University of Cyprus

8th North America-Greece-Cyprus Workshop on Paramagnetic Materials

8th NAGC 2018

Sparta Greece 18-22 June 2018

International Organizing Committee

George Christou, Dept. of Chemistry, University of Florida, USA
Georgios Papavassiliou, INN, NCSR Demokritos, Greece
Spyros Perlepes, Dept. of Chemistry, University of Patras, Greece
Anastasios Tasiopoulos, Dept. of Chemistry, University of Cyprus, Cyprus

TIMETABLE

Monday June 18, 2018

08:50-09:00 **Opening of the workshop**

Chairman: S. Perlepes

09:00-9:30 **Kilikoglou Vassilis**
Cultural heritage and nanoscience: a new relationship with an old background

09:30-10:00 **Constable Edwin**
Magnetism – Quo vadis

10:00-10:30 **Christou George**
Molecular Nanoscience: Synthesis and Properties of Molecular Ce/Mn Clusters related to the Perovskite Repeating Unit

10:30-10:45 **Dermitzaki Despina**
Heptanuclear heterometallic Cu_5Ln_2 (Ln = Gd, Tb) complexes: Synthesis, crystal structures, and magnetic properties studies

10:45-11:00 **Das Gupta Sayak**
Mn-Ce Clusters from Reductive Aggregation: Unusual Long-range Mn··Mn Exchange-coupling through Ce^{IV}

11:00-11:30 ***Coffee break***

Chairman: S. Hill

11:30-12:00 **Boudalis K. Athanassios**
Determination of magnetic symmetries and antisymmetric exchange interactions in highly symmetric molecular spin triangles

12:00-12:30 **Comba Peter**
Validation of ab-initio predicted magnetic anisotropies in linear hetero-trinuclear Dy^{III}-Ni^{II}_2 compounds.

12:30-13:00 **Peralta Juan**
Magnetic Exchange Couplings from Density Functional Theory without Self-Interaction

13:00-13:15 **Mayans Julia**
Enhancement of Single Ion Magnet Properties in Lanthanide Clusters by Improving the Magnetic Dilution with Specific d-Metals. A Comparative Study

13:15-13:30 **Skordi Katerina**
$Mn^{II}_2Mn^{III}_4$ cross-shaped clusters: Synthesis, Structure and Magnetism Studies

Heptanuclear heterometallic Cu_5Ln_2 (Ln = Gd, Tb) complexes: Synthesis, crystal structures, and magnetic properties studies

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Molecular magnetic materials based on the combination of 3d/4f ions have been widely studied because this synthetic approach favors high spin ground states and large single-ion anisotropies and provides, in many cases, considerable energy barriers for magnetization reversal leading to single-molecule magnet (SMM) behavior. The significant magnetic anisotropy of Tb^{III}, Dy^{III}, Ho^{III} and Er^{III}, as a result of the large spin-orbital coupling as well as the crystal-field effect, make these ions excellent candidates for the synthesis of molecular nanomagnets, whereas the isotropic Gd^{III} ion is more suitable for magnetocaloric measurements and more importantly as a model ion for theoretical calculations concerning exchange interactions within 3d/4f clusters. We will discuss 'one-pot' reactions between a Schiff base ligand which contains a coordination pocket of $O_{phenoxo}/N_{imino}$ donor atoms and O_{alkoxo} pentant groups with Cu^{II}/Ln^{III} sources which yielded heptanuclear heterometallic clusters Cu_5Ln_2 (Ln = Gd, Tb). The magnetic and magnetocaloric properties of these complexes will be presented in detail.

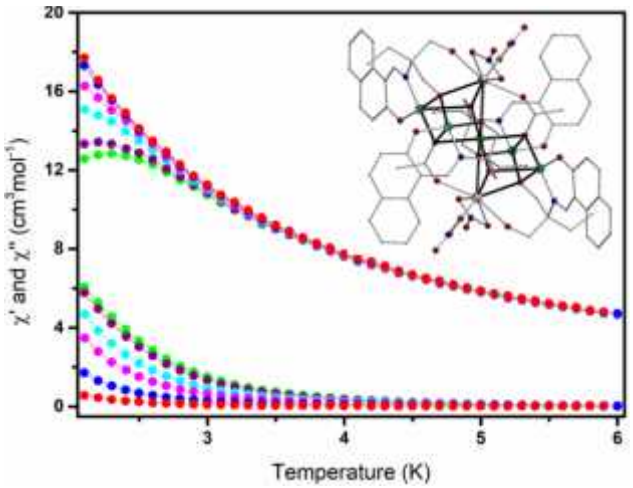

Figure. Temperature dependence of χ' and χ'' of complex Cu_5Tb_2 under different frequencies at zero external field.

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