

NMR studies of nanoscale molecular magnets

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Recently there have been intense experimental and theoretical efforts in synthesis and investigation of nanoscale molecular magnetic systems which are composed of a controllable number of transition-metal ions with spins. A shell of organic ligands shields the individual molecular magnets from each other so that the magnetic interaction between neighboring molecular magnets is very small and the observed magnetic properties of the bulk samples are considered to originate from intramolecular magnetic properties only. The discovery of quantum phenomena like quantum tunneling of the magnetization (QTM) observed in single molecular magnets such as Mn₁₂ and Fe₈ has triggered further interest in the investigation of magnetic properties of other nanoscale molecular magnets which have different structures such as coplanar ring, triangular, spherical shapes and so on. We have been carried out NMR and magnetization measurements to investigate the magnetic properties of these nanoscale molecular magnets. In this presentation, I will review our efforts on these nanoscale molecular magnets.

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