Electronic Supplementary Information

Spin-transition in $[Fe^{II}(L^5)_2][ClO_4]_2$ [L^5 = 2-[3-(2'-pyridyl)pyrazol-1-ylmethyl](1-methylimidazole)]: a further example of coexistence of features typical for disorder and cooperativity†‡

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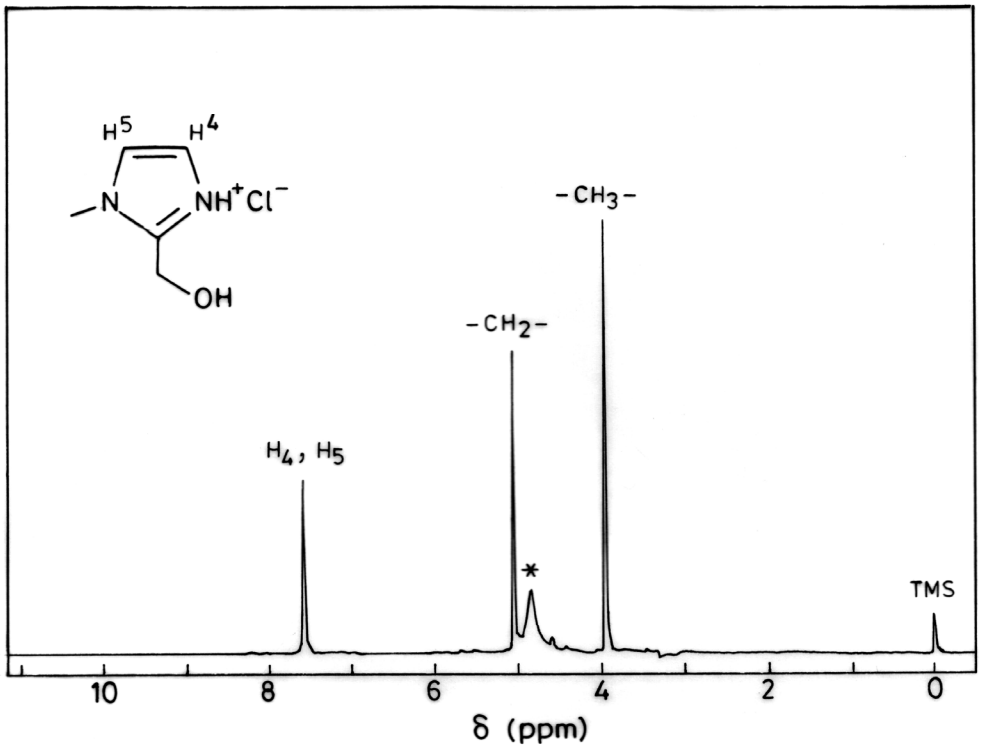


Fig. S1 ^{1}H NMR spectrum (80 MHz) of 1-methyl-2-hydroxymethylimidazole hydrochloride in D_2O at 298 K. (solvent peak is marked by *)

