

Supplementary Material for:

**Temperature Sensitive Chameleon Luminescent Films Based
on PMMA Doped with Europium(III) and Terbium(III)
Anisometric Complexes**

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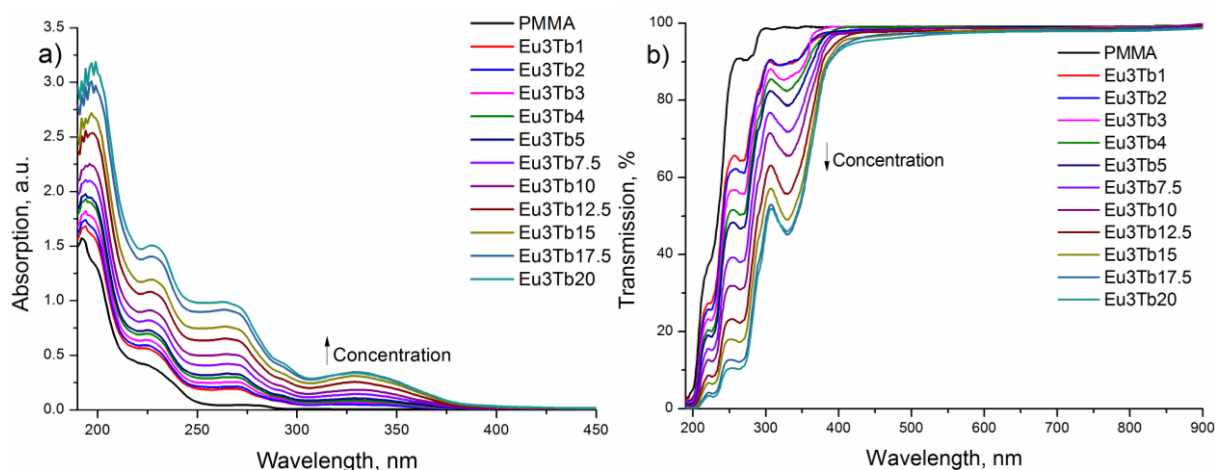


Figure S1 – The absorption (a) and transmission (b) spectra of the blends based on PMMA and Ln(III) complexes

