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Single Molecule Magnetism in a Series of Dysprosium 5,7-Dibromo-8-Hydroxyquinolinolato Complexes

Modern hard drive disks (HDDs) store information in the form of magnetic field orientation combinations. Information density / size of HDDs are hence limited by the size of the magnets used to construct the device. Molecules and single ions capable of magnetic hysteresis, termed single molecule magnets (SMMs) and single ion magnets (SIMs), respectively, are of interest then as a means to miniaturize HDDs. Widespread adoption of SMMs or SIMs in HDDs however is not currently feasible as the phenomenon requires liquid helium cooling in order to be observed. Current challenges for the field then include the discovery of SMMs or SIMs capable of retaining magnetization at temperatures above that of liquid nitrogen. Lanthanoid complexes are currently of interest then as the near degenerate 4f orbitals contribute greatly to ion anisotropy and hence the stability (U_{eff}) of single molecule / ion magnet magnetic hysteresis. Recent work within the Deacon group regarding a series of single ion / molecule magnets featuring the 5,7-dibromo-8-quinolinolate ligand will be presented.

Keywords or phrases (comma separated)

Lanthanoid, Single Molecule Magnet, X-ray Diffraction

Are you a student?

Yes

Do you wish to take part in the Student Poster Slam?

No

Are you an ECR? (<5 yrs since PhD/Masters)

No

What is your gender?

Male

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