## Impact of Linkers on the Structural Diversity of 3d-4f Coordination Polymers

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3d-4f oligonuclear complexes are very attractive building blocks in designing novel solid-state architectures because they combine the electronic and stereochemical peculiarities of both 3d and 4f metal ions. The building-blocks we use are stable bi- and trinuclear complexes  $[Cu^{II}_{i}Ln^{II}]$  (*i*=1, 2), the metal ions being held together by a Schiff base ligand derived from *o*-vanilline. The versatility of such building-blocks allows their sequential association by a selective interaction of the metal ions with various linkers, thus yielding supramolecular systems with interesting magnetic properties. The building principle is based on the employment of spacers which are able to recognize either the oxophilic rare-earth cation, or the borderline acid which is copper(II) [1].

The heterobinuclear  $[Cu^{II}Ln^{III}]$  complexes are also good candidates for the synthesis of polymetallic systems with three different spin carriers 3d-3d'-4f. The third metal ion arises from metalloligands, such as the hexacyanometallate anions  $[M^{III}(CN)_6]^{3-1}$   $(M^{III} = Cr, Fe_{1.s.}, Co_{1.s.})$  [2].

[1] Gheorghe R., Andruh M., Müller A., Schmidtmann M., *Inorg. Chem.*, 2002, **41**, 5314. [2] Gheorghe R., Andruh M., Costes J.-P., Donnadieu B., *Chem. Commun.*, 2003, 2778.

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