

Electronic Supporting Information For

Synthesis and Photocurrent Responsive Property of CdS/Se Clusters Integrated with Methylviologen

Figure S1. The experimental XRD patterns and the simulated patterns from the crystal data of compound **1** (a) and **2** (b).

Figure. S2 Thermal gravimetric measurement of compound **2**.

Figure S3. The EDX results of compounds **1** (a) and **2** (b).

Figure. S4 Anion structure of **2** in ball-stick view.

Figure. S5 Solid state absorption spectra of the bulk CdS and CdSe.

Figure S6. Photocurrent response of the C1 cluster with quaternary ammonium cation ($0.1 \text{ mol}\cdot\text{L}^{-1}$ Na_2SO_3 aqueous solution).

Figure S7. Photocurrent responses of the MV-CdSSPh cluster electrode in non electric active Na_2SO_4 aqueous solution ($0.1 \text{ mol}\cdot\text{L}^{-1}$).

Table S1. Crystal Data and Structural Refinement Parameters for **1** and **2**.

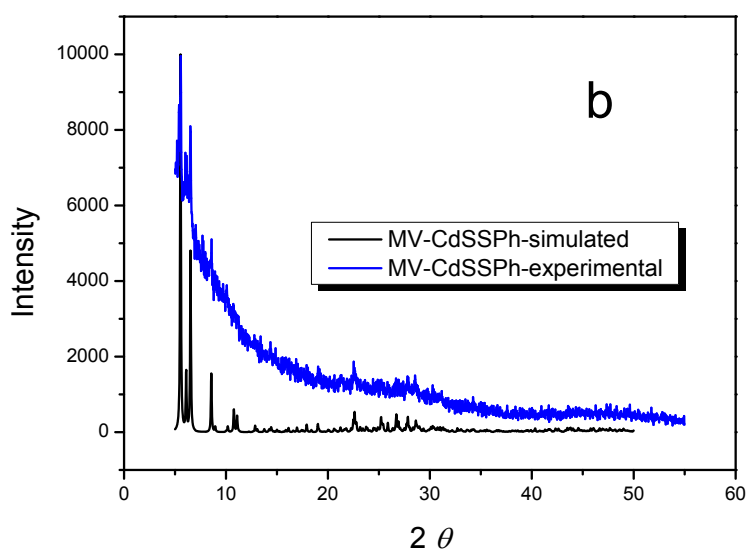
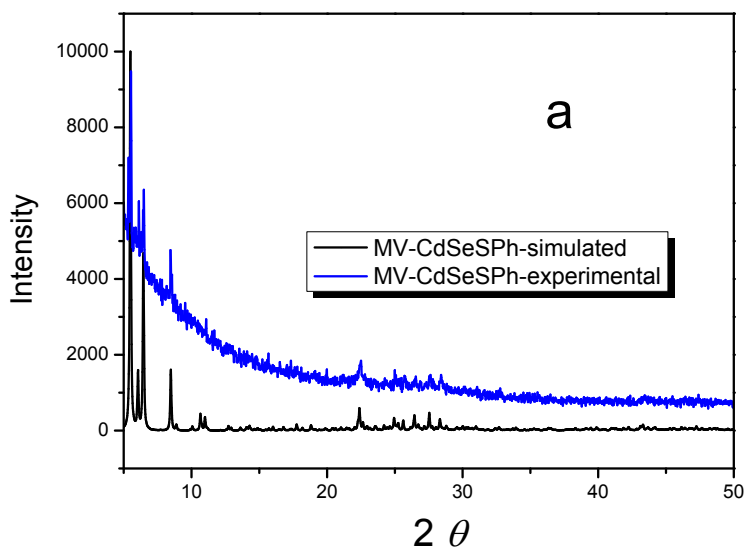


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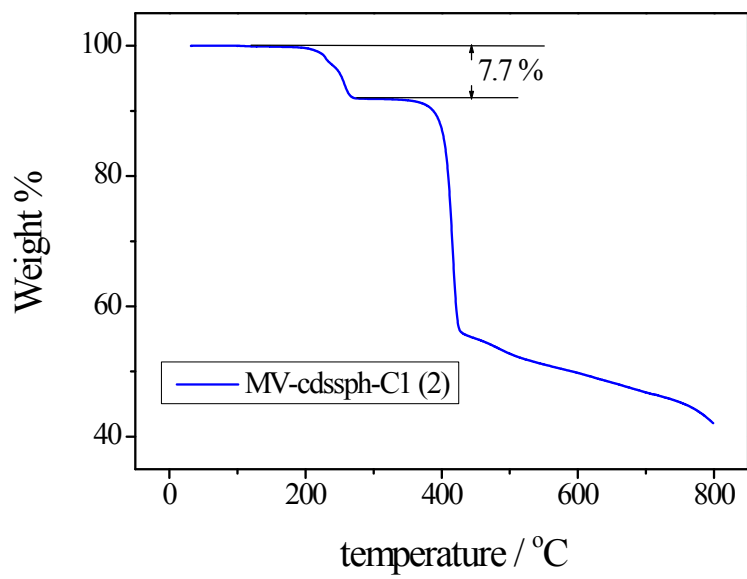


Figure S2. Thermal gravimetric measurement of compound **2**.

