Supporting information for

Flexible linkers and dinuclear metallic nodes build up an original metal-organic framework

Angelica Vlad, a Mirela-Fernanda Zaltariov,a Sergiu Shova,a Ghenadie Novitchi,b Cristian-Dragos Varganici,a Cyrille Train,b,c,* Maria Cazacu a,*

a ‘‘Petru Poni’’ Institute of Macromolecular Chemistry, Aleea Gr. Ghica Voda 41A, 700487 Iasi, Romania

b Laboratoire National des Champs Magnétiques Intenses, CNRS UPR 3228, 25 Rue des Martyrs, 38042, Grenoble, France

c Université Joseph Fourier, F-38041 Grenoble, France; Institut Universitaire de France (IUF), 103, bd Saint-Michel, F-75005 Paris, France.

*To whom correspondence will be addressed: e-mail: cyrille.train@lnemi.cnrs.fr, mcazacu@icmnp.ro
Figure ESI1. IR spectrum of copper complex 1 – a in comparison with that of 1,3-bis(carboxypropyl)tetramethylsiloxane – b and imidazole - c.
Figure ESI2. UV-Vis spectrum of the complex 1 dissolved in methanol.
**Figure ESI3.** ATR-IR spectrum of the complex 1 dissolved in methanol.

**Figure ESI4.** Details of ATR-IR spectra (2400-3500 cm\(^{-1}\)) of the complex 1 dissolved in methanol (initial) and during the evaporation of methanol recorded at two minutes difference between them. Initially only the characteristic bands of methanol at 3400 (\(\nu\text{OH}\)), 2945 (\(\nu\text{CH}_3\)) and 2883(\(\nu\text{CH}_3\)) cm\(^{-1}\) appear. By increase the sample concentration, as a result of the solvent evaporation, the bands characteristic for the complex 1 become visible and also the specific bands of hydrogen bonds at 2600-2500 cm\(^{-1}\) appear.
**Figure ESI5.** Details of ATR-IR spectra (1600-2200 cm\(^{-1}\)) of the complex 1 dissolved in methanol (initial) and during the evaporation of methanol recorded at two minutes difference between them. Initially only a broad band attributed to hydroxyl groups appears at 1660 cm\(^{-1}\) (\(\nu_{OH}\)). By increase the sample concentration, by evaporation of the solvent, the carboxylic and hydrogen bonds specific bands at 1707 and 1920 cm\(^{-1}\), respectively develop.
**Figure ESI6.** TG and DTG curves for complex 1
**Figure ESI7.** DSC curves for the complex (h1-first heating; h2-second heating).
Figure ESI8. H₂ and N₂ sorption-desorption isotherms of 1 at 77 K, P being the relative pressure of the gas and P₀ its saturated vapor pressure.
Figure ESI9. The experimental XRPD pattern of the polycrystalline sample in 2-10 2θ range (a); experimental XRPD pattern of the polycrystalline sample in 10-50 2θ range (b); the simulated XRPD on the base of cif.file obtained as the result of single-crystal X-ray study (c).