Supporting information

Ratiometric fluorescent semiconducting polymer dots for sensing of temperature

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1. Optimization of the concentration of Eu in Pdots.

In order to obtain the best performance of the sensing system, we first tried different concentrations of Eu in Pdots. As shown in Supporting Information Figure S1, increasing the content of Eu not only increases the particle size of nanoparticles, but also increases the fluorescence intensity. Oversized nanoparticles tend to aggregate in solution, so we finally chose Eu15 for subsequent experiments.

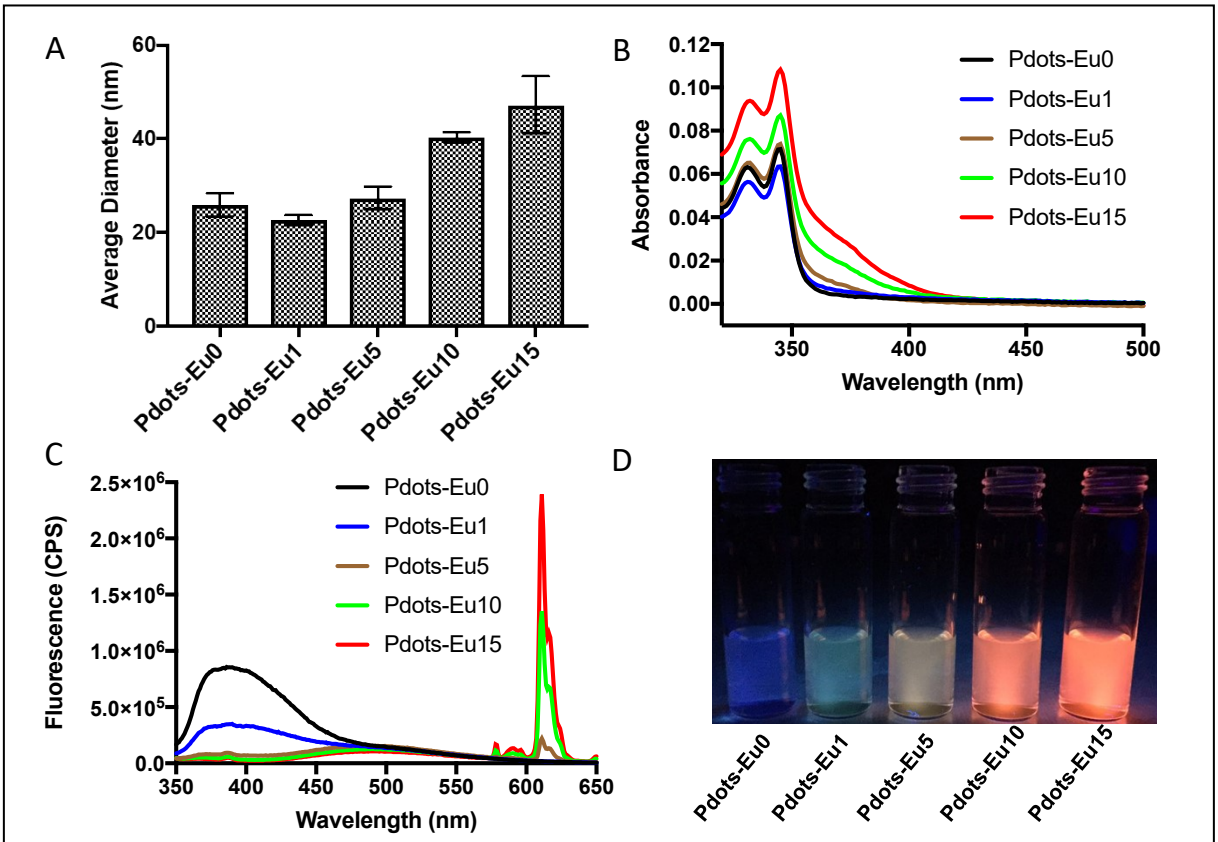

Figure S1. DLS size (A), absorption spectra (B), fluorescence spectra (C), and fluorescence excited by UV light of Pdots-Eu with different doping Eu ratios.

2. The fluorescence reversibility test upon cycling the temperature between 25 and 50 °C

As shown in Figure S2, even after five cycles of temperature change between 25 and 50 °C, the normalized ratio (I_{611}/I_{368}) of Pdots-Eu only showed about 0.01 difference, implying the good reversibility.

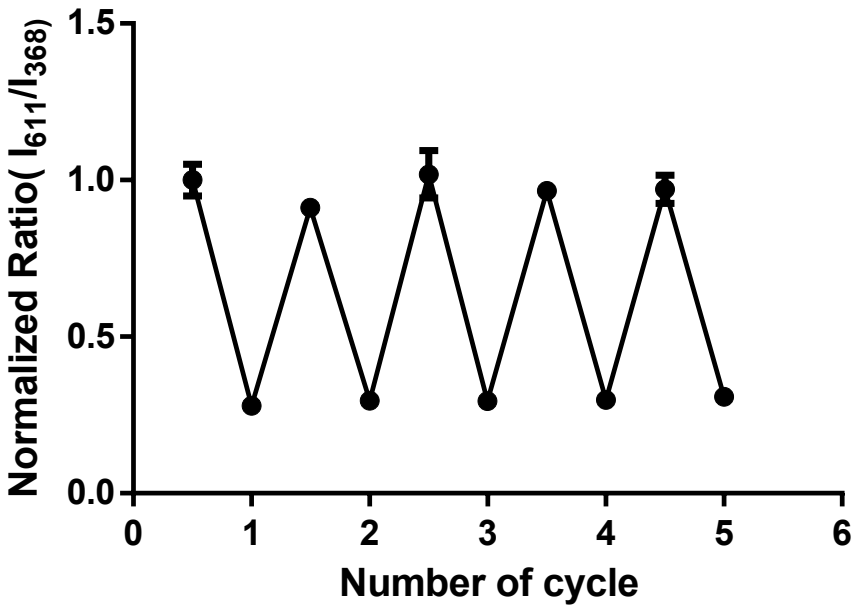

Figure S2. The 15 mg/mL Pdots-Eu with 5 cycles of temperature change between 25 and 50 °C.

3. Table S1. Temperature range and resolution of Pdots-Eu and other recently reported nanothermometers.

Fluorescent probe	Linear ranges / °C	Resolution / %·°C^{-1}	Ref.
Metal-organic framework	20–80	1.28	1
Organic dyes	25–43	2.65	2
Carbon NPs	25–80	0.84	3
Au/Ag NPs	20–65	1.34	4
AuNPs	20–55	1.25	5
Pdots-Eu	25-50	2.99	This work

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