

Study of Effect of Pyridine Linkers on Viscosity and Electrochromic Properties of Metallo-Supramolecular Coordination Polymers

Supplementary Information

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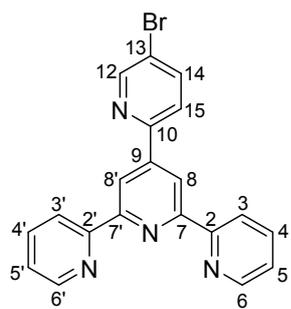
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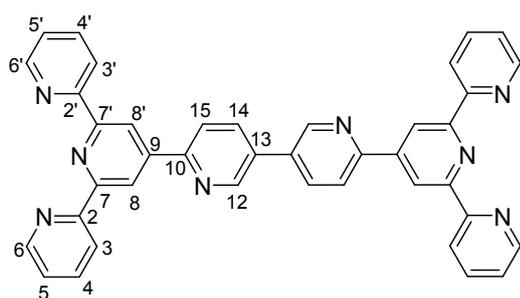
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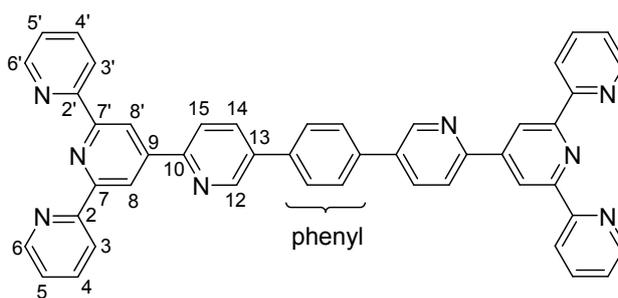
Figure S14: ¹³C NMR spectrum of ligand **L3** in CDCl₃.



L1



L2



L3

Scheme S1. Numbering scheme for ligands **L1-L3**.

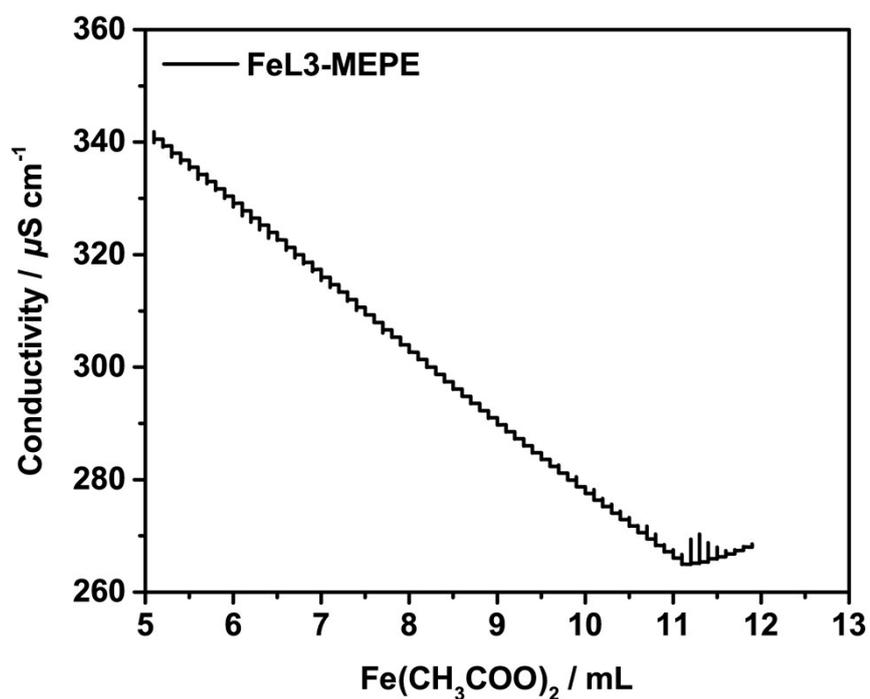
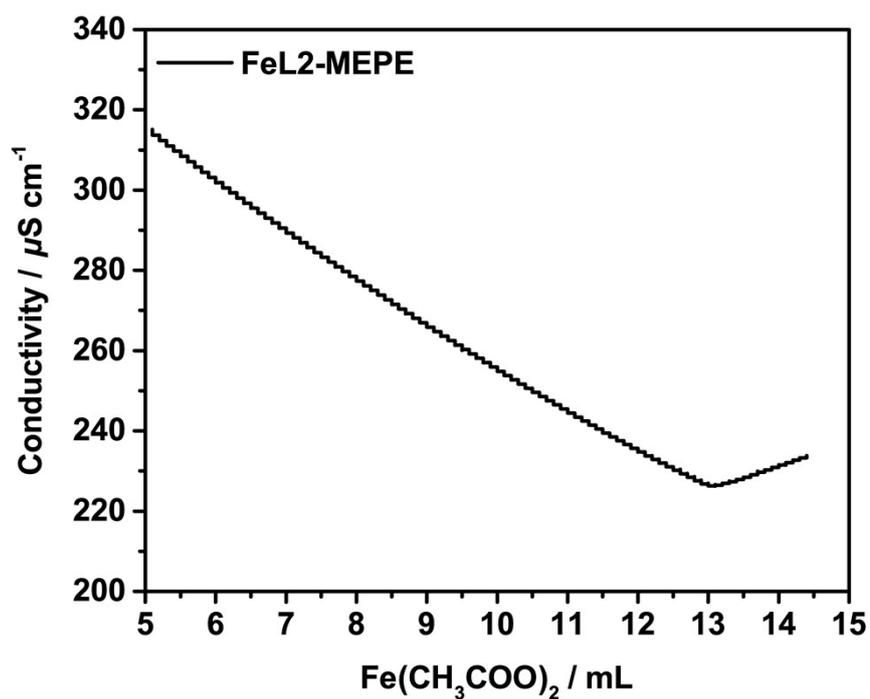


Figure S1. Synthesis of **FeL2-** and **FeL3-MEPE** by conductometric titration of a solution of ligand **L2** and **L3**, respectively, in 75% acetic acid ($c = 9 \text{ mM}$) with Fe(II) acetate solution ($c = 18 \text{ mM}$) in 75% acetic acid at $25 \text{ }^\circ\text{C}$, under argon atmosphere.

