Title: **Preparation of supramolecular heteroleptic coordination complexes**

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The aim of this coursework is to synthetize new dinuclear heteroleptic and homoleptic helicates, with Fe(II) or Co(II) as a metal centers and ligands (H2L1 and H2L2) already reported, and encapsulate anions such as: PF_6^-, ClO_4^-, I^- and BF_4^-. This way it have been tried to obtain: $PF_6 \subset [Co_2(H2L1)_2(H2L2)](BF_4)_3$, $ClO_4 \subset [Fe_2(H2L1)_3](ClO_4)_3$, $PF_6 \subset [Fe_2(H2L1)_2(H2L2)](BF_4)_3$, $BF_4 \subset [Co_2(H2L1)_2(H2L2)](BF_4)_3$, $BF_4 \subset [Fe_2(H2L1)_2(H2L2)](BF_4)_3$ and $ClO_4 \subset [Fe_2(H2L1)_2(H2L2)](ClO_4)_3$.

Different combinations between ligands H2L1, H2L2 and anions have been tested in order to synthesise new host-guest systems capable of showing spin crossover and magnetic behaviours.

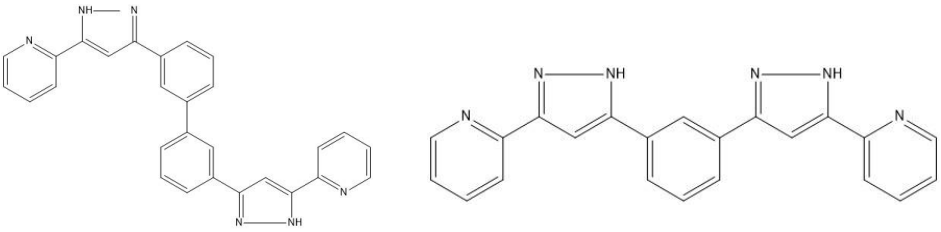

Figure 1: 3,3'-bis(3-(pyridin-2-yl)-1H-pyrazol-5-yl)-1,1'-biphenyl, **H2L1** (on the left) and 1,3-bis(3-(pyridin-2-yl)-1H-pyrazol-5-yl)benzene, **H2L2** (on the right).

Keywords: Dinuclear homoleptic helicates, dinuclear heteroleptic helicates, host-guest systems, spin crossover, single molecule magnets.