Electronic Supporting Information

Redox-Induced Polymerization/Depolymerization of Metallo-Supramolecular Polymers

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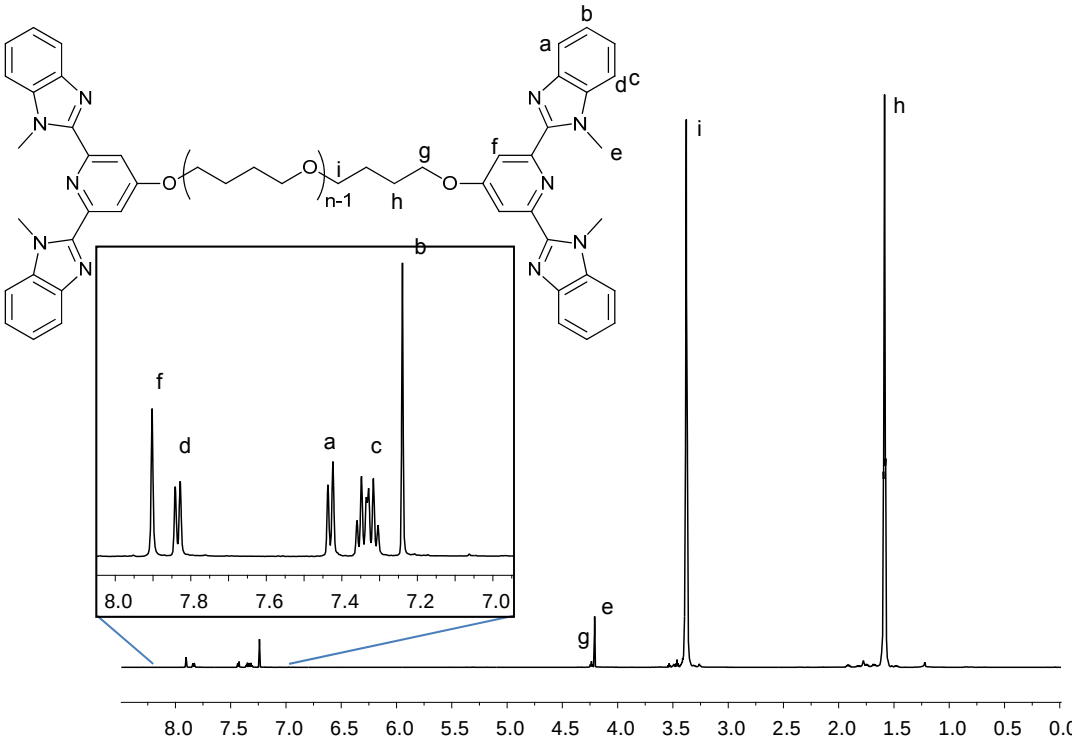

Fig. S1. ^{1}H-NMR spectrum of **1** in $CDCl_3$ (600 MHz).

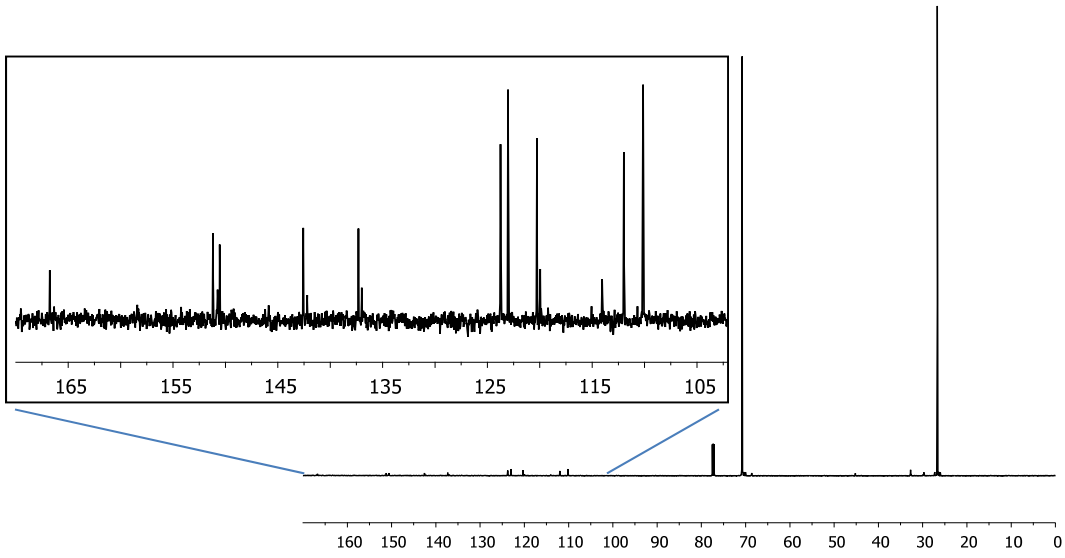

Fig. S2. ^{13}C-NMR spectrum of **1** in $CDCl_3$ (125 MHz).

