

**TEMPERATURE DEPENDENT LIGAND TO METAL ENERGY  
TRANSFER RATES IN LANTHANIDE COMPLEXES:  
THEORETICAL MODELING AND THE FIRST DIRECT  
EXPERIMENTAL OBSERVATION**

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To our knowledge, for the first time the transient curve of the  $5D_1$  level of the  $\text{Eu}^{3+}$  ion in a model complex, under UV excitation, as a function of temperature has been measured. Comparison with the transient curve of the  $5D_0$  level, in the same temperature interval (10K to 300K), shows unambiguously that the  $5D_0$  is populated by non-radiative decay from the  $5D_1$ , while this latter level is populated through intramolecular energy transfer from the lowest triplet state. From these results temperature dependent transfer rates could be measured. Good agreement between theoretical predictions, including selection rules, and experiment was obtained [1,2].

[1] G. F. de Sá, O. L. Malta, C. de Mello Donegá, A. M. Simas, R. L. Longo, P. A. Santa-Cruz and E. F. da Silva Jr., *Coord. Chem. Rev.* 196, 165 (2000).

[2] O. L. Malta, *J. Non-Cryst. Solids* 354, 4770 (2008).

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