

# Supplementary Information

## Low Temperature Synthesis of Luminescent RE<sub>2</sub>O<sub>3</sub>:Eu<sup>3+</sup> Nanomaterials Using Trimellitic Acid Precursors

*Ivan G. N. Silva,<sup>a</sup> Danilo Mustafa,<sup>b</sup> Maria C. F. C. Felinto,<sup>c</sup> Wagner M. Faustino,<sup>d</sup>  
Ercules E. S. Teotonio,<sup>d</sup> Oscar L. Malta<sup>e</sup> and Hermi F. Brito<sup>\*a</sup>*

<sup>a</sup>Departamento de Química Fundamental, Instituto de Química da Universidade de São Paulo,  
Av. Prof. Lineu Prestes 748, 05508-900 São Paulo-SP, Brazil

<sup>b</sup>Departamento de Física dos Materiais e Mecânica, Instituto de Física da Universidade de São  
Paulo, Rua do Matão Travessa R 187, 05508-090 São Paulo-SP, Brazil

<sup>c</sup>Centro de Química do Meio Ambiente, Instituto de Pesquisas Energéticas e Nucleares,  
Av. Prof. Lineu Prestes 2242, SP, 05508-000 São Paulo-SP, Brazil

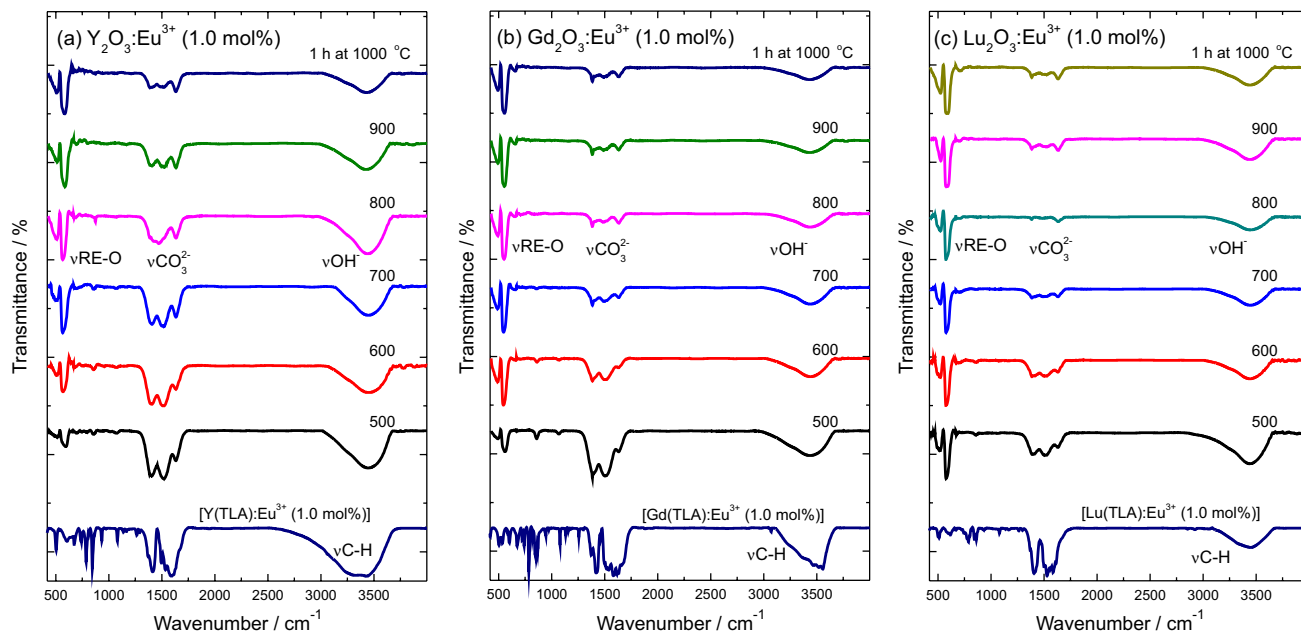
<sup>d</sup>Departamento de Química, Universidade Federal da Paraíba, 58051-900 João Pessoa-PB, Brazil

<sup>e</sup>Departamento de Química Fundamental, Universidade Federal de Pernambuco,  
Av. Prof. Moraes Rego, 1235, 50670-90 Recife-PE, Brazil

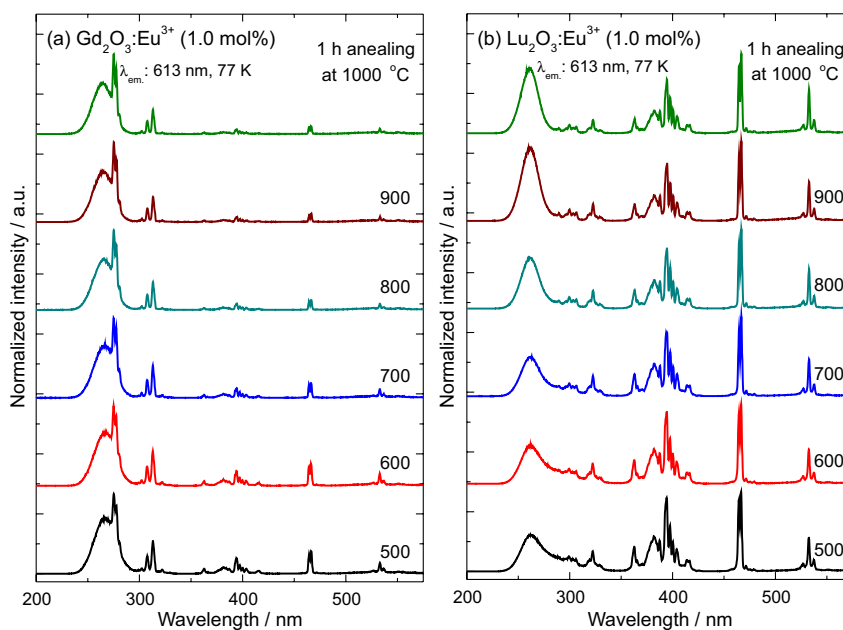
**Table S1.** Elemental analysis of [RE(TLA)<sub>n</sub>·(H<sub>2</sub>O)<sub>n</sub>:Eu<sup>3+</sup>] (RE<sup>3+</sup>: Gd, Y and Lu; n: 4 for Gd, Y and 3 for Lu systems) complexes