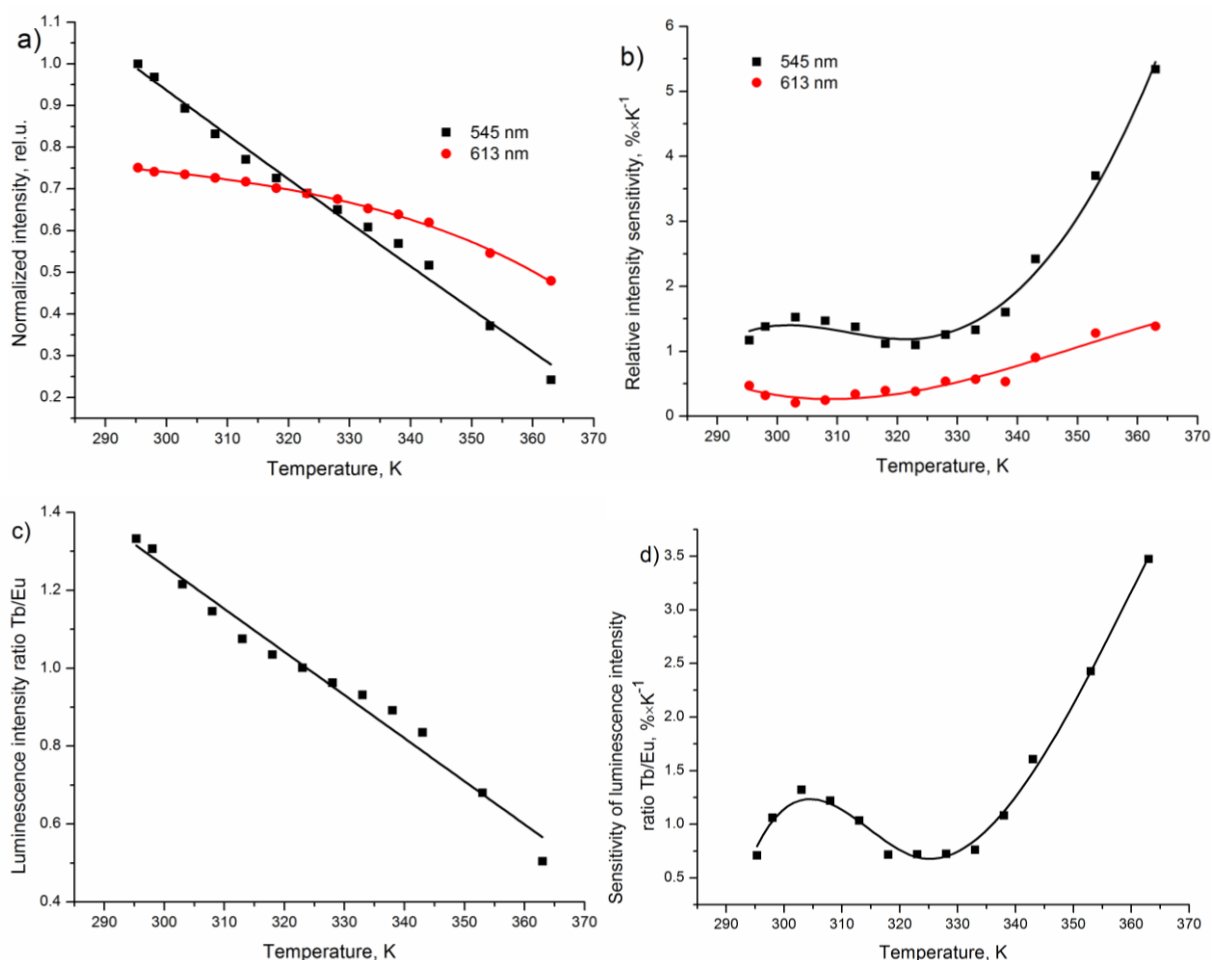


Figure S2 – Temperature dependences of the normalized luminescence intensity (a), relative sensitivity of intensity (b), the ratio of luminescence intensities of the transitions $^5D_4 \rightarrow ^7F_5$ (Tb(III), 545 nm) and $^5D_0 \rightarrow ^7F_2$ (Eu(III), 613 nm) (c), and the sensitivity of the luminescence intensity ratio of the 3%Eu5%Tb composite film (d) at $\lambda_{ex}=270$ nm

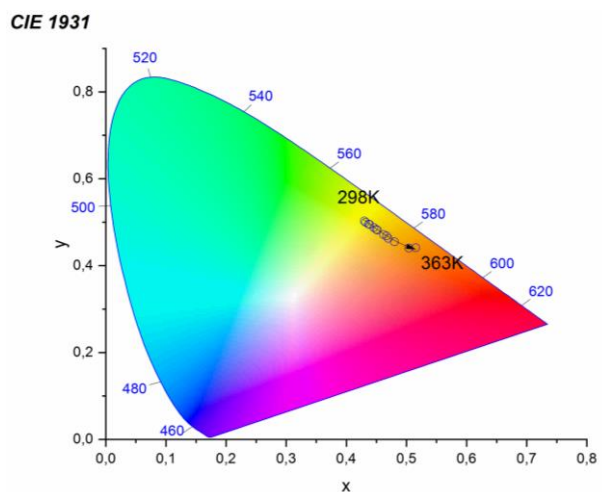


Figure S3 – CIE luminescence diagram of the PMMA films doped with 3 w.% of the Eu(III) complex and 5 w.% of the Tb(III) complex (3%Eu5%Tb) at various temperatures, the excitation wavelength $\lambda_{\text{ex}} = 270 \text{ nm}$

