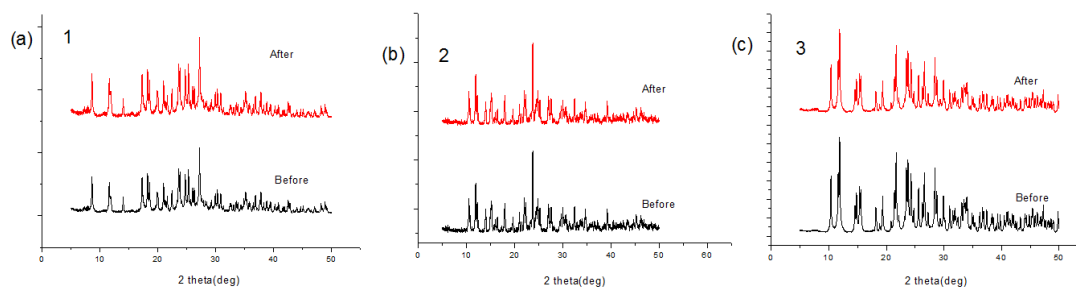
Symmetry transformations used to generate equivalent atoms: #1 -x,-y+1,-z+1

**Table S2** Selected bond lengths (Å) and angles (°) for compound **2**.

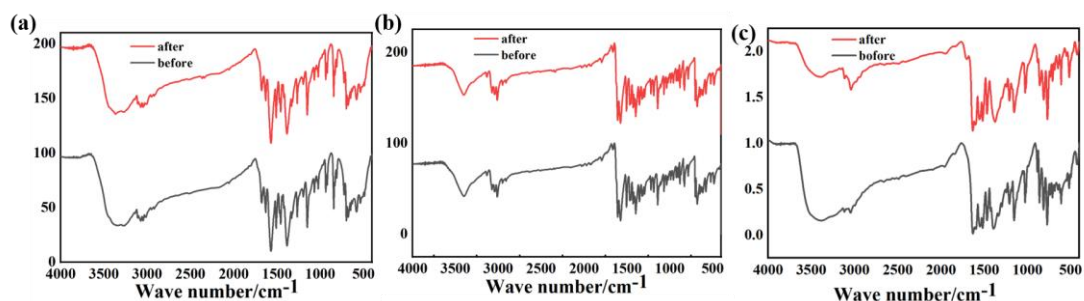
Bond lengths			
Br1-Cd1	2.5731(5)	Br2-Cd1	2.5769(5)
Cd1-O1	2.403(3)	Cd1-O2	2.404(3)
Cd1-O3	2.186(3)		
Bond angles			
Br1-Cd1-Br2	94.70(3)	O1-Cd1-Br1	164.85(12)
O1-Cd1-Br2	89.77(13)	O1-Cd1-O2	53.32(16)
O1-Cd1-O3	83.27(18)	O2-Cd1-Br1	111.61(11)
O2-Cd1-Br2	98.63(12)	O3-Cd1-Br1	92.17(12)
O3-Cd1-Br2	173.02(12)	O3-Cd1-O2	77.65(17)
O4-Cd1-Br1	110.79(13)	O4-Cd1-Br2	90.85(15)
O4-Cd1-O1	83.55(18)	O4-Cd1-O2	135.47(17)
O4-Cd1-O3	87.83(19)	C1-O1-Cd1	98.6(4)
C1-O2-Cd1	85.6(4)		

**Table S3** Selected bond lengths (Å) and angles (°) for compound **3**.

Bond lengths			
Br1-Zn1	2.3852(2)	Zn1-Br1#1	2.3852(2)
Zn1-O2	1.9663(14)	Zn1-O2#1	1.9663(14)
Bond angles			
Br1-Zn1-Br1#1	117.260(15)	O2#1-Zn-Br1	110.51(4)
O2#1-Zn-Br1#1	113.52(4)	O2-Zn-Br1#1	110.51(4)
O2-Zn-Br1	113.52(4)	O2#1-Zn-O2	87.92(8)
Symmetry transformations used to generate equivalent atoms: #1 -x+1,y,-z+1/2 #2 -x+1/2,-y+1/2,-z+1			



**Fig. S1** PXRD of **1(a)**, **2(b)** and **3(c)** before and after irradiation.



**Fig. S2** IR spectra of **1(a)**, **2(b)** and **3(c)** before and after irradiation.