Supporting information

Luminescence, energy-transfer and tunable color properties of a single-component Tb^{3+} or/and Sm^{3+} doped $NaGd(WO_4)_2$ phosphors with UV excitation for WLEDs

Yan Liu, Guixia Liu,* Xiangting Dong, Jinxian Wang and Wensheng Yu

Key Laboratory of Applied Chemistry and Nanotechnology at Universities of Jilin Province, Changchun University of Science and Technology, Changchun 130022, China

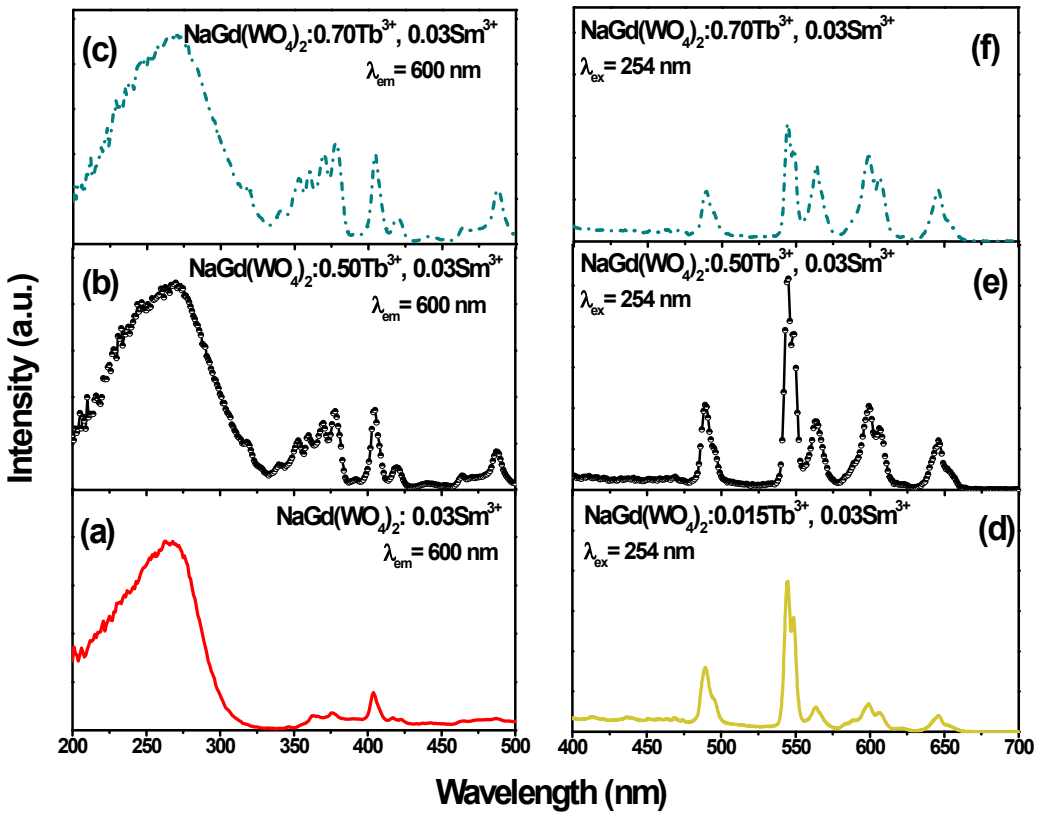

Fig. S1 PLE spectra of $NaGd(WO_4)_2$: $0.03Sm^{3+}$(a), $NaGd(WO_4)_2$: $0.50Tb^{3+}$, $0.03Sm^{3+}$(b), $NaGd(WO_4)_2$: $0.70Tb^{3+}$, $0.03Sm^{3+}$(c) phosphors and PL spectra of $NaGd(WO_4)_2$: $0.015Tb^{3+}$, $0.03Sm^{3+}$(d), $NaGd(WO_4)_2$: $0.50Tb^{3+}$, $0.03Sm^{3+}$(e), $NaGd(WO_4)_2$: $0.70Tb^{3+}$, $0.03Sm^{3+}$(f) phosphors .