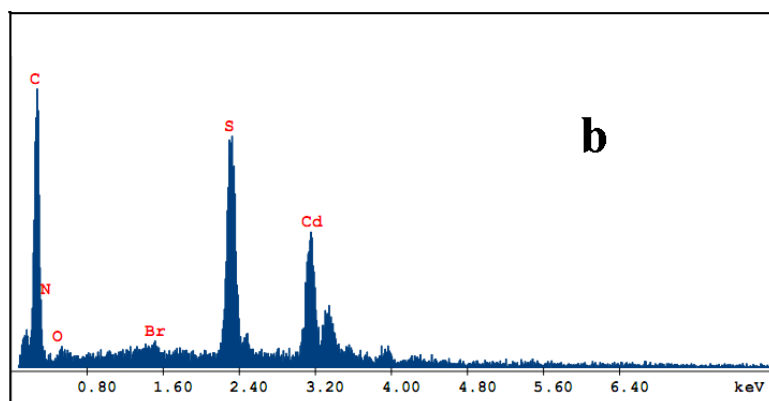
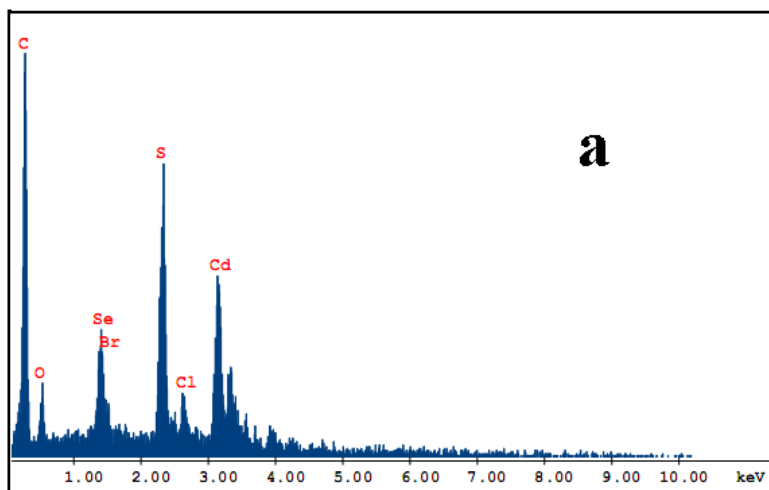


Figure. S3 The EDX results of compounds **1** (a) and **2** (b).

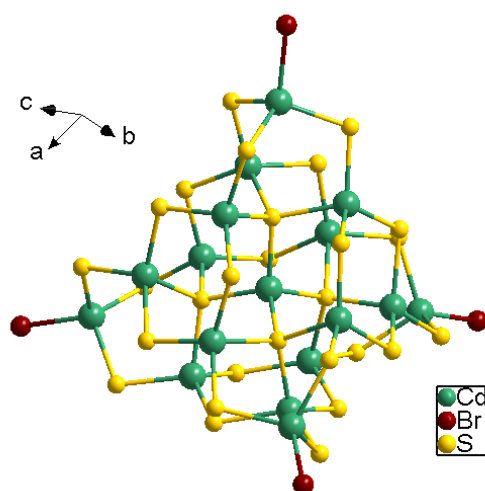


Figure. S4 Anion structure of **2** in ball-stick view.

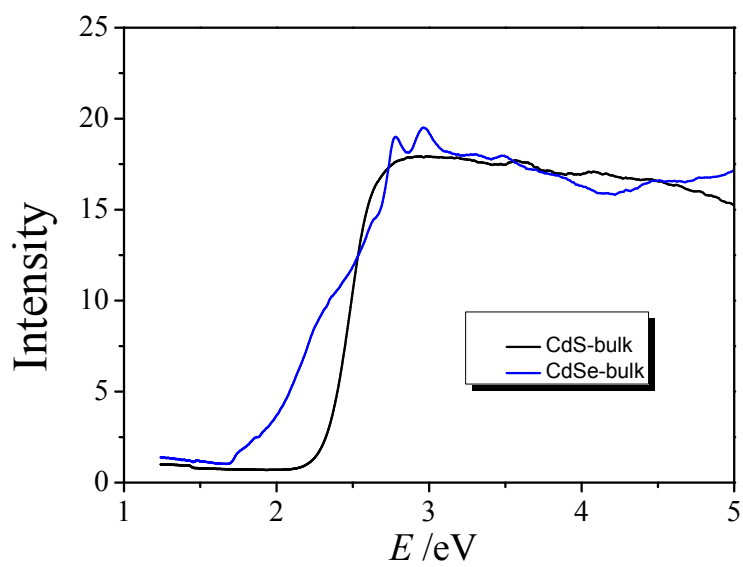


Figure. S5 Solid state absorption spectra of the bulk CdS and CdSe.

