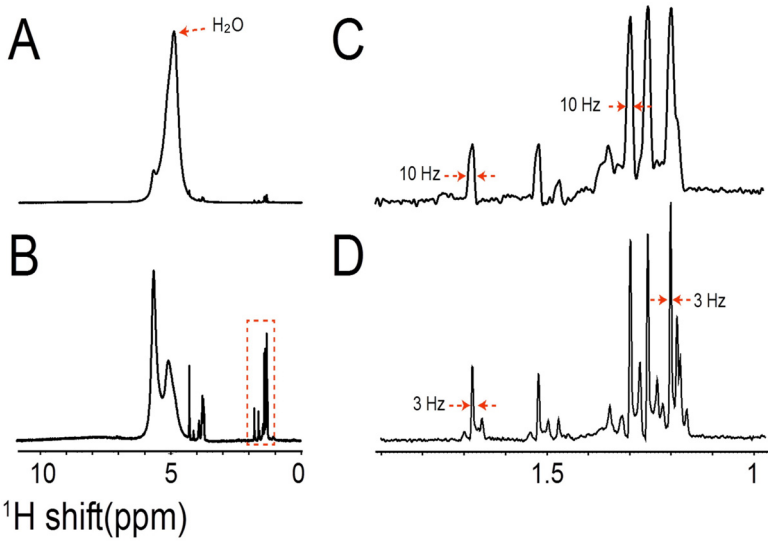
4 Channel
H-F/X/Y/Z MAS Probe

Doty Quad-Fast-MAS H-F/X/Y/Z HR-Solids

500 MHz, NB, H/X/Y/Z
3 mm MAS Probe with
3 Broadband Channels

- True solids quad resonance
- High resolution – 3 Hz ^{1}H
- ^{2}H high-power decoupling
- Broadband H/X/Y/Z
- Fast-MAS 3mm (1.3 mm coming)
- Widest VT range
- NB or WB, all fields
- Four efficient channels
- Fast, efficient MAG coil (option)
- To 1300 MHz (coming)
- Minimal backgrounds

500 MHz Proton Detected ^{1}H NMR of Protein GB1.



(A) Simple ^{2}H decoupled (10 kHz cw) ^{1}H spectrum. The peak at 5 ppm is residual water signal.

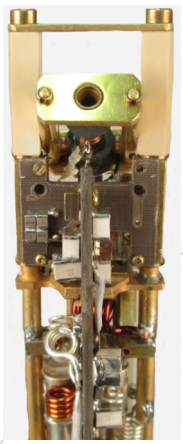
(B) Same as A, but water suppressed.

(C) & (D) The expanded region (red box in B) for methyl protons without and with ^{2}H decoupling, respectively. Linewidths at half maximum are shown in Hz. (*Note the major linewidth reduction from 10-kHz ^{2}H decoupling.)*

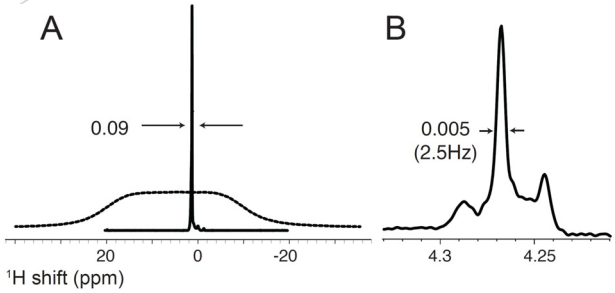
Bibhuti Das and Paul Ellis, Doty Scientific, Inc., and Professor Leonard Mueller, Univ. of CA Riverside.

Acknowledgement:
NIH R43GM117905

H-F/X/Y/Z MAS Applications



Quad-Fast-MAS H-F/X/Y/Z ^{1}H NMR using a novel line narrowing CRAMPS pulse sequence



500 MHz Proton Detected ^{1}H NMR of Adamantane and Protein GB1.

(A) Adamantane ^{1}H spectrum recorded with only 10 kHz MAS (solid line) and non-spin condition (dotted).

(B) ^{2}H decoupled ^{1}H spectrum from 100% back exchanged ^{2}H, ^{13}C, ^{15}N labeled microcrystalline protein GB1.

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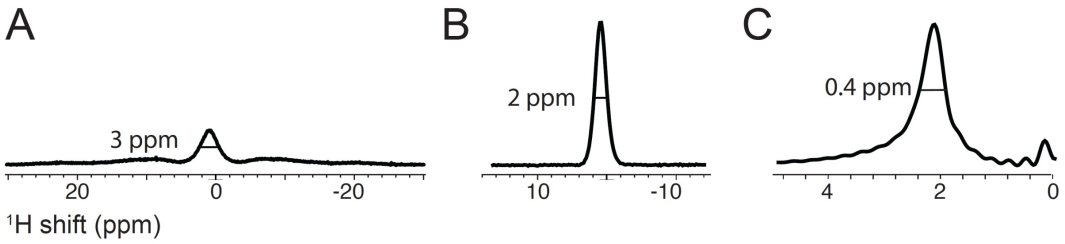
Fast-MAS H-F/X/Y/Z ^{1}H NMR of HMB At 50 kHz MAS



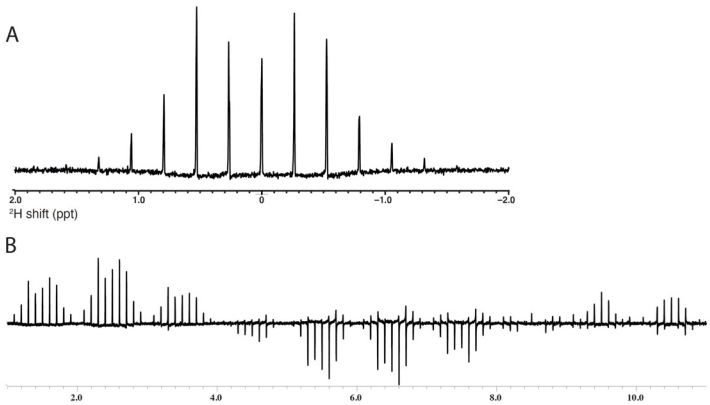
(A) 10 kHz MAS

(B) 50 kHz MAS

(C) 50 kHz MAS and windowed acquisition (wPMLG3).

^{1}H spectra of HMB at 500 MHz (1mm sample).

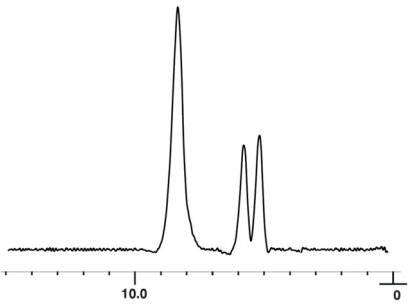
^{2}H Spectra of 98% Deuterated Proline Powder.



(A) ^{2}H spectrum was recorded under 20 kHz MAS using a 3 mm Doty H-F/X/Y/Z probe and five small tip angle (22.5 degree each) RESPIRATION pulses.

(B) ^{2}H nutation for 300 Watt RESPIRATION pulses.

^{1}H Spectrum of Glycine



^{1}H spectrum was recorded with 13.7 kHz MAS using a 3 mm Doty H-F/X/Y/Z probe.

Acknowledgement: NIH R43GM117905