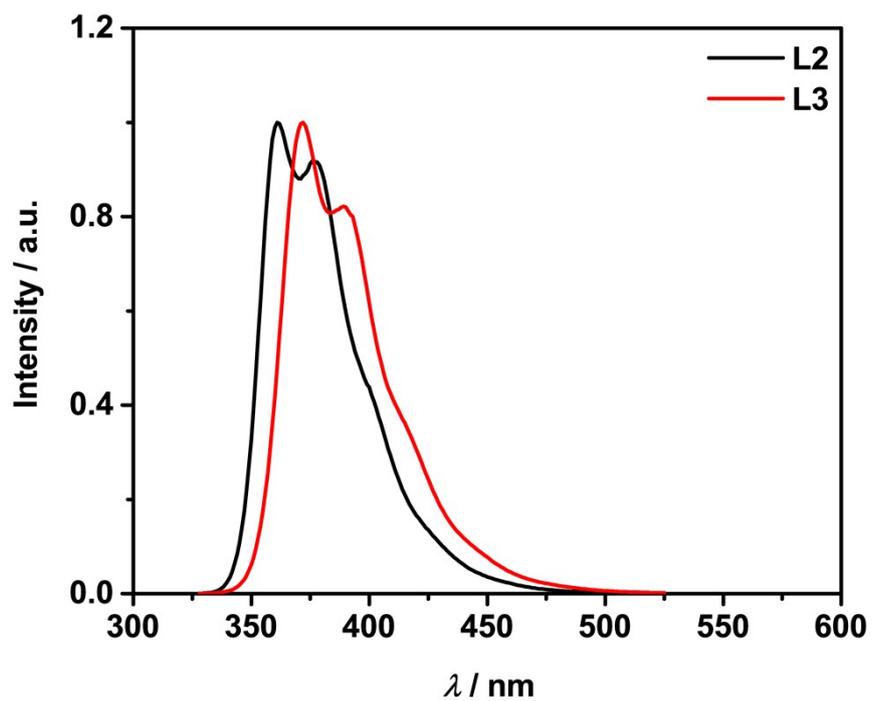


Figure S2. Normalized emission spectra of ligands **L2** ($\lambda_{\text{exc}} = 318$ nm) and **L3** ($\lambda_{\text{exc}} = 326$ nm) in chloroform.

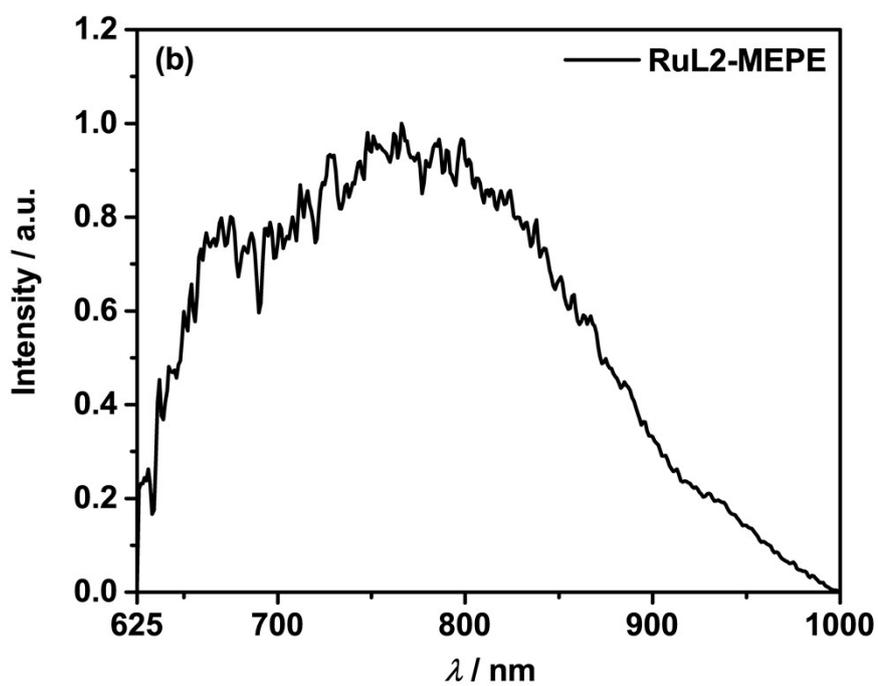
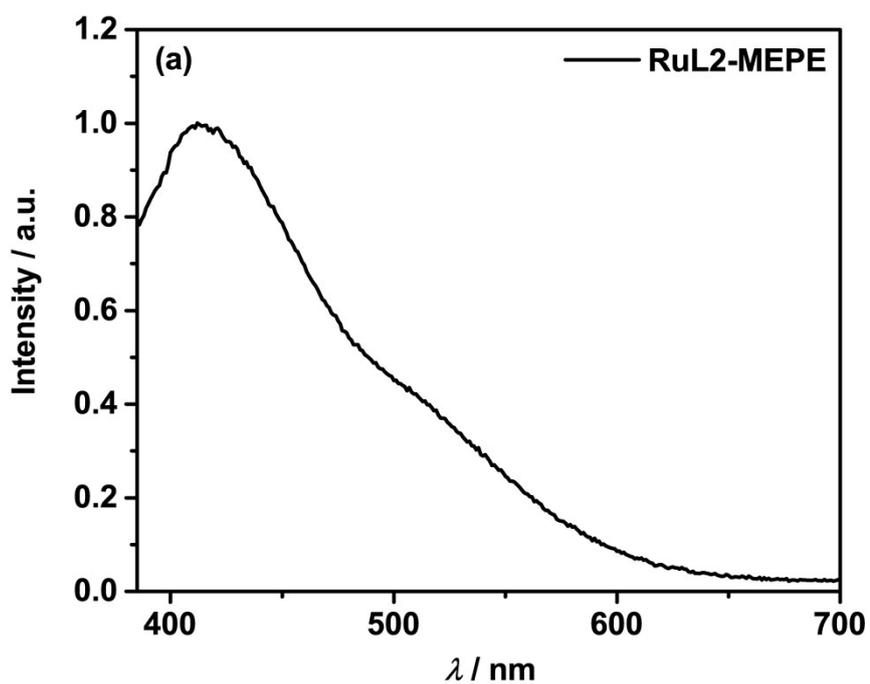


