CONSTRUCTION OF 3d-4f AND 4f CLUSTERS USING SCHIFF BASE LIGANDS DERIVED FROM 2,3-DIHYDROXYBENZALDEHYDE

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Various homometallic and heterometallic coordination clusters, which are known for their interesting magnetic and photophysical properties[1,2], have been synthesised using Schiff base ligands derived from *o*-vanillin[3] as a starting material. Catechol aldehydes such as 2,3-dihydroxybenzaldehyde could be also used to obtain different Schiff base ligands which can generate polynuclear complexes. A less investigated path in literature is using monoamines for condensation reaction with 2,3-dihydroxybenzaldehyde.[4,5]

In this paper, we report two new 3d-4f clusters $[Zn_2Gd_2\mathbf{L^1}_2(CH_3COO)_6(MeOH)_2](MeOH)$, (**1**) and $[Zn_2Gd_2H\mathbf{L^2}_2(CH_3COO)_6(MeOH)_2]$, (**2**), where $H_2\mathbf{L^1}$ and $H_3\mathbf{L^2}$ are Schiff base ligands formed by condensation of 2,3-dihydroxybenzaldehyde with two different monoamines: 2-(2-aminoethyl)pyridine and 3-amino-1-propanol, respectively. Using the other $H_2\mathbf{L^1}$ ligand, two new 4f clusters have been obtained: $[Ln_{14}(CH_3COO)_{28}(H\mathbf{L^1})_{14}]$, where Ln = Eu(**3**), Gd(**4**). All complexes have been characterized by single crystal and powder X-ray diffraction, UV-VIS and IR spectroscopies. Photoluminescence analysis of this complexes reveal that compound **2** present luminescent properties.

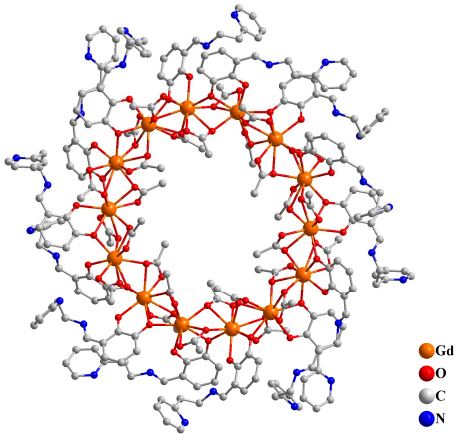

Figure 1. Molecular structure of compound **4**

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