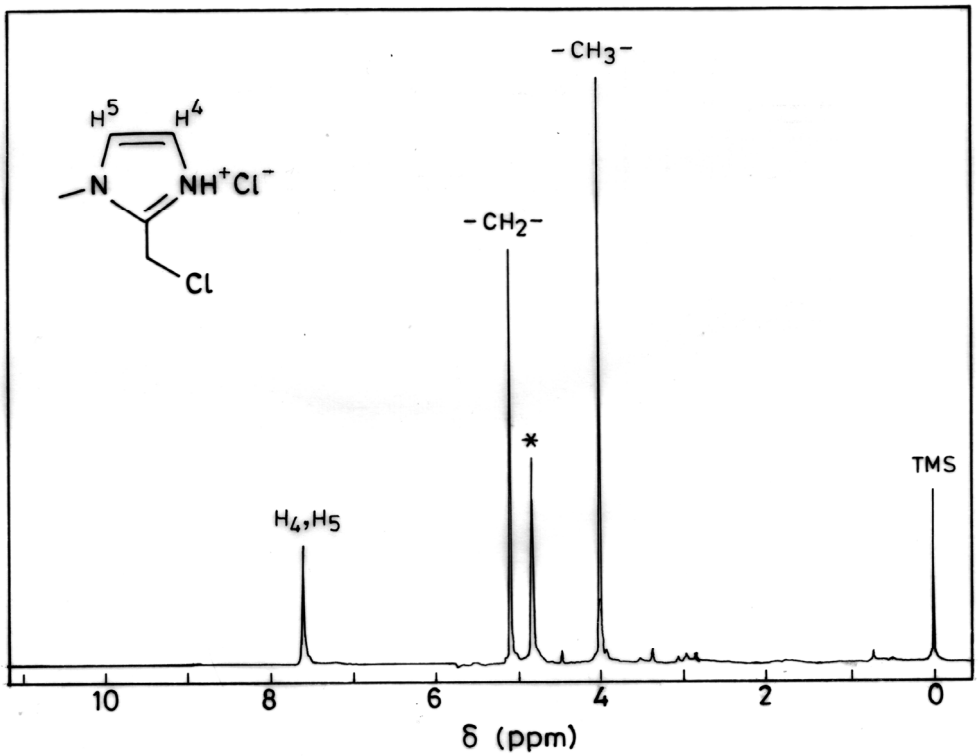


Fig. S2 ^{1}H NMR spectrum (80 MHz) of 1-methyl-2-chloromethylimidazole hydrochloride in D_2O at 298 K. (solvent peak is marked by *)