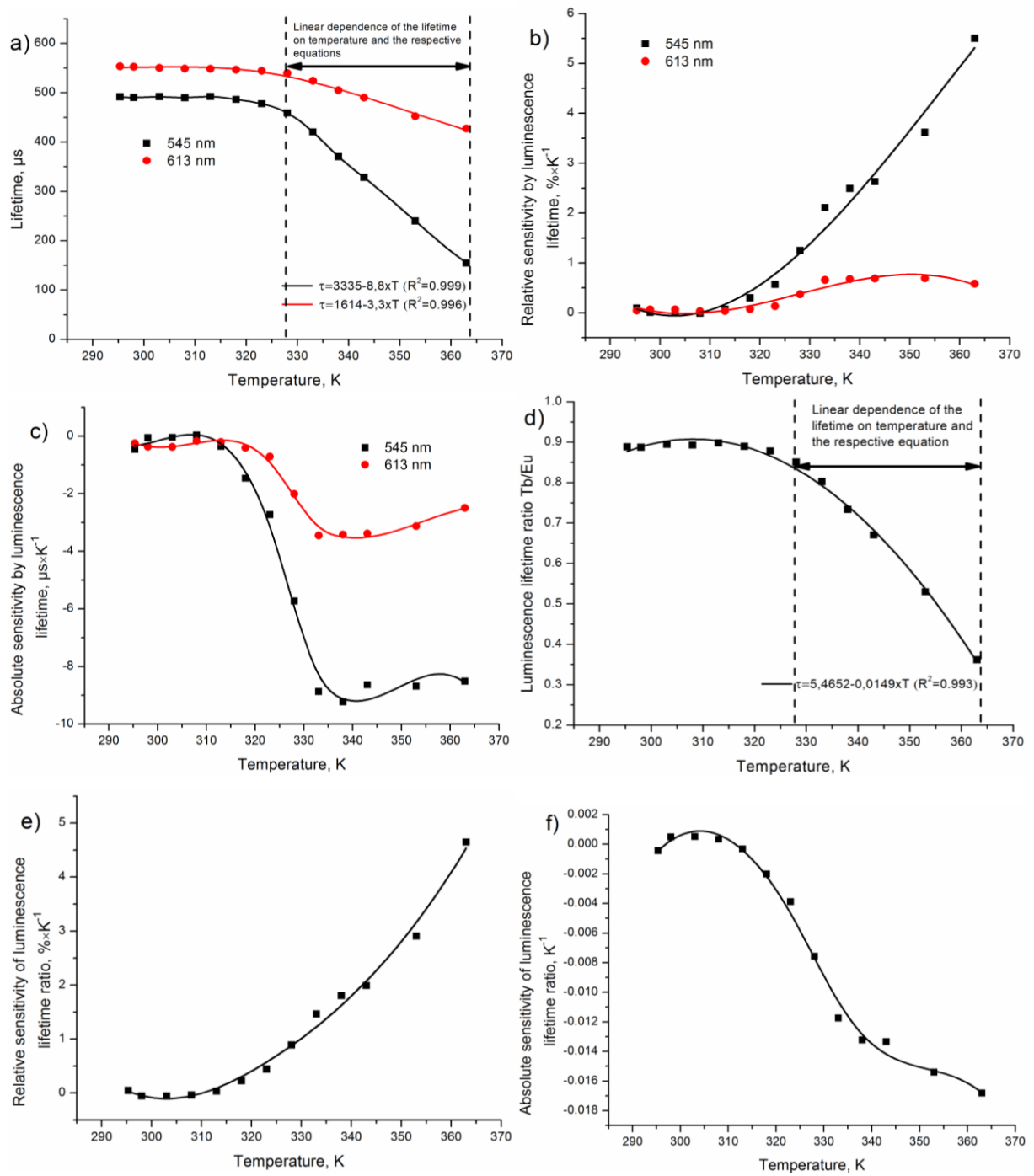


Figure S4 – Temperature dependences of the luminescence lifetime (a), relative sensitivity of lifetime (b), absolute sensitivity of lifetime (c), the ratio of lifetimes of the $^5D_4 \rightarrow ^7F_5$ (Tb(III), 545 nm) and $^5D_0 \rightarrow ^7F_2$ (Eu(III), 613 nm) transitions (d), the relative sensitivity of the lifetime ratio (e), and the absolute sensitivity of the lifetime ratio (f) of the 3%Eu5%Tb composite film at $\lambda_{ex} = 330$ nm

