Molecular Nano Magnets: Transition from transition metal to inner-transition metal complexes

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Abstract:

Molecules retain magnetization below their blocking temperature (T_B) in the absence of magnetic field called Single-Molecule-Magnets (SMMs). Blocking temperature of the molecule is depends on the effective energy barrier (U_{eff}) which is directly proportional to the ground state and anisotropy associated with it. In this respect magnetic properties of structurally related $[Mn^{III}_{20-X}\ Mn^{II}_{X}]^{n-}$ (where X = 2 or 4 or 6) clusters will be discussed, followed by magnetic properties of lanthanide based molecular magnets. In addition, other potential applications such (molecular coolants and molecular Qubits) of these molecular nanomagnets will be presented.