

**Electronic Supplementary Information**  
**For**  
**Extra-Framework Aluminum Species in Hydrated Faujasite**  
**Zeolite as Investigated by Two-Dimensional Solid-State**  
**NMR Spectroscopy and Theoretical Calculations**

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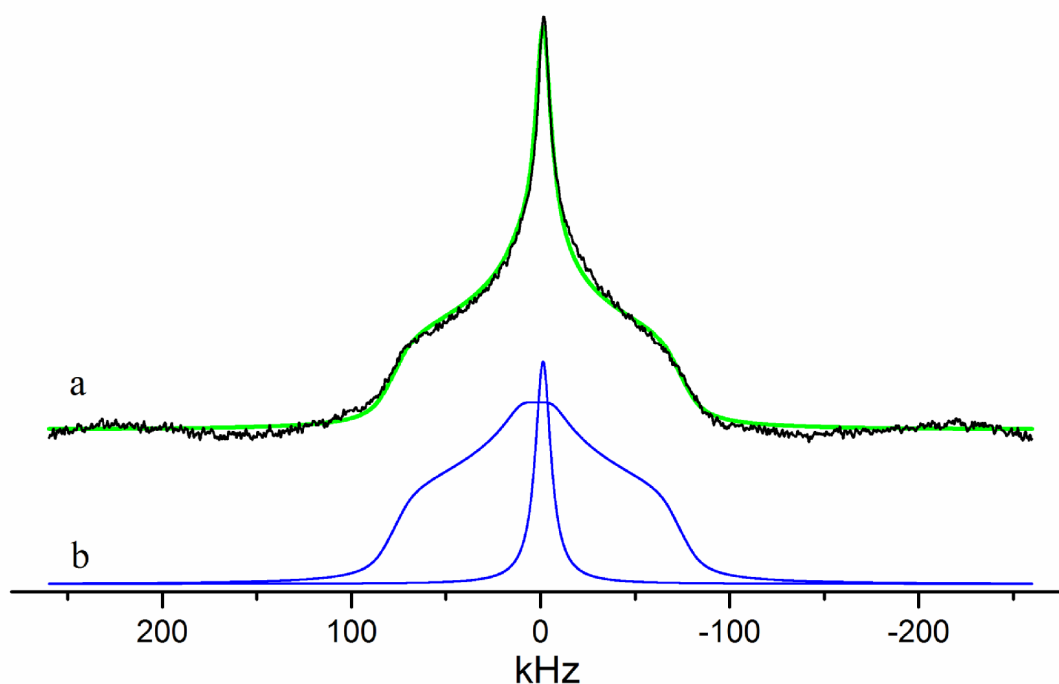


Fig. S1: Static  $^2\text{H}$  NMR spectrum of dealuminated HY zeolite with a deuteroxide loading of 30  $\text{D}_2\text{O}/\text{u.c.}$  (a) experimental and simulated spectra, (b) two components used in the spectral simulation.

### Experimental details of $^2\text{H}$ NMR

Static  $^2\text{H}$  NMR experiments were performed on a Varian Infinityplus-400 spectrometer equipped with a triple-resonance 7.5 mm probe. A solid echo pulse sequence [ $\pi/2 - \tau - \pi/2 - \tau - \text{acquire}$ ] was used to acquire static  $^2\text{H}$  NMR spectra, in which echo delay,  $\pi/2$  pulse length and recycle delay were 42  $\mu\text{s}$ , 6  $\mu\text{s}$  and 1s, respectively. Deconvolution of the  $^2\text{H}$  NMR spectrum was conducted using DMFIT software.