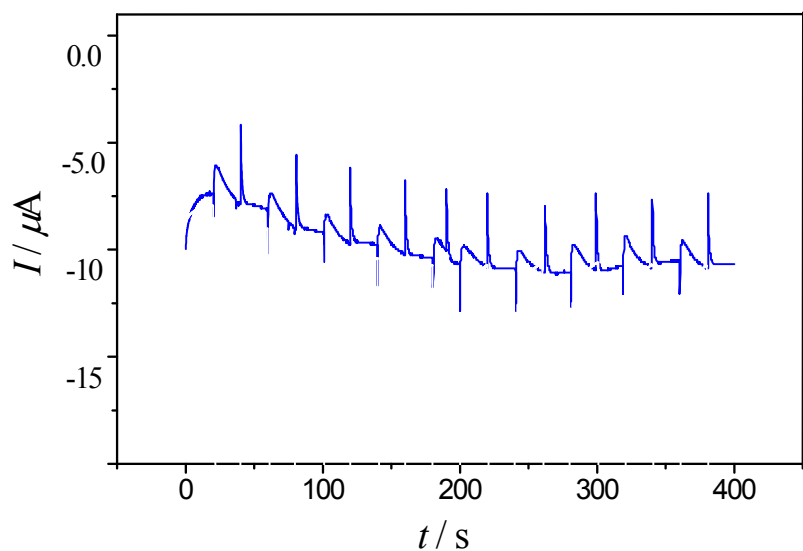


Figure S6. Photocurrent response of the C1 cluster with quaternary ammonium cation ($0.1 \text{ mol}\cdot\text{L}^{-1}$ Na_2SO_3 aqueous solution).

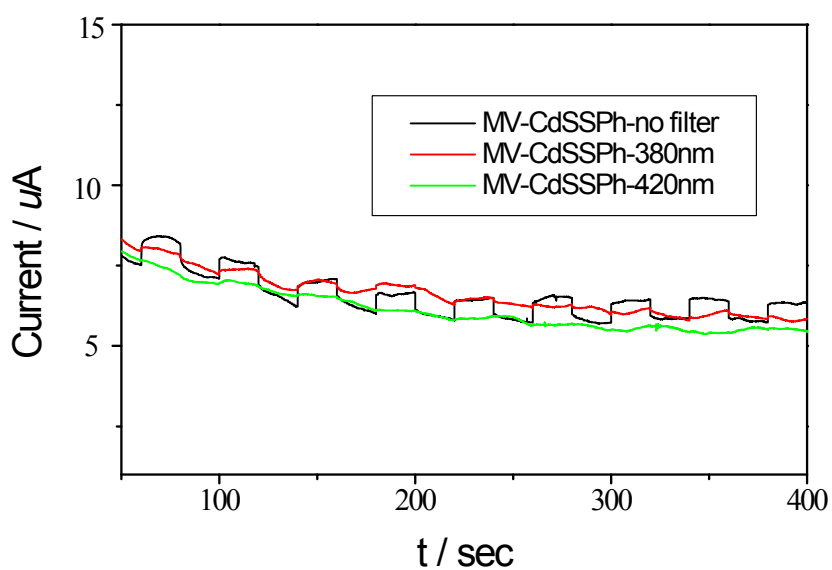


Figure S7. Photocurrent responses of the MV-CdSSPh cluster electrode in non electric active Na_2SO_4 aqueous solution ($0.1 \text{ mol}\cdot\text{L}^{-1}$).

Table S1. Crystal Data and Structural Refinement Parameters for **1** and **2**.

compound	1	2
Formula	C ₁₅₆ H ₁₃₄ N ₂ Cd ₁₇ Br ₄ Se ₄ S ₂₄	C ₁₅₆ H ₁₃₄ N ₂ Cd ₁₇ Br ₄ S ₂₈
Formula weight	5352.66	5165.06
Crystal system	hexagonal	hexagonal
Space group	<i>R</i> -3 <i>c</i>	<i>R</i> -3 <i>c</i>
<i>a</i> /Å	27.3772(3)	27.0806(4)
<i>b</i> /Å	27.3772(3)	27.0806(4)
<i>c</i> /Å	87.5257(10)	86.9594(12)
γ /°	120	120
<i>V</i> /Å ³	56812.5(11)	55228.6(13)
<i>D</i> _c /g cm ⁻³	1.770	1.753
<i>Z</i>	4	4
μ (Mo, K α)/mm ⁻¹	3.779	3.142
<i>F</i> (000)	28080	27216
Total reflections	172651	92674
Unique reflections	11117	10804
No. observations	6568	7589
No. parameters	494	543
<i>R</i> ₁ (gt)	0.0747	0.0716
ωR ₂ (all)	0.2598	0.2290
GOF	1.020	1.028