NMR Time Course

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Special Note:

This experiment involves setting acquisition parameters that could potentially damage the probe. Please do not attempt to set up this experiment without first walking through it with Justin or Sarah.

What is an NMR Time Course?

An NMR time course is a series of experiments run sequentially. There can be a fixed or variable delay between experiments. A time course is useful for monitoring the kinetics of a reaction by NMR. Be aware that there will always be a delay between when you insert a sample into the spectrometer and when you can start your time course. This delay accounts for time spent lock, shimming, creating a dataset and setting the receiver gain.

How to set up a Time Course:

1. Load your sample into the spectrometer. Create a new dataset. Lock and shim. Set the receiver gain with the command “rga”.

2. Type the command “expt” to determine the experiment time. This time defines the shortest time difference you can detect. Adjust the number of scans using the command “ns” to control the experiment time.

3. Type the command “multi_zgvd”. Enter “f” for a fixed delay in the first popup. Enter the number of seconds for the delay in the second popup. Enter the total number of experiments in the third popup. The total time will equal the experiment time plus the delay times the total number of experiments.

If you want a variable delay between experiments you will need to add this time (in seconds) into a text file stored in $TOPSPINHOME/exp/stan/nmr/lists/vd/. This file is called a vdlist and can be accessed from topspin using the command “vdlist”. Enter “v” in the first popup to choose a variable delay.

Data will be stored in increasing experiment numbers.

4. When the experiment is finished process the first spectrum and make sure the phase is correct. Use the command “multiefp” to process the entire time course.