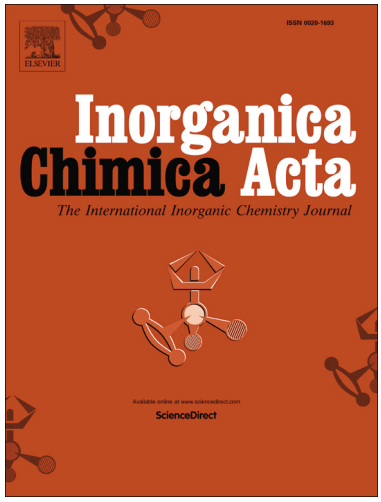

Research paper

Two dysprosium complexes based on 8-hydroxyquinoline Schiff base:structures,luminescence properties and single-molecule magnets behaviors

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Two dysprosium complexes based on 8-hydroxyquinoline Schiff base：structures，luminescence properties and single-molecule magnets behaviors

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Abstract

Two dysprosium compounds with the formula $[Dy(TTA)_2L]$ (**1**) and $[Dy_2(dbm)_2(L)_2(CH_3OH)_2]\cdot 2.6CH_3OH\cdot 0.4CH_2Cl_2$ (**2**) (TTA = 2-thenoyltrifluoroacetone, dbm = 1,3-diphenyl-1,3-propanedione and HL = N-(methylene-8-hydroxyquinoline)-pyridylhydrazone) based on a multidentate 8-hydroxyquinoline Schiff base have been synthesized, structurally and magnetically characterized. The X-ray structural analysis exhibits that **1** is a mononuclear structure, while **2** is a μ_2-O bridged dinuclear complex. Magnetic measurements indicated that different magnetic relaxation behaviors were clearly observed in **1** and **2** under zero-dc field, with the effective barriers ($\Delta E/k_B$) of 67.8 K for **1** and 2.67 K for **2**.

Keywords: dysprosium compounds; structures; magnetic relaxation behaviors

1 Introduction

Over the past two decades, the investigations on the single-molecular magnets (SMMs) have attracted increasing interest for both physicists and chemists due to their potential technological applications in the field of quantum computing and high density storing magnetic information at a molecular level [1-2]. This interest has led to intense activity to consistently synthesize new molecular structures which are suitable for detailed magnetic study. Since the first discovery of SMM behavior in a

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