Figure S3. Normalized emission spectra of **RuL2-MEPE** at room temperature in MeOH/Water (4:1 v/v) solution by exciting (a) ligand-centered (LC) transition at 334 nm, and (b) MLCT transition at 505 nm.

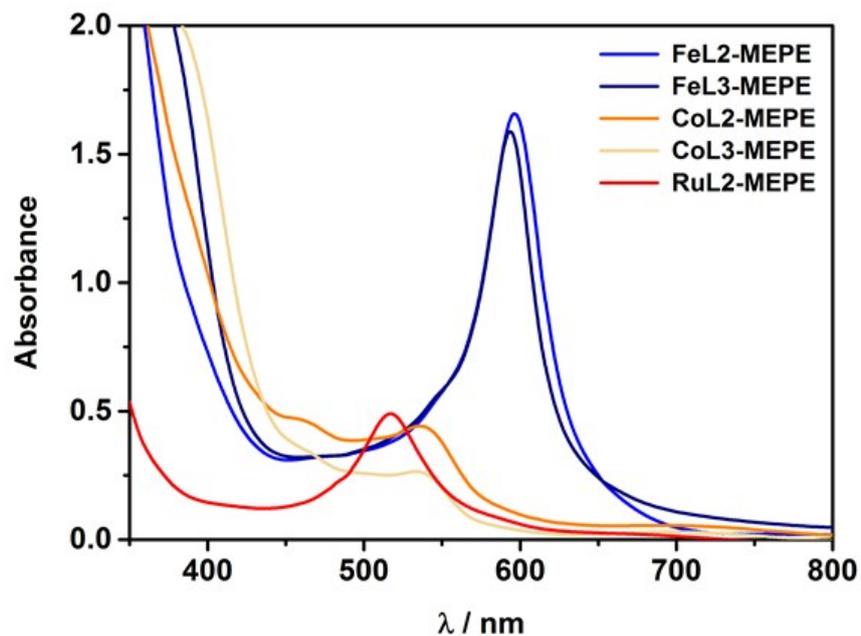


Figure S4. Overlay of the electronic absorption spectra of **Fe-**, **Co-**, and **Ru-MEPE** thin films on FTO-coated glass (dimension: 1.0 cm x 3.0 cm) fabricated by dip coating at a withdrawing speed of 100 mm·min⁻¹.

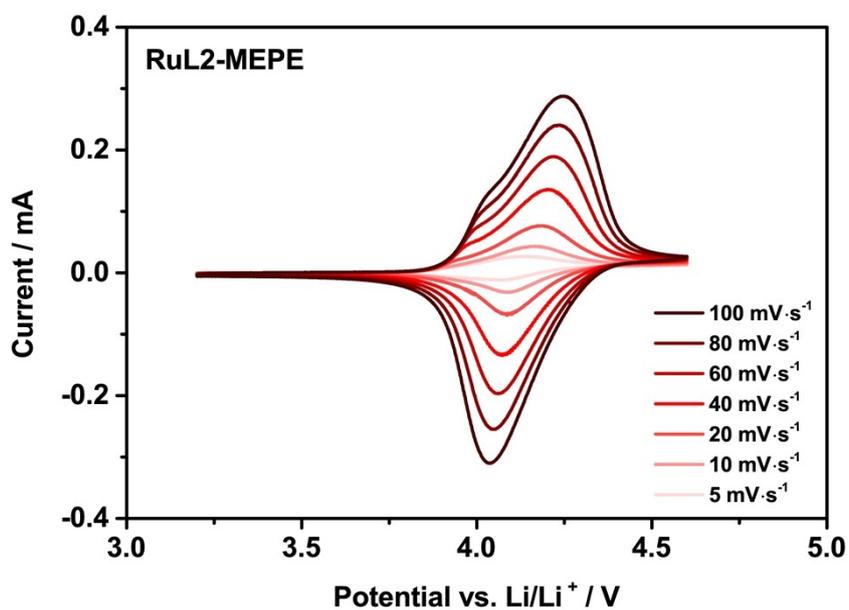


Figure S5. Cyclic voltammogram at different scan rates (from 5 to 100 mV·s⁻¹) of **RuL2-MEPE** thin film on FTO coated glass (dimension: 1 cm x 1 cm) at room temperature. Counter and reference electrode: Li. Electrolyte: 0.2 M TBAH in anhydrous DCM.

