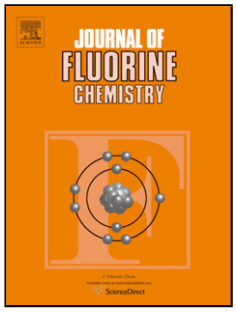

Title: Structures and optical spectroscopy of lanthanide trifluoroacetates obtained from hexafluoroacetylacetone

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Lanthanide trifluoroacetates containing coordinated and outsphere heterocyclic diimine molecules were prepared in an unusual way from hexafluoroacetylacetone. A distorted square anti-prismatic coordination geometry of the Ln^{3+} luminescence center, lifetimes of the $^5D_0$ (Eu^{3+}) and $^5D_4$ (Tb^{3+}) emitting states, luminescence efficiencies, and excitation energy transfer processes are analysed. Spectroscopic signs of the Ln^{3+} trifluoroacetates and hexafluoroacetylacetonates are discussed.