

## Synthesis, Characterization, and Properties Study of New Magnetic Materials

**Authors :** Messai Amel, Badis Zakaria, Benali-Cherif Nourredine, Dominique Luneaub

**Abstract :** We are interested in molecular polymetallic species having high spin and nuclearities in relation to the field of so call single-molecule magnets (SMMs). The goal is to find a way to synthesis metal clusters which may have application in magnetism and nano sciences. With this purpose, we decided to investigate the coordination chemistry of the Schiff base. Along this way we were able to create cubane-like complexes and elaborate new Single Molecule-Magnets. The idea was to use Schiff base ligands and different metals to generate high nuclear complexes. Complexation of Schiff base with copper (II) has been investigated. Tetra nuclear complex with a cubane like core have been synthesized with (Schiff base), with the same base and cobalt (II) we obtain an other single magnetic complex completely different. In this presentation, we report the synthesis, crystal structure and magnetic properties of the tetranuclear compound (Cu<sub>4</sub> L<sub>4</sub>), and the tetranuclear compound. (Co<sub>4</sub>L<sub>4</sub>)

**Keywords :** cluster-assembled materials, magnetic compounds, Schiff base, copper, cobalt

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