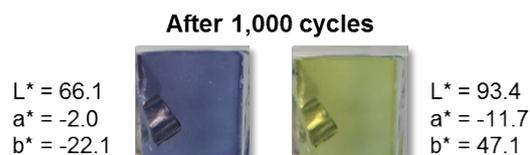
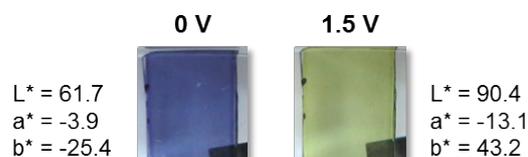
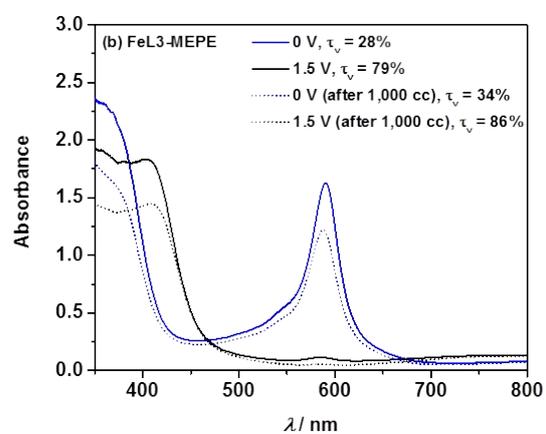
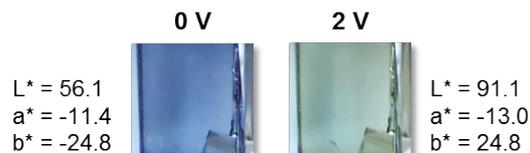
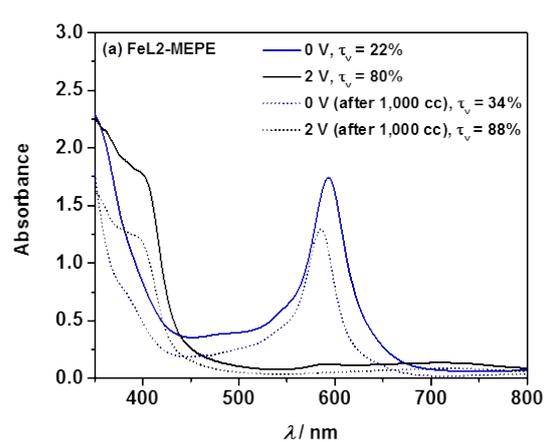


Figure S6. *In situ* spectro-electrochemical characterization of **FeL2-MEPE** (a) and **FeL3-MEPE** (b) thin films on FTO coated glass before and after 1,000 switching cycles at room temperature. Counter electrode: platinum wire. Reference electrode: none. Electrolytes: 0.2 M TBAH in anhydrous DCM (**FeL2-MEPE**) and 1 M LiClO₄ in PC (**FeL3-MEPE**).