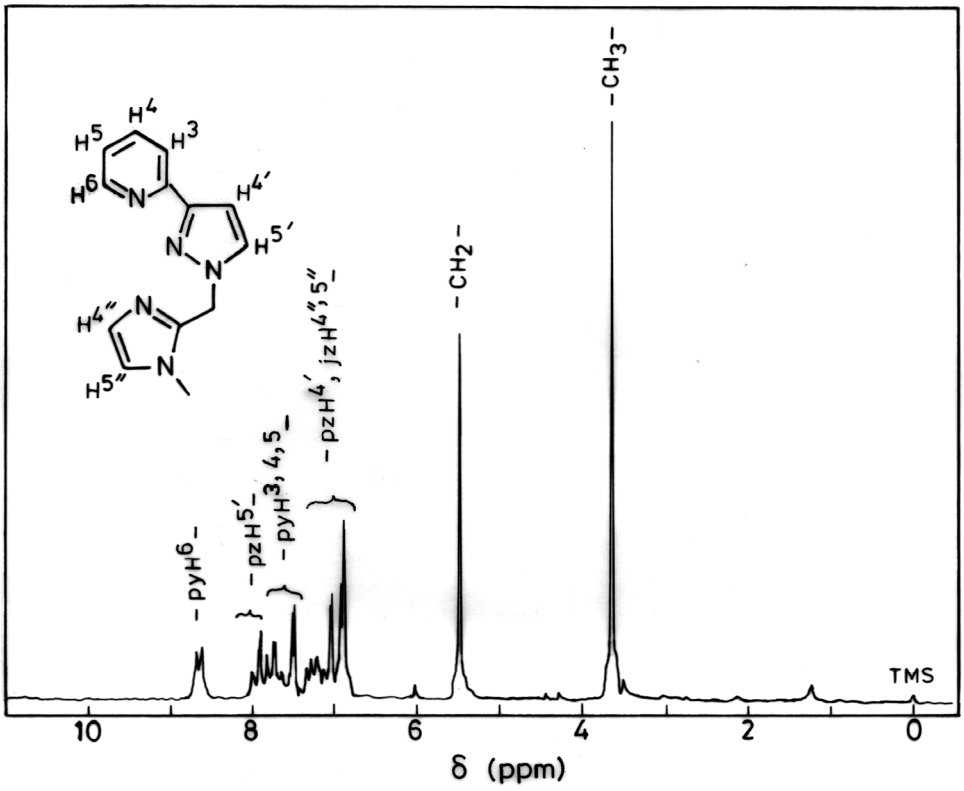


Fig. S3 ^{1}H NMR spectrum (80 MHz) of $\mathbf{L^5}$ in $CDCl_3$ at 298 K

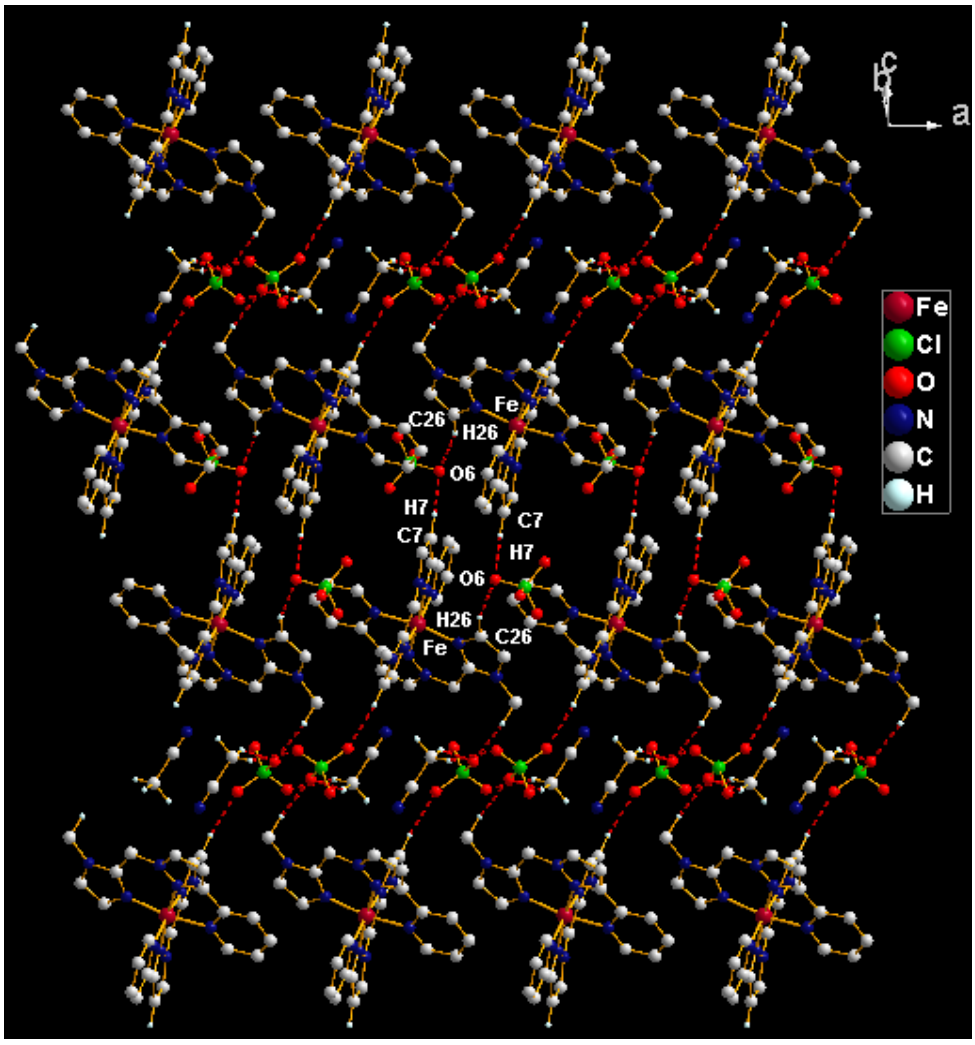


Fig. S4 A perspective view of the formation of 2D chain *via* C–H**…**O hydrogen bonding interactions in the complex **3**·CH_3CN at 100 K. All hydrogen atoms except those involved in hydrogen-bonding are excluded for clarity.