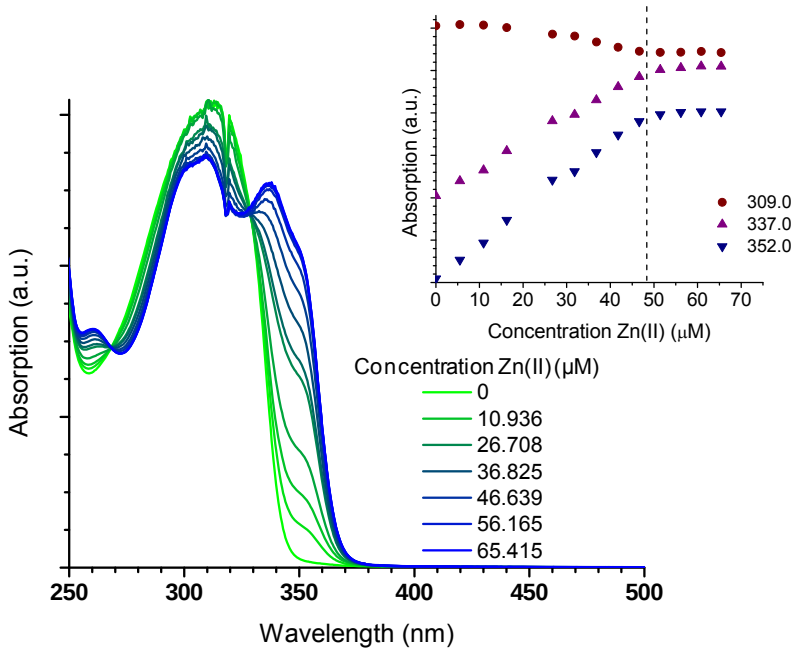

Fig. S3. UV-visible absorption spectra of **1** (0.475 mg/mL) in PrCN, titrated with 20 μL aliquots of a solution containing $Zn(OTf)_2$, (1.157 mM) and **1** (0.475 mg/mL) in PrCN. Insert: plot of absorbance at various wavelengths vs. concentration of Zn(II).

Zn(II) binds the Mebip ligand in a ratio of 1:2, thus making the assumption that **1** is fully endcapped we can calculate the molecular weight of the ditopic macromonomer (**1**) by using the change of gradient in the plot (at 48.3 μM) as the point where all the Mebip ligand is bound.

$$M_n = [\mathbf{1}]\left({}^{g}/_{L}\right) * \frac{2\ mol\ Mebip}{1\ mol\ \mathbf{1}} * \frac{1\ mol\ Zn(II)}{2\ mol\ Mebip} * \frac{1L}{[Zn(II)]\ \ (mol)}$$

Where the first term is reflective of the concentration of **1** in the solution (by weight); the second, of the molar equivalence of Mebip per macromonomer **1**; the third term, of the binding ratio between Zn(II) and Mebip; and the last is the as the inverse of the concentration of Zn(II) at the change of gradient (in mol units). Such that,

$$M_n = \frac{0.475\ g\ \mathbf{1}}{L} * \frac{2\ mol\ Mebip}{1\ mol\ \mathbf{1}} * \frac{1\ mol\ Zn(II)}{2\ mol\ Mebip} * \frac{L}{48.3\ x\ 10^{-6}\ mol\ Zn(II)} \approx 9800\ g/mol$$

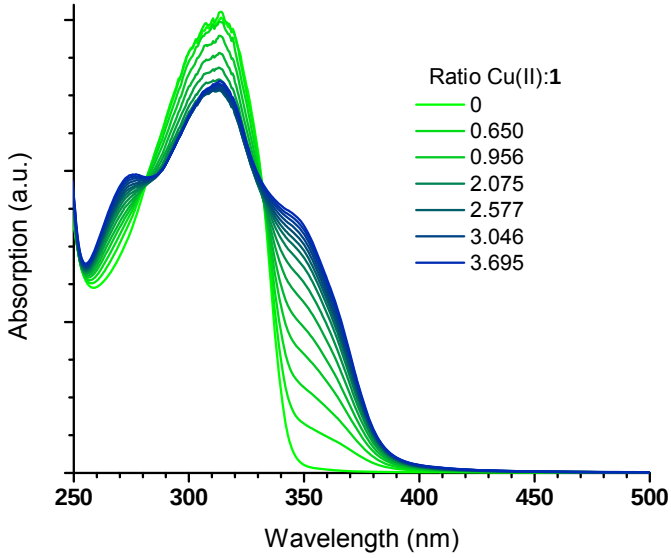

Fig. S4. UV-visible absorption spectra of **1** at 500 µL titrated with $Cu(OTf)_2$ in PrCN.