Complex	C / %		H / %	
	Calc.	Exp.	Calc.	Exp.
[Y(TLA)]	29.36	29.20	3.01	2.48
[Y(TLA):Eu <sup>3+</sup> (0.1 mol%)]	29.36	28.89	3.01	2.59
0.5	29.34	28.73	3.01	2.43
1.0	29.32	28.96	3.01	2.37
5.0	29.12	28.71	2.99	2.69
[Gd(TLA)]	24.77	25.12	2.54	2.18
[Gd(TLA):Eu <sup>3+</sup> (0.1 mol%)]	24.77	24.93	2.54	2.16
0.5	24.77	24.97	2.54	2.11
1.0	24.77	24.76	2.54	2.11
5.0	24.78	24.43	2.54	1.97
[Lu(TLA)]	24.79	24.84	2.08	2.18
[Lu(TLA):Eu <sup>3+</sup> (0.1 mol%)]	24.79	24.67	2.08	2.21
0.5	24.79	25.06	2.08	2.16
1.0	24.80	24.66	2.08	2.13
5.0	24.85	24.81	2.09	2.17

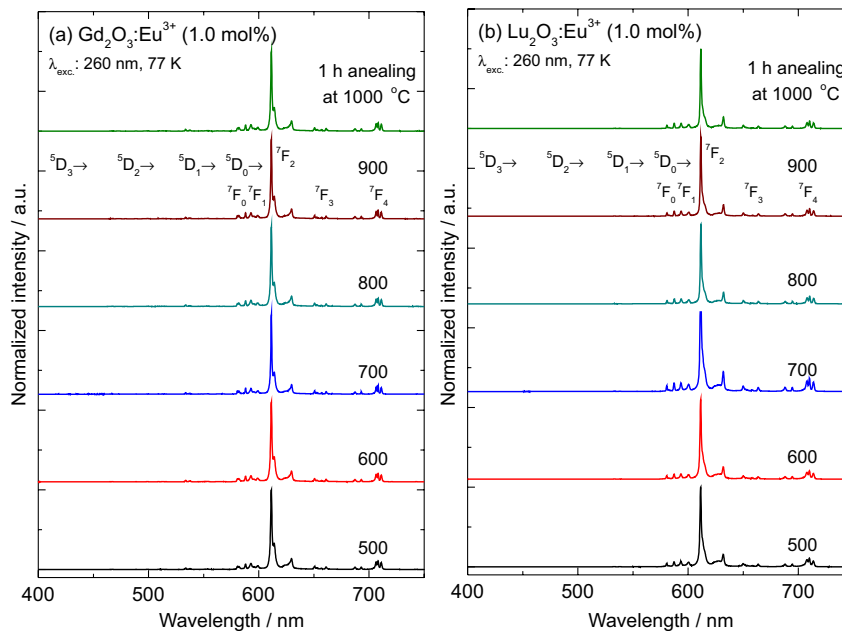
\*e-mail: hefbrito@iq.usp.br



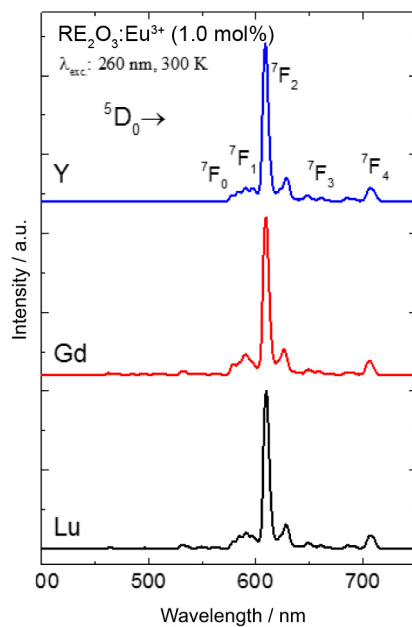
**Figure S1.** FTIR absorption spectra of (a)  $\text{Y}_2\text{O}_3:\text{Eu}^{3+}$ ; (b)  $\text{Gd}_2\text{O}_3:\text{Eu}^{3+}$  and (c)  $\text{Lu}_2\text{O}_3:\text{Eu}^{3+}$  (1.0 mol%) annealed for 1 h at different temperatures and  $[\text{RE}(\text{TLA}):\text{Eu}^{3+}$  (1.0 mol%)] as prepared.



**Figure S2.** Excitation spectra of  $\text{RE}_2\text{O}_3:\text{Eu}^{3+}$  (1.0 mol%) at 77 K, monitored at 613 nm.



**Figure S3.** Emission spectra of  $\text{Y}_2\text{O}_3:\text{Eu}^{3+}$  (1.0 mol%) at 77 K, with excitation at 260 nm.



**Figure S4.** Emission spectra of  $\text{RE}_2\text{O}_3:\text{Eu}^{3+}$  (1.0 mol%) ( $\text{RE}^{3+}$ : Y, Gd and Lu) at 300 K, with excitation at 260 nm.