Electronic Supplementary Information

Shape-Controllable Hydrothermal Synthesis of $NaTbF_4:Eu^{3+}$ Microcrystals with Energy Transfer from Tb to Eu and Multicolor Luminescent Properties

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Table s1. The doping rate of Eu^{3+} in the $NaTbF_4$:x% Eu^{3+} (x = 0-1).

Sample	Nominal doping concentration of Eu-ion (mole percent)	Doping quality of Eu-ion (μg)	Residual concentration of Eu-ion (μg/ml)	Residual quality of Eu-ion (μg)	Real doping rate of Eu-ion (percent)	Real doping concentration of Eu-ion (mole percent)
1	0.01%	15.19	0.01	0.3	98.03%	0.0098%
2	0.03%	45.57	0.00 (<0.01)	0.0 (<0.3)	100% (>99.34%)	>0.0298%
3	0.1%	151.9	0.00 (<0.01)	0.0 (<0.3)	100% (>99.80%)	>0.0998%
4	0.5%	759.5	0.00 (<0.01)	0.0 (<0.3)	100% (>99.96%)	>0.4998%
5	1%	1519	0.00 (<0.01)	0.0(<0.3)	100% (>99.98%)	>0.9998%

There are a few of residual Eu-ions (0.3 μg) in the supernatant in sample 1. The doping rate of Eu-ions was calculated by *doping rate = (doping quality – residual quality) / doping quality*. It can be seen from the table that there is no traces of Eu-ions in the supernatant of other four samples. However, due to the minimum detection limit of the ICP-AES, the Eu-ions concentration under 0.01 μg/ml cannot be detected. So, we used 0.01μg/ml as a critical value to calculate the corresponding doping rate (data in brackets). The Eu-ions doping rates of the five samples are high (almost equal to 100%), thus, the real content of the Eu-ions is consistent with the nominal composition (see the above table).