Supplementray data for

Room temperature sol-gel synthesis of crystalline Cs[V$_3$O$_8$]. Probing the hydration level of the interlamellar space by ^{51}V and ^{133}Cs MAS NMR spectroscopy.

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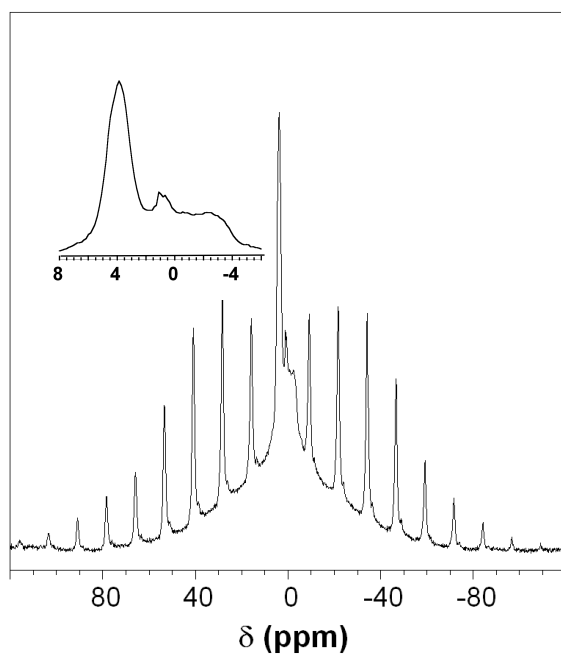.

Figure S1: ^{1}H MAS NMR spectrum of the Cs$_2$[V$_6$O$_{16}$] 0.7H$_2$O (YOP) spun at 14 kHz and with 4 transients.
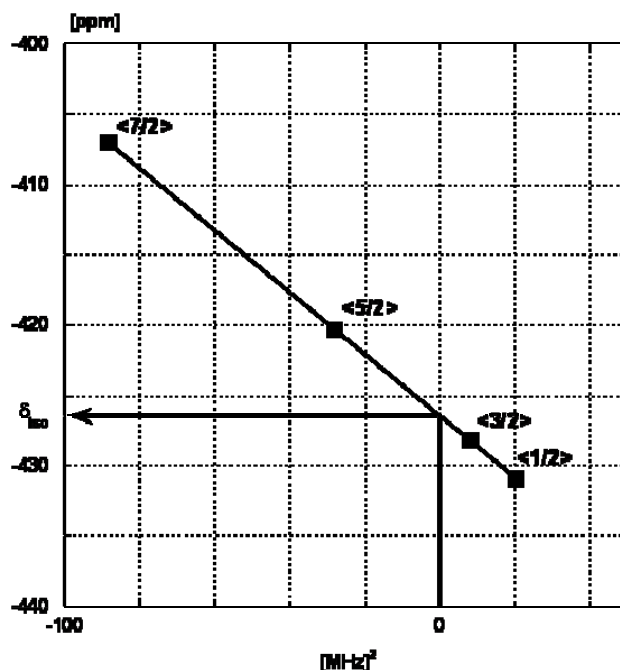
Determination of NMR parameters from the SORGE (Second-Order Graphic Extrapolation) diagram [52]

The NMR parameters for the type 3 site were further characterized by using the centre of gravity of the various ^{51}V transitions. The δ_{iso} and $\nu_Q(\eta_Q)$ values were safely determined by using the so-called Second-Order Graphic Extrapolation or SORGE diagram. $\nu_Q(\eta_Q)$ corresponds to $\nu_Q\left(1+\dfrac{\eta_Q^2}{3}\right)^{1/2}$ with $\nu_Q = \dfrac{3}{2I(2I-1)}C_Q$. It can be shown that the centre of gravity of the various transitions $<\pm m, \pm m-1>$, $\delta_{CG}^{<m>}$, δ_{iso} and $\nu_Q(\eta_Q)$ can be related by the following equation:

$$\delta_{CG}^{<m>} = \delta_{iso} - [\nu_Q(\eta_Q)]^2 \frac{[I(I+1)-3-9m(m-1)]10^6}{30\nu_0^2}$$

The experimental values of $\delta_{CG}^{<m>}$ for m =1/2, 3/2, 5/2 and 7/2 are plotted versus $\dfrac{[I(I+1)-3-9m(m-1)]10^6}{30\nu_0^2}$. The slope gives $[\nu_Q(\eta_Q)]^2$ and for "an infinite field", one derives $\delta_{iso.}$

SORGE diagram

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[52] D. Massiot, D. Müller, T. Hubert, M. Schneider, A. P. M. Kentgens, B. Coté, J. P. Coutures, W. Gessner, *Solid State Nucl. Magn. Reson.* **1995**, *5*, 175-180.