

Simple Water Suppression using PRESAT on the Varian

All written in **bold type** is direct input at the command prompt or a standard VNMR button
The presat water suppression experiment can be performed on the both the INOVA and Unity spectrometers but not the Mercury.

- Type **jexp1** (join experiment #1). Do not do this experiment in experiment 5.
- Insert your sample into the magnet in the usual fashion. Choose the nucleus and solvent and type **su**. You may spin the sample, but spinning is not necessary.
- Set the temperature to 20°C:
 - Type **temp=20 su** in the input window. If this does not work do the next step.
 - Type **temp**. In the Temperature Control Window select the ‘Turn temperature control on at ...’ radio button and use the slider bar to select the desired temperature.
- Lock the sample.
- Shim the sample. Since the shimming must be excellent, you should consider gradient shimming your sample (not applicable to the Unity). If you don’t know how ask a staff member for assistance or download our gradient-shimming outline.
- Run a normal 1D proton spectrum then choose the desired spectral width using the cursors and pressing the [**Expand**] button. Type **movesw au** and then wait for the experiment to complete. Make sure the shimming is good. If not, keep shimming.
- Type **presat**. This will set up the parameters for the PRESAT pulse sequence.
- Using the mouse, set the saturation frequency (satfrq) on the water peak you would like to suppress. Then do the following:
 - Type **dn='H1'** This sets the decoupler nucleus to proton
 - Type **sd** This sets the decoupler frequency to the cursor position.
 - Type **satfrq=dof** This sets the saturation frequency equal to the decoupler offset.
 - Type **satdly=5** Sets the saturation delay to 5 seconds
 - Type **satpwr=-15** Sets the saturation ‘power’ to -15db
- Verify that the ‘target’ peak is saturated (suppressed). Type **nt=1 au**. If the peak has been sufficiently suppressed, type **nt=16** (or whatever value you feel is necessary. 256 to 512 transients may be necessary, but remember, this will require a correspondingly longer period of time) **au**. Type **time** to view the experimental time.
- If the peak has not been sufficiently suppressed, increase the saturation power by typing **satpwr=-13 au**. Repeat as necessary until the peak is suppressed, but never increase the satpwr parameter over +15. Doing so will damage the probe.
- Once the acquisition has completed, phase and process the spectrum as usual.