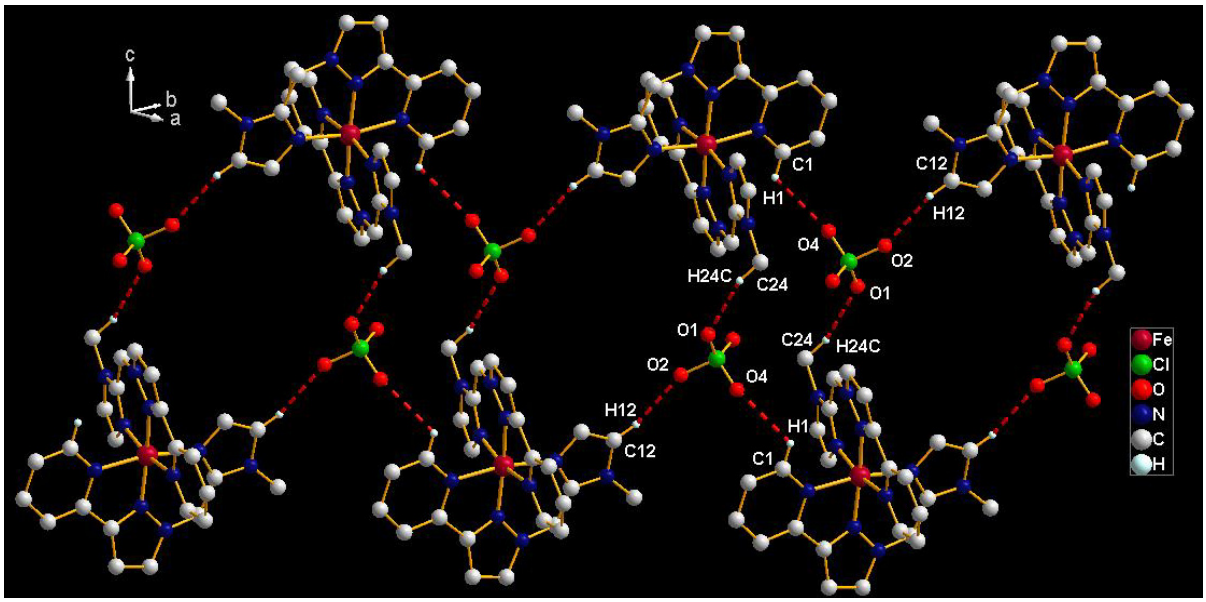


Fig. S5 A perspective view of the formation of 1D chain *via* C–H**…**O hydrogen bonding interactions in the complex **3**·CH_3CN at 298 K. All hydrogen atoms except those involved in hydrogen-bonding are excluded for clarity.

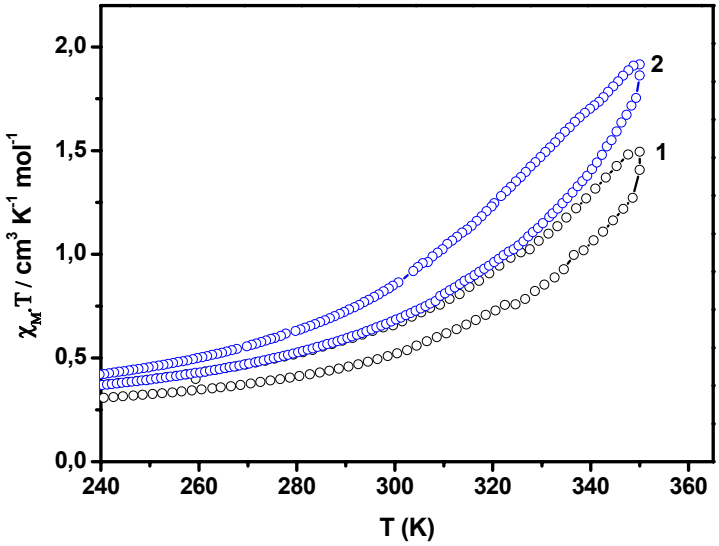
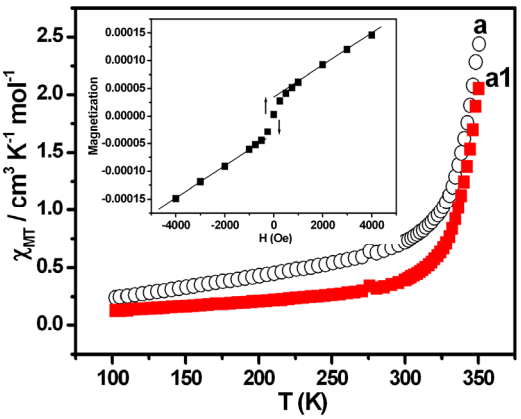


