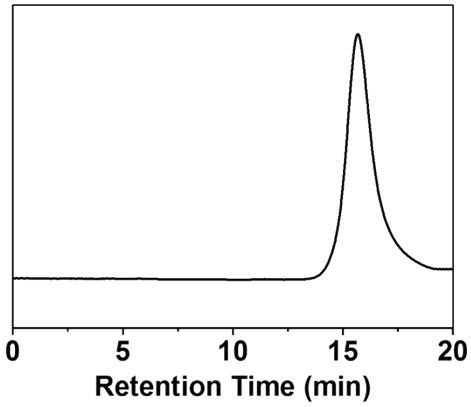

Fig. S1 GPC trace of PNIPAM-NH_2 in THF at room temperature.

Table S1. The number-average molecular weight (M_n), weight-average molecular weight (M_w) and polydispersity index (PDI) of PNIPAM-NH_2.

Sample	M_n (^{1}H-NMR)	M_n (GPC)	M_w (GPC)	PDI (GPC)
PNIPAM-NH_2	4520	4659	5264	1.13

Table S2. The calculated fluorescence quantum yields (QY) of the MSCD in various organic solvents.

Solvent	QY
CH_2Cl_2	1.4%
C_2H_5OH	0.5%
1,4-dioxane	1.1%
DMF	0.2%
DMSO	0.8%
Quinine sulfate	54%

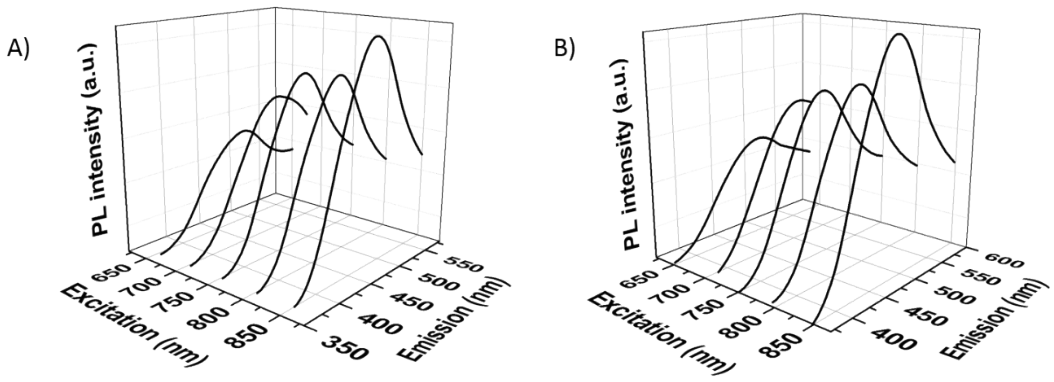

Fig. S2 Upconverted fluorescence properties of the nanothermometer based on the MSCDs at A) 25 °C and B) 50 °C.

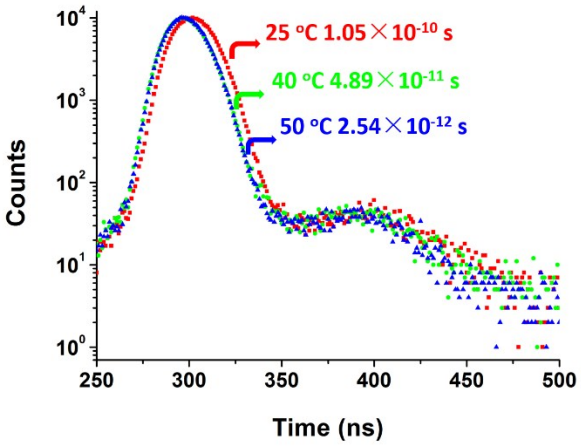

Fig. S3 Temperature-dependence of the fluorescence decay curves of the MSCD (320 nm excitation).

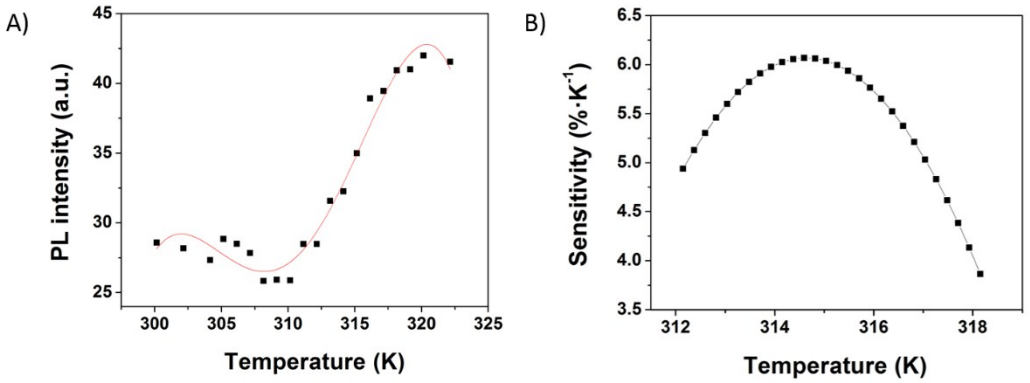

Fig. S4 A) Temperature-dependence of the emission intensity of the main peaks located at 428 nm in the fluorescence spectrum of the CSCCD fitted through polynomial interpolations implemented with Origin®. B) Temperature dependence of the relative sensitivity values for the fluorescence nanothermometer taking emission wavelength located at 428 nm as the observing point.