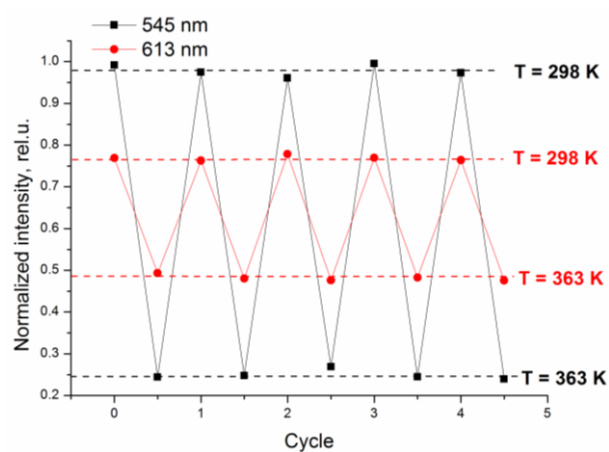


Figure S5 – Reversible changes in the luminescence intensity of the 3%Eu5%Tb composite film at $\lambda_{ex}=270$ nm during cycles of heating and cooling between 296 and 363 K

Table S1 – Quantum efficiency (ϕ^{Ln}) and relative quantum yield of luminescence (ϕ) of 3%EuX%Tb at 330 nm excitation wavelength.

Sample	τ_{obs} , μs	A_{rad} , s^{-1}	A_{nrad} , s^{-1}	ϕ^{Ln} , %	η_{sens} , %	ϕ , %
3%Eu	476	617	1484	29.4	83.9	24.6
3%Eu1%Tb	474	622	1488	29.5	83.5	24.6
3%Eu2%Tb	475	617	1488	29.3	83.8	24.5
3%Eu3%Tb	479	606	1481	29.0	84.5	24.5
3%Eu4%Tb	475	612	1494	29.1	87.6	25.5
3%Eu5%Tb	480	613	1461	29.9	88.2	26.3
3%Eu7.5%Tb	494	598	1426	29.5	94.8	28.0
3%Eu10%Tb	495	613	1407	30.4	95.1	28.9
3%Eu12.5%Tb	503	612	1376	30.8	98.7	30.4
3%Eu15%Tb	504	622	1363	31.3	99.0	31.0
3%Eu17.5%Tb	508	609	1359	31.0	97.6	30.2
3%Eu20%Tb	518	576	1354	29.8	95.8	28.6

Table S2 – Quantum efficiency (ϕ^{Ln}) and relative quantum yield of luminescence (ϕ) of 3%EuX%Tb at 270 nm excitation wavelength.

Sample	τ_{obs} , μs	A_{rad} , s^{-1}	A_{nrad} , s^{-1}	ϕ^{Ln} , %	η_{sens} , %	ϕ , %
3%Eu	492	559	1474	27.5	91.8	25.2
3%Eu1%Tb	511	603	1354	30.8	90.4	27.8
3%Eu2%Tb	525	628	1276	33.0	89.8	29.6
3%Eu3%Tb	539	632	1223	34.1	89.1	30.3
3%Eu4%Tb	547	656	1172	35.9	89.3	32.0
3%Eu5%Tb	553	663	1146	36.6	89.7	32.9
3%Eu7.5%Tb	568	646	1115	36.7	90.3	33.1
3%Eu10%Tb	581	633	1088	36.8	90.8	33.4
3%Eu12.5%Tb	592	623	1066	36.9	91.3	33.7
3%Eu15%Tb	600	621	1045	37.3	91.9	34.2
3%Eu17.5%Tb	606	571	1079	34.6	92.5	32.0
3%Eu20%Tb	613	522	1110	32.0	92.8	29.7

Table S3 – The results of the analysis of synthesized Ln(III) complexes.

Ln	Yield		Elemental										ESI-MS (m/z)
			C, %		H, %		N, %		O, %		Ln, %		
	g	%	Calcd.	Found	Calcd.	Found	Calcd.	Found	Calcd.	Found	Calcd.	Found	
Eu	0.095	70	71.60	71.11	7.99	8.25	2.04	2.00	7.22	7.38	11.05	11.20	1380 (M + Na) ⁺
Tb	0.097	71	71.12	70.64	7.95	8.31	2.03	1.98	7.24	7.44	11.31	11.65	1387 (M + Na) ⁺