

# Macrocyclic ZnII and CuII complexes as guests of the hybrid composites based on the layered MnPS3 phase. Comparison of spectroscopic properties

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© 2014 Taylor & Francis. A family of macrocyclic complexes [M<sub>2</sub>LnCl<sub>2</sub>] have been synthesized and characterized (M: CuII or ZnII; Ln: macrocyclic ligand derived from 2-hydroxy-5-methyl-1,3-benzenedicarbaldehyde and different aliphatic diamines and o-phenylenediamine). The influence of the aromaticity of the ligand and the metal center on the spectroscopic properties of the complexes (absorption and emission) has been studied. Making use of the weak interactions between hydrated potassium ions and the layers of the K<sub>0.4</sub>Mn<sub>0.8</sub>PS<sub>3</sub> precursor, the obtained macrocyclic complexes have been intercalated in the interlamellar space by a microwave assisted cationic exchange reaction. The optical properties of the obtained hybrid materials are reported. The absorption edge, recorded by solid state reflectance spectroscopy for CuII and the ZnII macrocycle-based composites, is 1.67-1.76 eV, both shifted to lower energy compared with that of the pristine MnPS<sub>3</sub>.