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Supporting Information

Enhanced Light Harvesting Ability in Zeolitic Imidazolate Frameworks Through Energy Transfer from CdS Nanowires

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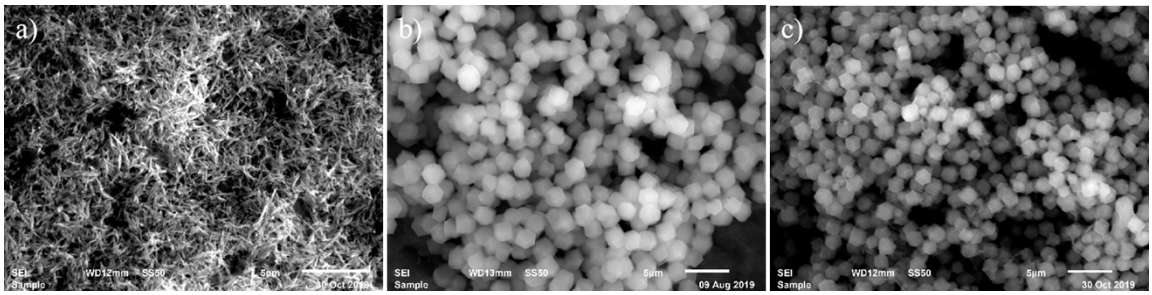

Figure S1. SEM images of CdS NWs (a), ZIF-8 (b), ZIF-67 (c).

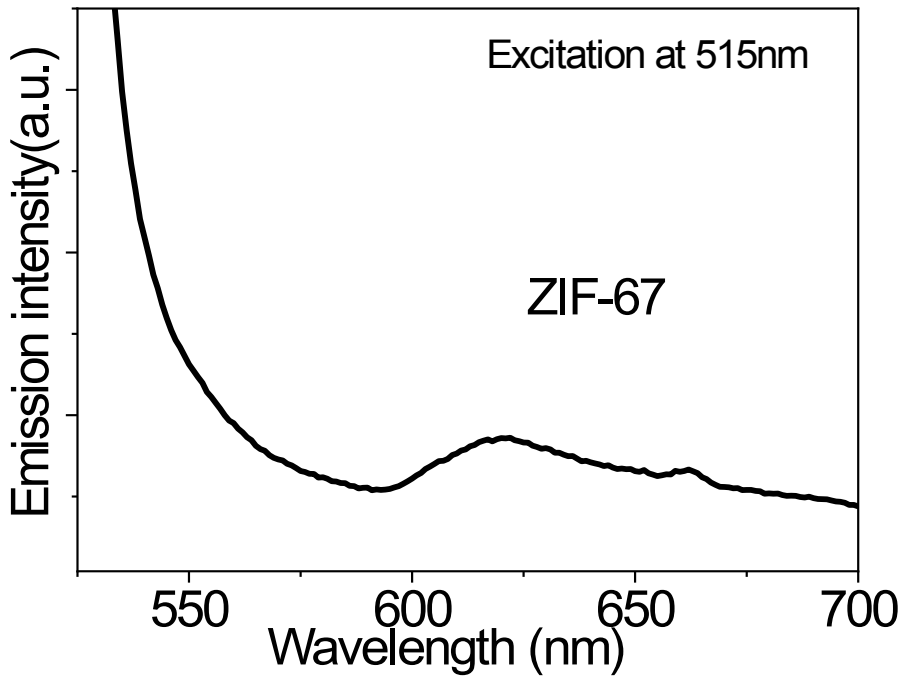

Figure S2. The emission spectra of ZIF-67 following 515 nm excitation.

The fitting of the fluorescence decays shown in Figure 2c

The fluorescence decays shown in Figure 2c are fit by a bi-exponential function:

$$I(t) = A_1 \exp(-\frac{t}{\tau_1}) + A_2 \exp(-\frac{t}{\tau_2}) \qquad \text{(Eq. S1)}$$

where **A** is the amplitude and **τ** is the time constant. The amplitude-weighted average lifetime $\boldsymbol{\tau_{ave}}$ is calculated by:

$$\tau_{ave} = \frac{A_1\tau_1 + A_2\tau_2}{A_1 + A_2} \qquad \text{(Eq. S2)}$$

The efficiency of energy transfer is then given by:

$$\theta_{EnT} = \frac{k_{EnT}}{k_{CdS@ZIF-8} + k_{EnT}} \qquad \text{(Eq. S3)}$$

Where k_{EnT} and $k_{CdS@ZIF-8}$ is the reciprocal of energy-transfer time and average lifetime of CdS@ZIF-8 , respectively.

The fitting parameters for decays in Figure 2c are listed in Table S1.

Table S1. The fitting parameters of the fluorescence decays of CdS on different ZIFs according to Eq. S1 and S2.

	A_1 (%)	τ_1(ns)	A_2 (%)	τ_2(ns)	τ_{ave}(ns)
ZIF-67@CdS	99.3	0.53	0.7	9.57	0.59

ZIF-8@CdS	99.1	1.69	0.9	12.3	1.79

Table S2. The fitting parameters of exciton bleach recovery of CdS on different ZIFs

500 nm	τ_1 (A_1)	τ_2 (A_2)	τ_3 (A_3)	τ_4 (A_4)	τ_{ave}
CdS@ZIF-67	0.45 ps (100)[r]	18.7 ps (84.3)	573 ps (11.1)	9570 ps (4.6)	519.6 ps
CdS@ZIF-8	0.45 ps (100)[r]	20.3 ps (69.6)	1220 ps (17.6)	12300 ps (12.8)	1803.2 ps

[r]the rising component

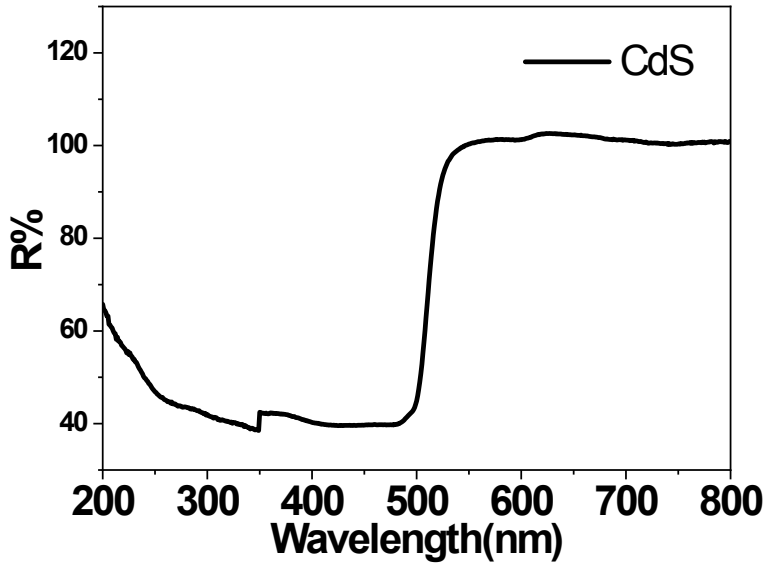

Figure S3. The original diffuse reflectance spectrum of CdS NWs.