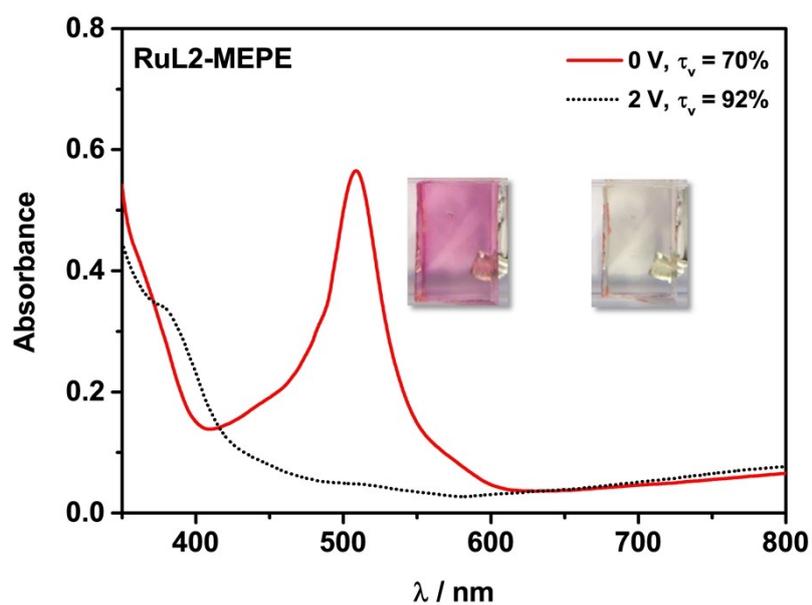
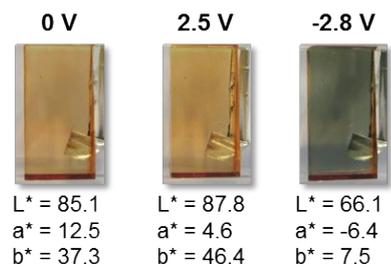
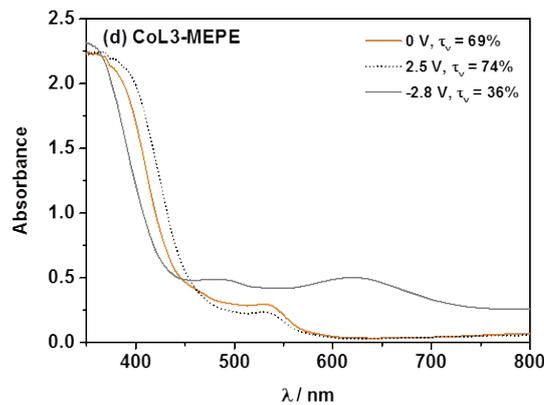
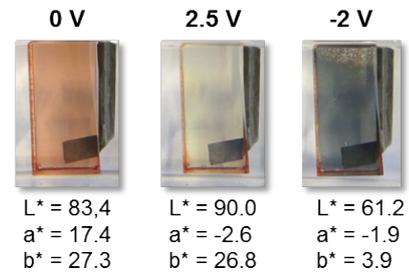
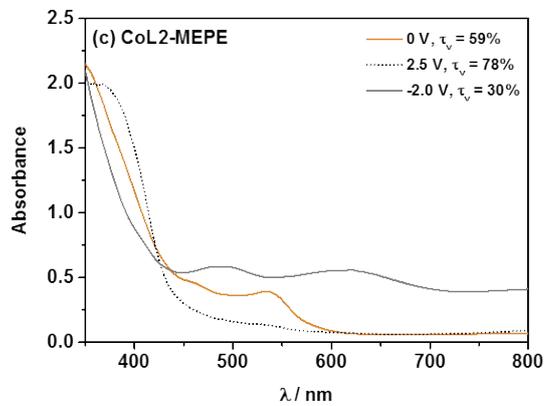
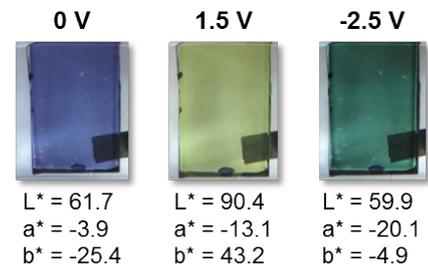
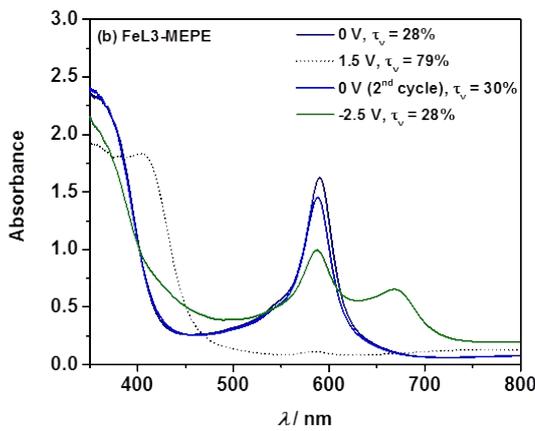
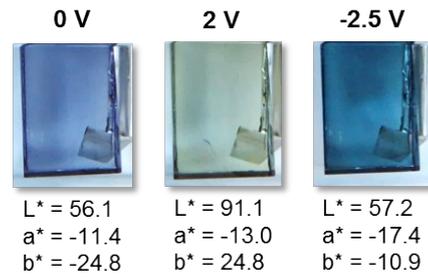
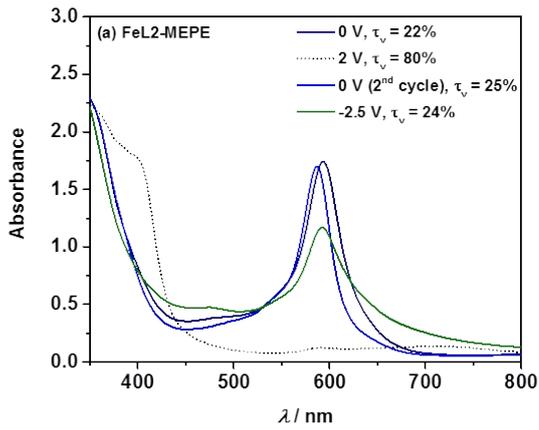


Figure S7: *In situ* spectro-electrochemical characterization of **RuL2-MEPE** thin film on FTO coated glass (dimension: 1 cm x 2.5 cm) at various applied voltages at room temperature. Counter electrode: platinum wire. Reference electrode: none. Electrolyte: 0.2 M TBAH in anhydrous DCM.



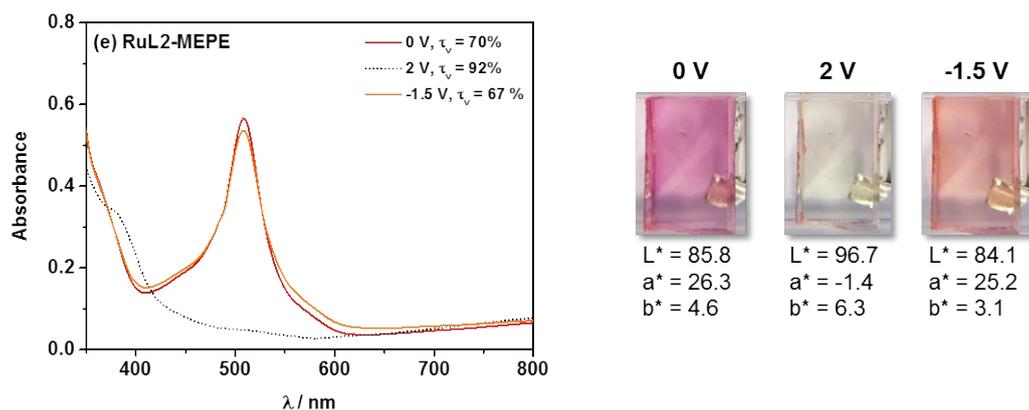


Figure S8: *In situ* spectro-electrochemical characterization of **FeL2-MEPE** (a), **FeL3-MEPE** (b), **CoL2-MEPE** (c), **CoL3-MEPE** (d), and **RuL2-MEPE** (e) thin films on FTO coated glass (dimension: 1 cm x 2.5 cm) at various applied voltages at room temperature (2-electrode setup). Counter electrode: platinum wire. Reference electrode: none. Electrolytes: 0.2 M TBAH in anhydrous DCM (**FeL2-** and **RuL2-MEPE**) and 1 M LiClO₄ in PC (**FeL3-**, **CoL2-** and **CoL3-MEPE**).

