Abstract
Multimetallic rare-earth systems and especially DyIII, ErIII-based materials have sparked much interest in the area of molecular magnetism due to the large intrinsic magnetic anisotropy of the lanthanide ions. When such a unique property is combined with a high-spin ground state (S) in a molecular complex, it causes slow relaxation of the magnetization as seen for Single-Molecule Magnets (SMMs). Lanthanide only SMMs are rare due to the difficulty in promoting the magnetic interactions via the overlapping bridging ligand orbitals with the contracted 4f orbital of the ions. Toward the goal of inducing significant magnetic interaction between lanthanide ions and subsequently isolating high-energy barrier SMMs, our research is currently focused on the use of phenoxide bridges as superexchange pathways between spin carriers.1-4 In addition, radical bridged complexes provides an alternative approach for inducing significant interactions between the spin carriers.5 Such approach could ultimately allow efficient coupling of 4f ions and yield SMMs with record breaking blocking temperatures. The second part of talk will be focused on Metal-Organic Frameworks. More specifically, on the stepwise crystallographic visualization of dynamic guest binding in a nanoporous framework.6.