Title: “Structural Correlations in Low-Dimensional Cu(II)-based Molecular Magnetic Materials”

The development of the lanthanum copper oxide based superconductors and intrinsic relationship between the magnetic and electrical exchange in these materials has led to a renewed interest in Cu(II)-based magnetism over the past three decades, especially in materials where the magnetic interactions do not propagate equally in all dimensions. The very strong magnetic exchange observed in the copper oxides (typically >> 600 K) makes it impractical to study the magnetic exchange process in these materials. Hence, we have undertaken a program to prepare model compounds which exhibit a wide variety of magnetic lattices with moderate exchange where dimensionality of the magnetic exchange is limited. The preparation of families of such materials allows for structure-exchange correlations which can improve our understanding of the factors which control magnetic exchange. Examples of chains, layers and ladders based on a versatile family of hydroxypyridine ligands will be presented.