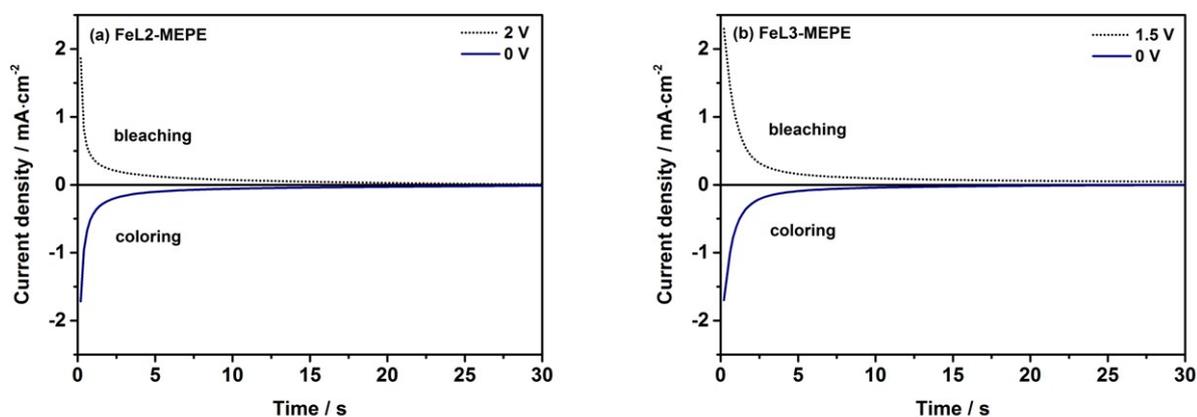


Figure S9: Bleaching/coloring times of **FeL2-MEPE** (a) and **FeL3-MEPE** (b) thin films on FTO coated glass. Counter electrode: platinum wire. Reference electrode: none. Electrolytes: 0.2 M TBAH in anhydrous DCM (**FeL2-MEPE**) and 1 M LiClO₄ in PC (**FeL3-MEPE**).

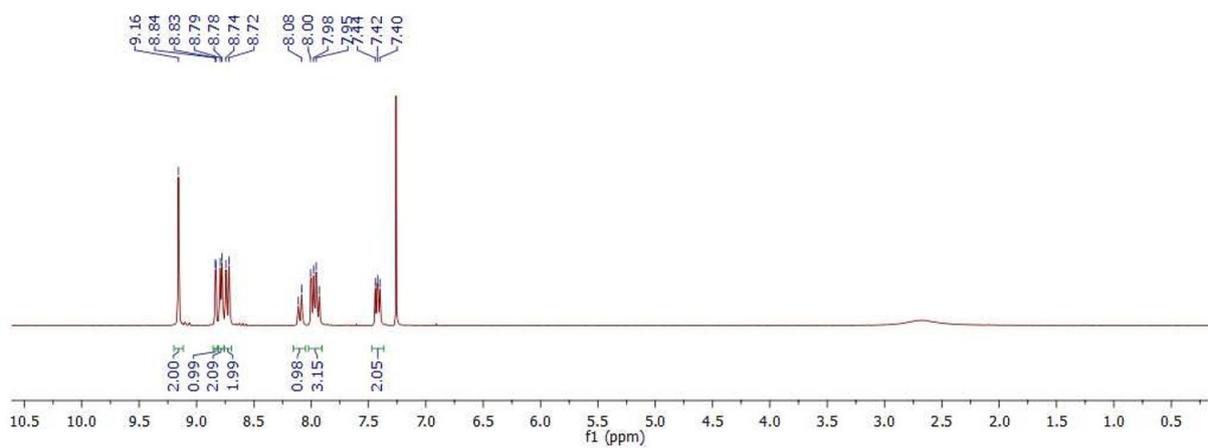


Figure S10: ^1H NMR spectrum of ligand **L1** in CDCl_3 .