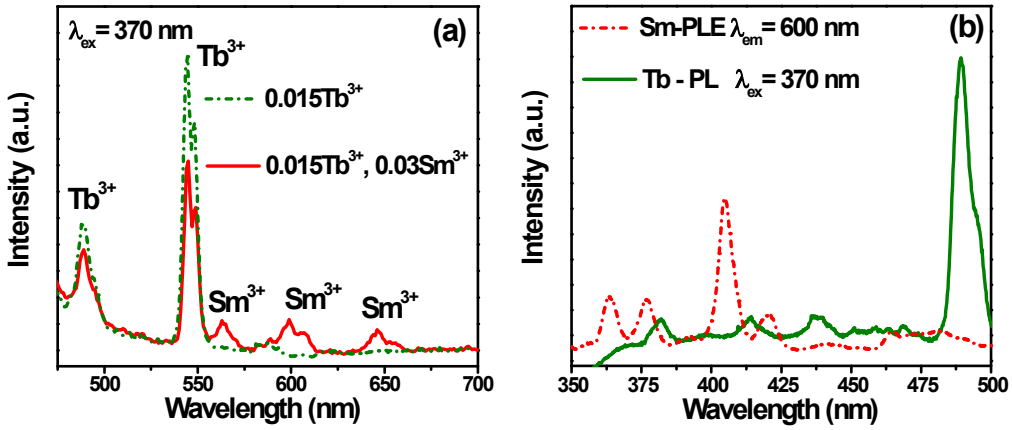

Fig. S2 PL spectra for $NaGd(WO_4)_2$: $0.015Tb^{3+}$ and $NaGd(WO_4)_2$: $0.015Tb^{3+}$, $0.03Sm^{3+}$ (excited at 370 nm)(a); the overlap spectra between the PLE-$NaGd(WO_4)_2$:Sm^{3+} and PL-$NaGd(WO_4)_2$:Tb^{3+} samples (b).

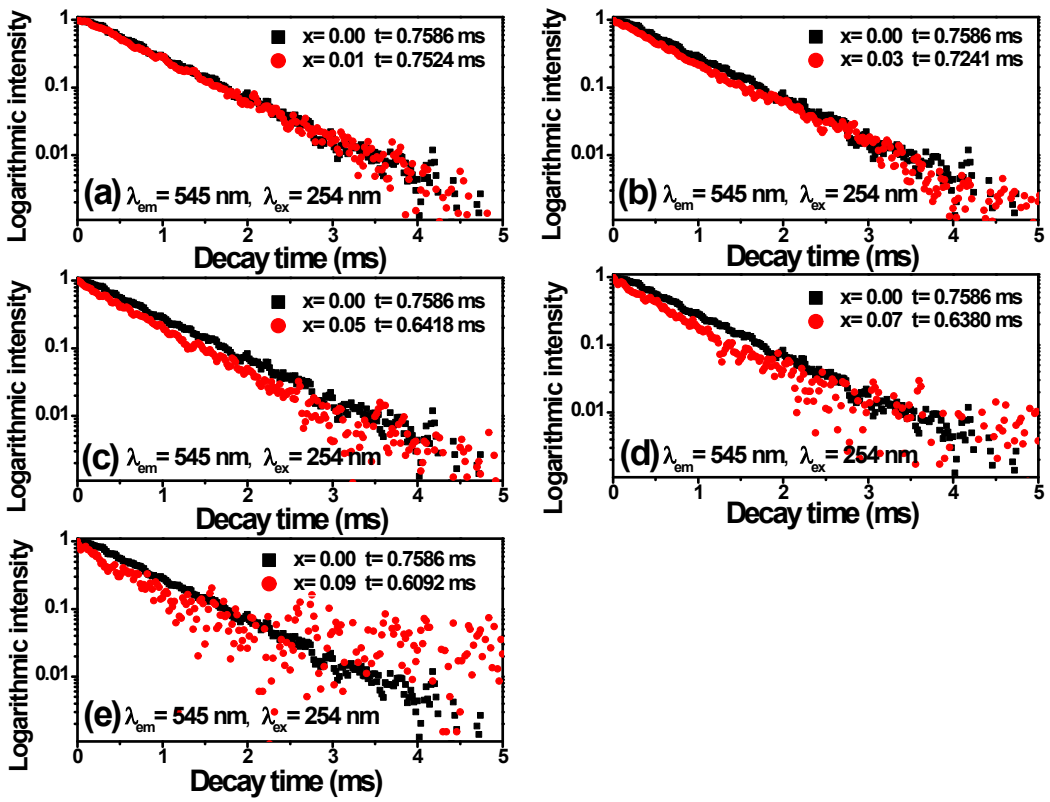

Fig. S3 Decay curves for the luminescence of Tb^{3+} ions in $NaGd(WO_4)_2$: $0.015Tb^{3+}$, xSm^{3+} phosphors displayed on a logarithmic intensity (a-e) (excited at 254 nm, monitored at 545 nm).

Tab. S1 The CIE chromaticity coordinates for $NaGd(WO_4)_2:Tb^{3+}$, Sm^{3+} phosphors under different wavelengths excitation

Lab.	Samples	CIE_1 (x, y) λ_{ex}= 270 nm	CIE_2 (x, y) λ_{ex}= 405 nm
a	0.015Sm	(0.253, 0.223)	(0.442, 0.309)
		CIE_3(x, y) λ_{ex}= 254 nm	CIE_4 (x, y) λ_{ex}= 361 nm
b	0.015Tb, 0.005Sm	(0.299, 0.427)	(0.244, 0.242)
c	0.015Tb, 0.01Sm	(0.349, 0.426)	--
d	0.015Tb, 0.015Sm	(0.365, 0.424)	(0.274, 0.240)
e	0.015Tb, 0.02Sm	(0.400, 0.421)	--
f	0.015Tb, 0.03Sm	(0.412, 0.417)	(0.285, 0.241)
g	0.015Tb, 0.05Sm	(0.432, 0.398)	(0.294, 0.248)
h	0.015Tb, 0.07Sm	(0.433, 0.388)	(0.304, 0.257)
i	0.015Tb, 0.09Sm	(0.415, 0.348)	(0.332, 0.241)
j	0.015Tb, 0.15Sm	(0.394, 0.304)	--