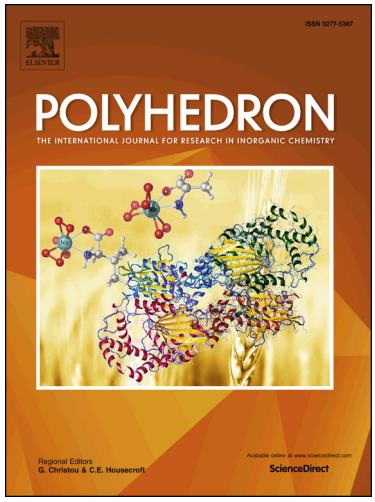

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PII: S0277-5387(17)30650-2
DOI: https://doi.org/10.1016/j.poly.2017.10.009
Reference: POLY 12872

To appear in: *Polyhedron*

Received Date: 25 August 2017
Accepted Date: 7 October 2017

Please cite this article as: D.B. Dell'Amico, S. Ciattini, L. Fioravanti, L. Labella, F. Marchetti, C.A. Mattei, S. Samaritani, The heterotopic divergent ligand N-oxide-4,4'-bipyridine (bipyMO) as directing-agent in the synthesis of oligo- or polynuclear heterometallic complexes, *Polyhedron* (2017), doi: https://doi.org/10.1016/j.poly.2017.10.009

Revised Manuscript

Polyhedron

The heterotopic divergent ligand N-oxide-4,4'-bipyridine (bipyMO) as directing-agent in the synthesis of oligo- or polynuclear heterometallic complexes

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ABSTRACT

The simple but rarely used heterotopic divergent ligand N-oxide-4,4'-bipyridine (bipyMO) has been exploited, for the first time, for the preparation of heterometallic derivatives, showing the ability to selectively use its two potential coordination sites in dependence of the metal ion nature. By reacting in refluxing acetonitrile $^{1}_{\infty}$[Cu(hfac)$_2$(bipyMO)] with $^{1}_{\infty}$[Mn(hfac)$_2$(bipyMO)] (herein completely characterized), the heterometallic self-assembled monodimensional coordination polymer containing the two regularly alternated moieties Cu(hfac)$_2$[N]$_2$ and Mn(hfac)$_2$[O]$_2$ was obtained in high yield and purity and structurally characterized. On the other hand, a molecular heterometallic compound was obtained using, as a ligand, the here prepared mononuclear complex *trans*-[PtCl$_2$(bipyMO)(PPh$_3$)], with the hypodentate bipyMO ligand coordinated to platinum through the nitrogen atom. Reaction with [Zn(hfac)$_2$(DME)] afforded the heterometallic trinuclear complex *trans*[Zn(hfac)$_2${*trans*-PtCl$_2$(PPh$_3$)(bipyMO)}$_2$] that was structurally characterized.

Keywords: divergent ligands, coordination polymers, heterometallic CP, self-assembly, heterometallic complexes, platinum complexes

1. Introduction

Although 4,4'-bipyridine (bipy) can be considered a classical connector, used in a huge number of *d* metal coordination polymers (CP) [1] and the symmetrically oxidized 4,4'-bipyridine dioxide (bipyDO) has been successfully employed for the CP preparation of the oxophilic lanthanides, [2]