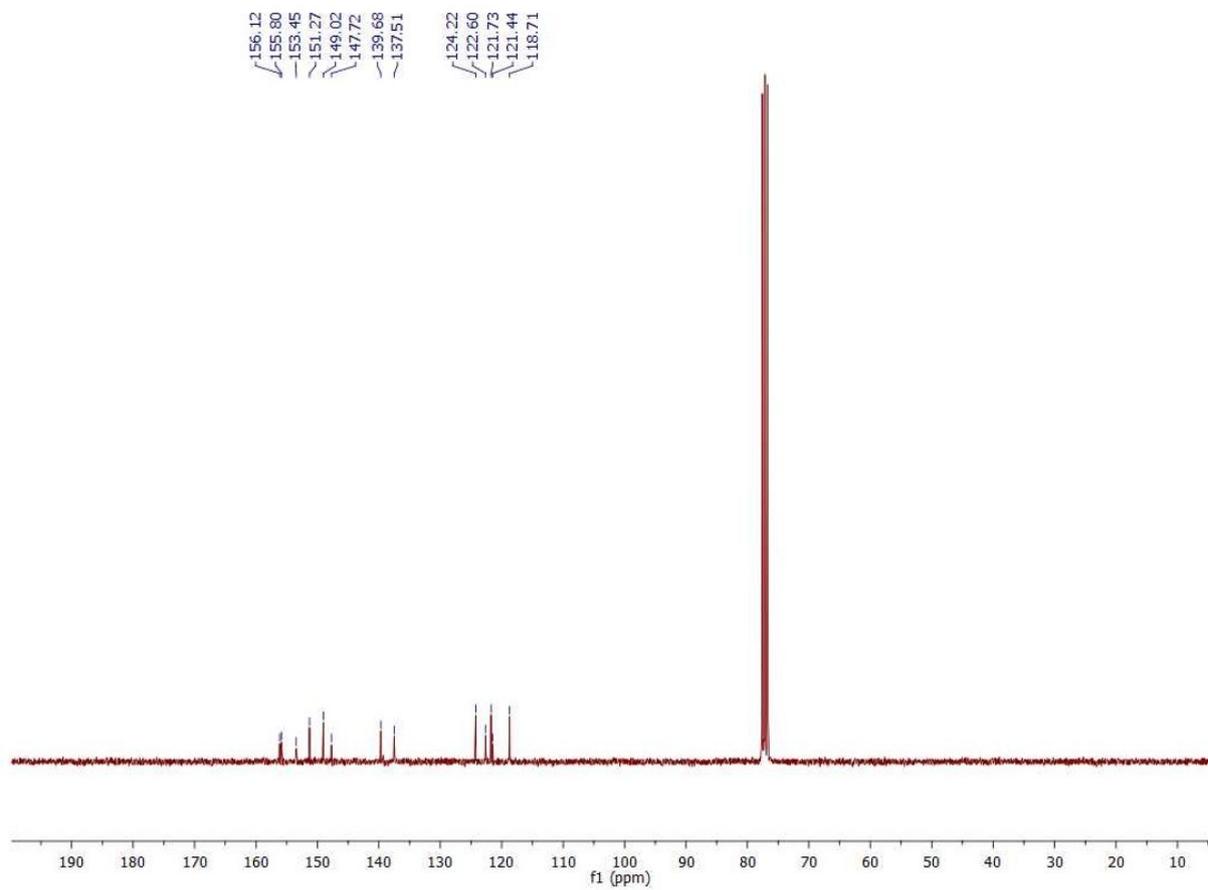


Figure S11: ^{13}C NMR spectrum of ligand **L1** in CDCl_3 .

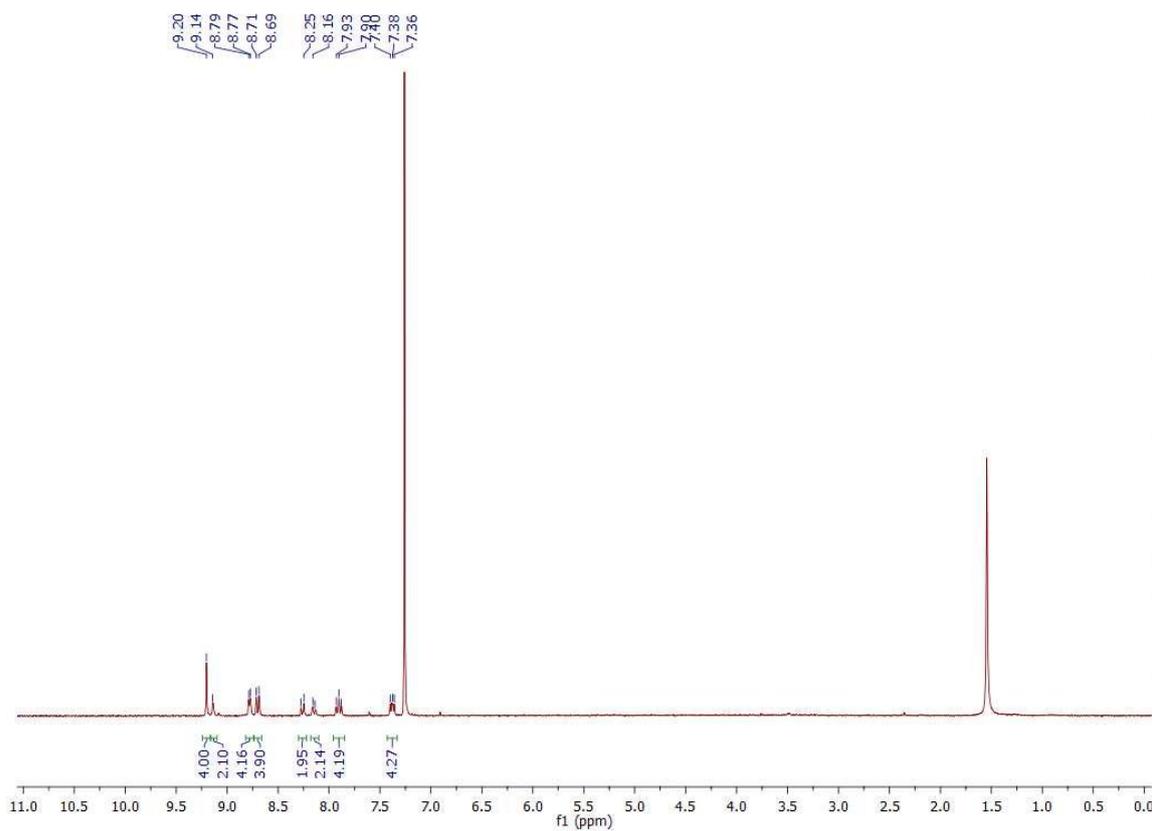


Figure S12: ^1H NMR spectrum of ligand **L2** in CDCl_3 .