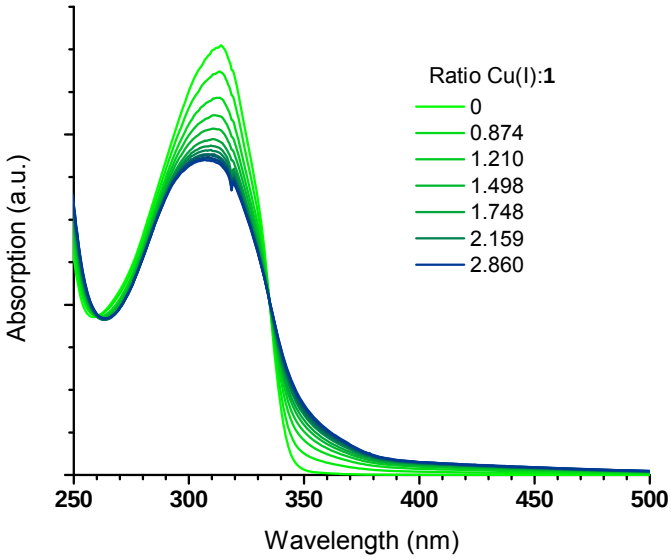

Fig. S5. UV-visible absorption spectra of **1** at 450 µL titrated with Cu(OTf) in PrCN.

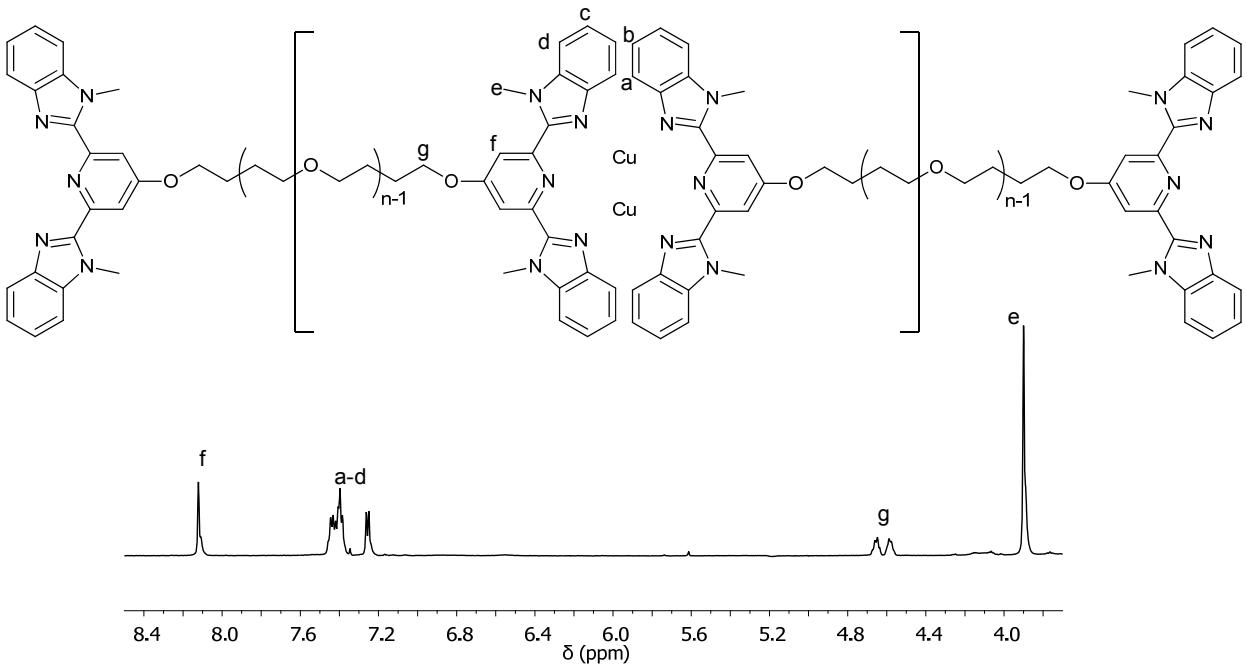

Fig. S6. of ^{1}H-NMR spectrum of **1**:Cu(I)$_2$ in Acetone-d$_6$ (600 MHz).