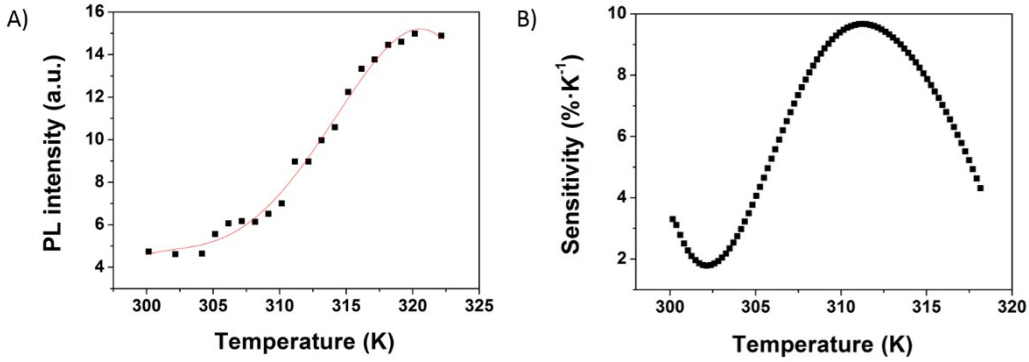

Fig. S5 A) Temperature-dependence of the emission intensity of the main peaks located at 428 nm in the fluorescence spectrum of the CSCCD fitted through polynomial interpolations implemented with Origin®. B) Temperature dependence of the relative sensitivity values for the fluorescence nanothermometer taking emission wavelength located at 527 nm as the observing point.

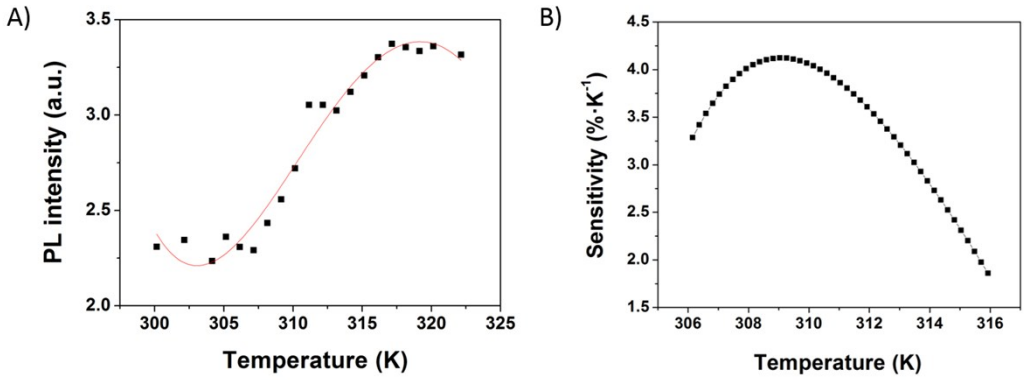

Fig. S6 A) Temperature-dependence of the fluorescence intensity ratio between the emission wavelength at 428 and 481 nm (I_{428}/I_{481}) fitted through polynomial interpolations implemented with Origin®. B) Temperature dependence of the relative sensitivity values for the fluorescence nanothermometer taking fluorescent ratiometric method (I_{428}/I_{481}).

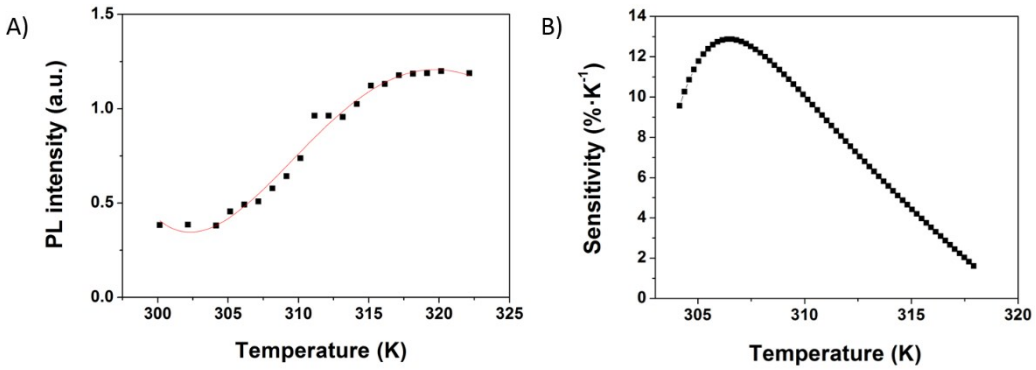

Fig. S7 A) Temperature-dependence of the fluorescence intensity ratio between the emission wavelength at 527 and 481 nm (I_{527}/I_{481}) fitted through polynomial interpolations implemented with Origin®. B) Temperature dependence of the relative sensitivity values for the fluorescence nanothermometer taking fluorescent ratiometric method (I_{527}/I_{481}).