

Supporting Information

Targeted Ferromagnetic Coupling in a Trinuclear Copper(II) Complex: Analysis of the $S_t = 3/2$ Spin Ground State

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Preparation of [(talen)Ni₃].

Solid Cu(OAc)₂·2H₂O (77 mg, 0.387 mmol) was added to a solution of H₆talen (100 mg, 0.129 mmol) in ethanol (15 mL). The resulting brown solution was heated to reflux for 30 min. Upon cooling to room temperature a purple microcrystalline precipitate formed which was filtered off, washed with diethyl ether and dried in vacuum. Yield: 77 mg (61.2%). MS-MALDI-TOF (negative ion methode):*m/z* 959 [M]⁻; IR (KBr): $\tilde{\nu}$ / cm⁻¹ = 3050w, 3020w (both ν (C_{ar.}-H)), 2968m, 2931w, 2876w (all ν (C-H)), 1625vs (ν (C=N) HC=N), 1601m, 1555vs (ν (C=N) CH₃C=N), 1536m (ν (C-C)_{ar.}), 1479vs, 1449vs (δ (C-H)), 1389w (δ (C-H)), 1352m, 1339w, 1288s (ν (C_{ar.}-O)), 1189m, 1151m, 1126w, 756w, 739w; elemental analysis calcd (%) for C₄₅H₄₈N₆O₆Cu₃ (959.55): C 56.33, H 5.04, N 8.76; found: C 55.94, H 4.64, N 8.55.