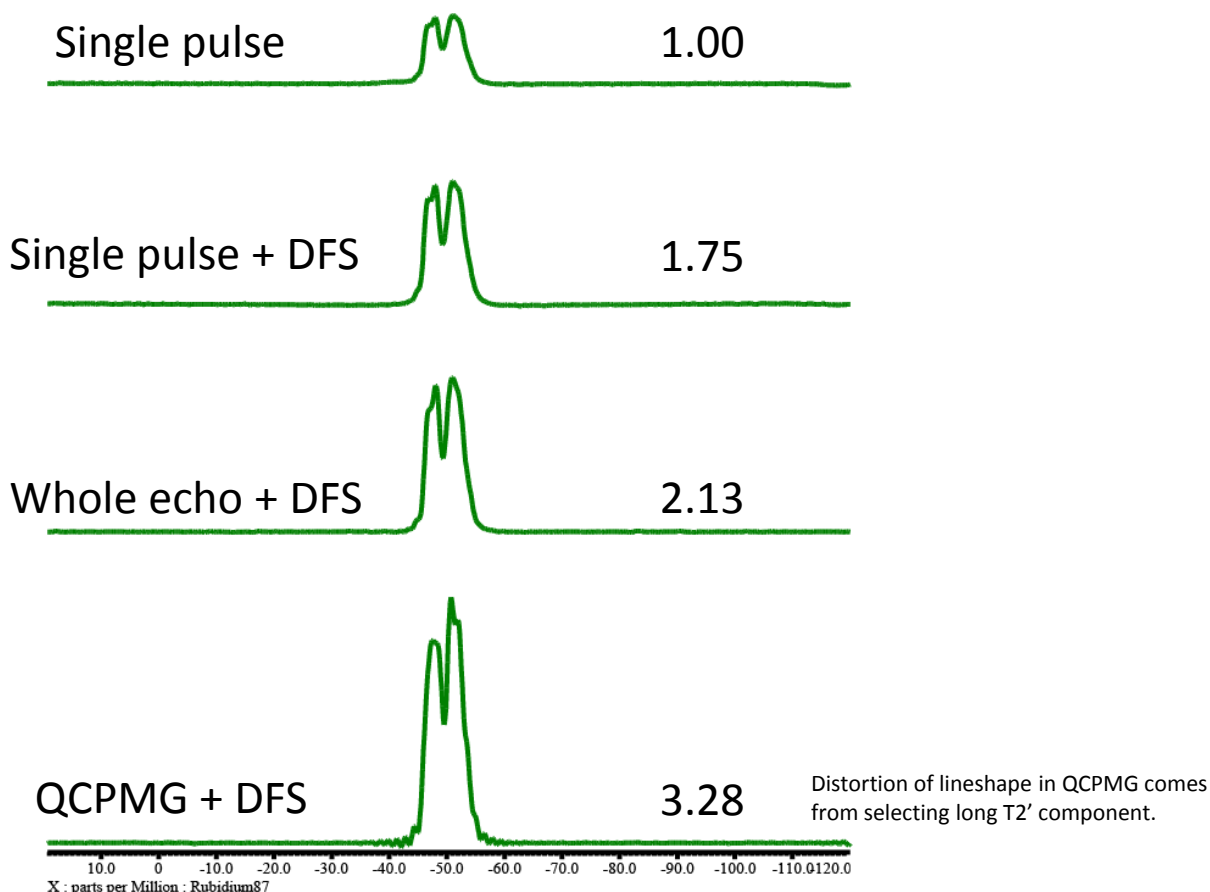


Sensitivity enhancement of half-integer quadrupolar nuclei: QCPMG

CPMG experiment allows to acquire multiple echoes, giving sensitivity enhancement for $\frac{1}{2}$ -spin nuclei. This is also true for central transition (CT) resonances of half-integer quadrupolar nuclei in QCPMG. The inversion pulses for CT are achieved by applying a weak rf-field $\nu_1 \ll \nu_q$. QCPMG can also be combined with DFS and RAPT pulse sequences for additional sensitivity enhancement. The DFS gives 1.75-fold enhancement for RbNO_3 . This factor may further be improved to 2.13 by the whole-echo acquisition with DFS. Finally, the combination of DFS and QCPMG results in 3.28-fold enhancement. While all the spectra were obtained with the same digital resolution, i.e. acquisition time was doubled in the echo experiments, shorter acquisition time ensures much large enhancement factor, sacrificing the resolution.



^{87}Rb spectra of RbNO_3 were collected on a JNM-ECA600 with 3.2 mm HXMAS probe.

F.H. Larsen, H.J. Jakobsen, P.D. Ellis, N.C. Nielsen, J. Phys. Chem. A101 (1997) 8597-9606.