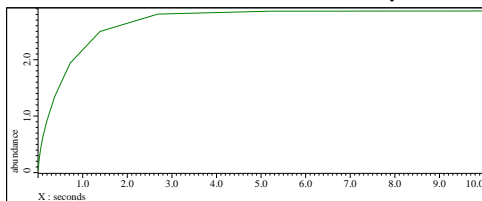


Finding a best repetition time

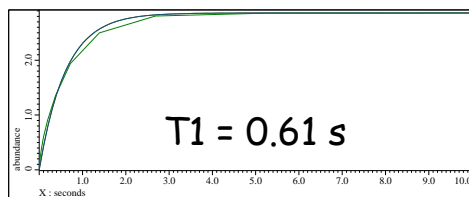
Repetition delay, which is duration between succeeding scans, are required in NMR measurements to recover longitudinal magnetization. If the relaxation behaves single exponential, the signal to noise ratio is maximized when the repetition delay is 1.26 times the T_1 relaxation time. However, this is not always the case, and relaxation can behave differently. Delta provides a simple and efficient way to find optimal repetition delay. Just apply an inverse square root function to saturation recovery curve. This procedure gives SNR per unit time and then you can easily find the optimal repetition time from the saturation recovery curve without any curve fitting!

Standard Procedure

Saturation recovery



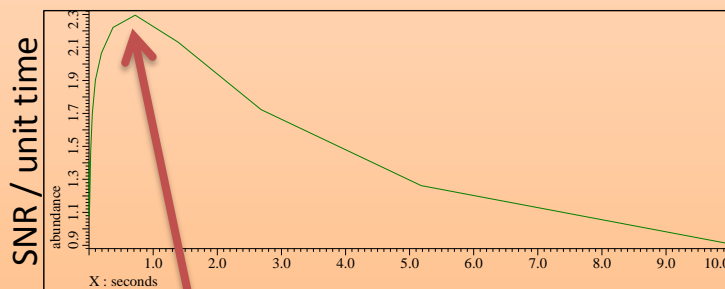
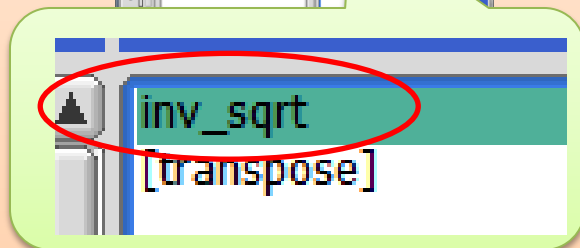
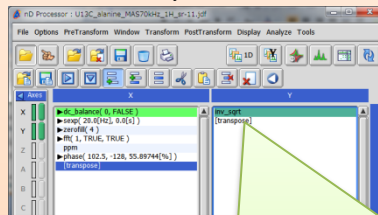
Curve fitting



Optimal repetition delay is $0.61 \times 1.26 = 0.77 \text{ s}$

New Procedure

Just add "inv_sqrt" function.



Optimal repetition delay is 0.77 s

Y.-Q. Ye, M. Malon, C. Martineau, F. Taulelle, Y. Nishiyama, J. Magn. Reson. 239 (2014) 75-80.