Fig. S6 Magnetic data of a fresh sample of (**3**·CH_3CN) after 3-hour ageing at 350 C under vacuum.



S7 Magnetic data of (**3**·CH_3CN) from previous investigation, evidencing oxidation of the sample. The weak linear temperature dependence below room temperature is assigned to the presence of a minor component of magnetic (ferri-/ferromagnetic) species evidenced by the *M*–*H* curve shown as an inset.

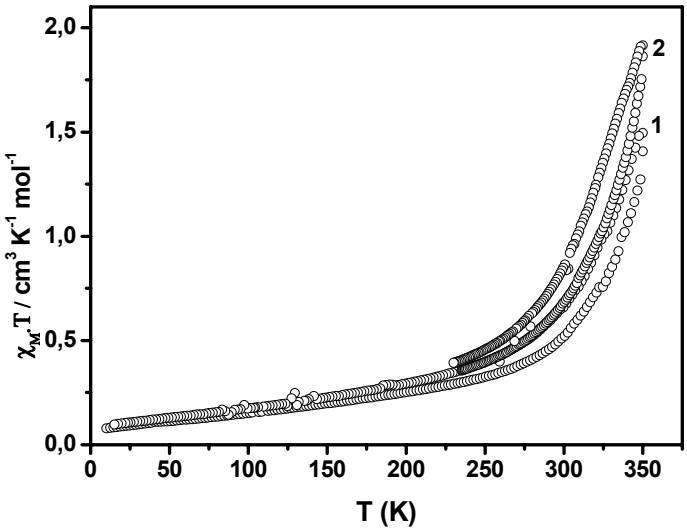


Fig. S8 Magnetic data of a fresh sample of (**3**·CH_3CN) after overnight ageing under vacuum at room-temperature.

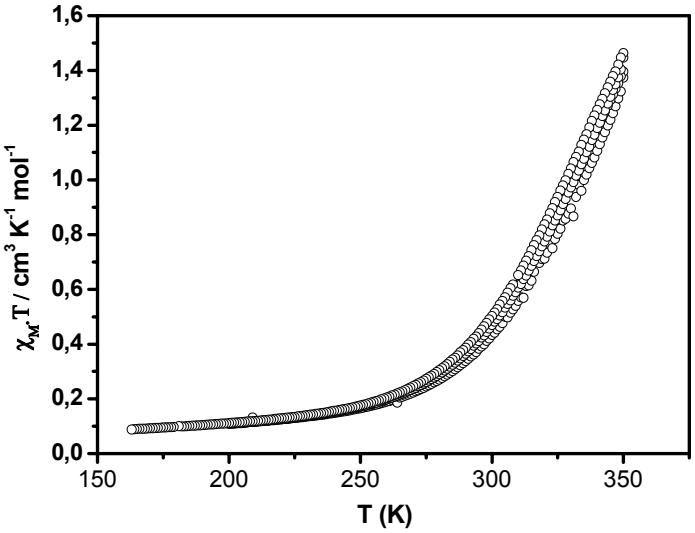


Fig. S9 Magnetic data of the non-solvated powder sample (**3**).