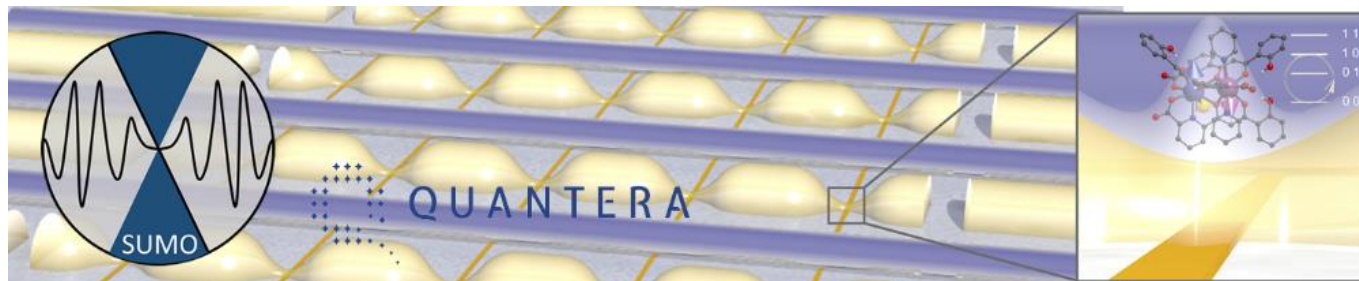


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Methodology	<p>The NMR experiments were performed by means of a home-built broadband NMR spectrometer optimized for magnetism, named 'HyReSpect' in a Maglab EXA (Oxford Instruments) 0-9T variable field superconducting cold-bore magnet equipped with a helium flow variable temperature insert. All measurements were carried out at 1.4K with reliable sample thermalization.</p> <p>The NMR spectra were recorded by exciting and detecting spin echoes by a sequence of two equal pulses of 500ns duration and power optimized for maximum signal. This condition corresponds to a nutation angle of $2\pi/3$ for each pulse.</p> <p>The spin-spin relaxation rate $1/T_2$ was measured systematically for each line in various applied fields by recording spin echoes excited by the same pulse-τ-pulse sequence as for spectra, as a function of the delay τ.</p> <p>Rabi oscillation were produced by a ϕ-π echo sequence, with the first pulse of variable duration producing a spin nutation by an angle ϕ, and a second well-calibrated π pulse refocusing the precessing spins in order to observe them after the receiver dead time ($\sim 2\mu\text{s}$). The resulting echoes were Fourier-transformed, phase-corrected and analyzed in the frequency domain by picking the spectral amplitude of the echo at a fixed frequency shift.</p> <p>The Carr-Purcell-Meiboom-Gill (CPMG) pulse sequence consists in</p>



	an initial $\pi/2$ - τ - π echo sequence, followed by a train of N-1 π pulses at times 3τ , 5τ , ..., $(2N - 1)\tau$ from the initial $\pi/2$ pulse (here times are measured from pulse centre to pulse centre).
Data processing and software needed	<u>1. NMR Data:</u> These data were processed with custom Matlab codes written for the HyReSpect spectrometer and plotted using Origin (version 8) and Matlab (2017b). Spin Hamiltonian and Rabi simulations were performed with custom Fortran90 and Matlab codes.
Access to the data	Contact Stefano Carretta at stefano.carretta@unipr.it