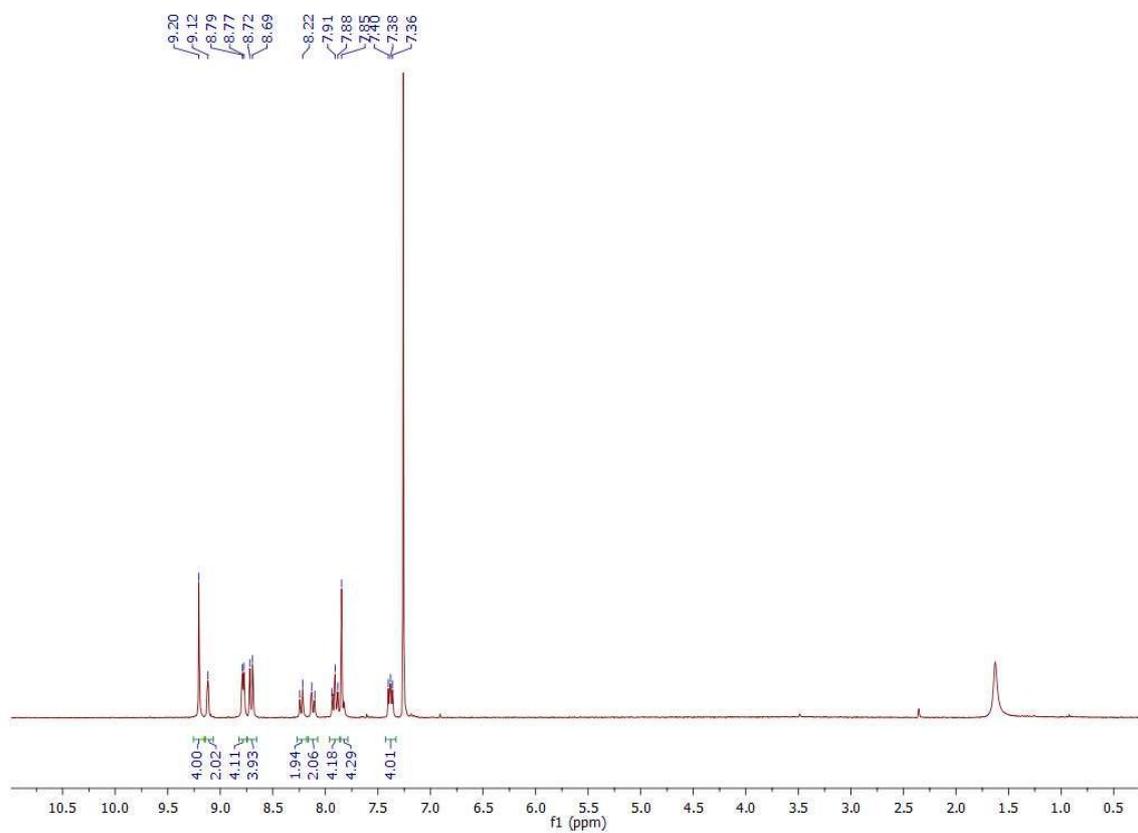


Figure S13: ^1H NMR spectrum of ligand **L3** in CDCl_3 .

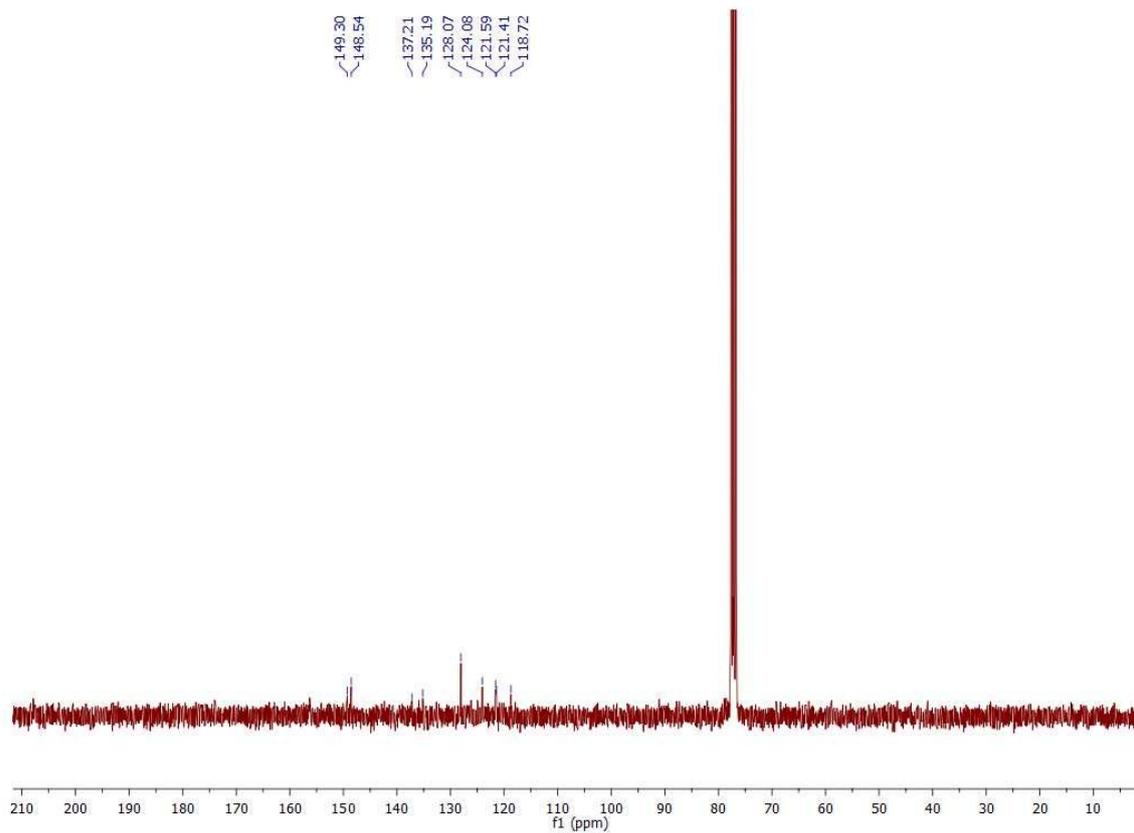


Figure S14: ^{13}C NMR spectrum of ligand L3 in CDCl_3 .