INITIALIZING THE INSTRUMENT:

- Turn on the computer. When prompted type the password **cary50.**
- Turn on the instrument power switch located on its left front corner. The lamp should be allowed to warm up for at least 15 minutes before running the instrument.
- Start the software by double-clicking on the **SCAN** icon on the desktop.
- Once the instrument is initialized, the screen should have the **Start** and **Stop** buttons at the top center. If **Connect** appears in place of **Start**, press **Connect** in order bring the instrument online.

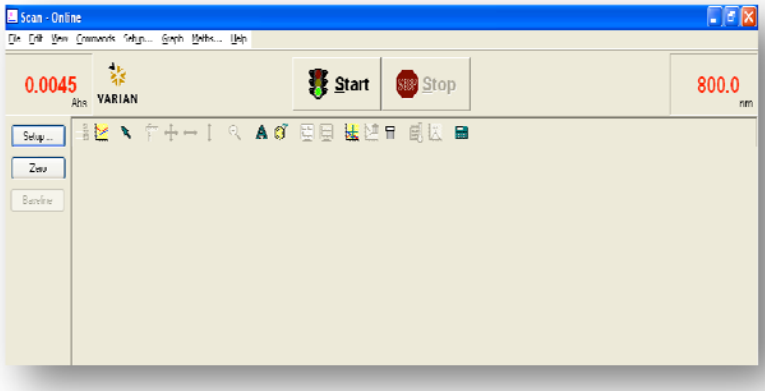

Figure 1. Scan Toolbar.

SETTING UP THE EXPERIMENT:

- Press the **Setup** button a dialog box with several tabs will appear.
- On the **Cary** tab, enter in your wavelength units and range (the instrument scans from *high to low* wavelengths), **y range** units and values (the program will autoscale, so these numbers aren't crucial), **average time** (like an integration time, longer values give higher signals), and **data interval** (how closely spaced are your data points, smaller intervals give larger data files). Select **Cycle** if you want to run multiple scans of the same sample.
- On the **Options** tab, enter in the **SBW** (bandwidth, which is usually good to leave at 2 nm unless you're looking for fine structure in your spectrum) and **lamp crossover** wavelength (leave at 350 nm unless expecting important features in the spectrum at that wavelength, and then only move it no more than 10 nm one way or the other).
- On the **Baseline** tab, select **Baseline Correction** if doing a scan with a dilute sample, as the baseline and lamp switching will have a negative effect on the spectrum.

- On the **Reports** tab, enter **Operator Name**. To automatically label peaks on the spectrum, select **Maximum Peak** or **All Peaks** options. The peak threshold limit and labeling options are altered by pressing the **Peak Information** button.
- On the **Auto Storage** tab, select whether to save the scans before or after a run. Selecting after the run (not the default choice) will avoid saving bad data.

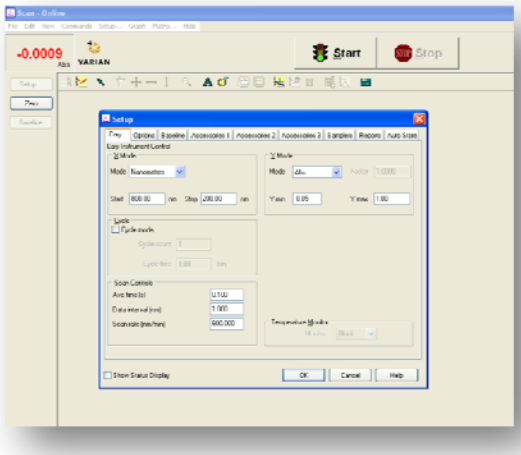

Figure 2. Set up Dialog Box.

PELTIER TEMPERATURE CONTROL:

- The single cell temperature control accessory is controlled directly from the peltier keypad. In order to set up the desired temperature simply set the temperature, make sure the correct window is installed and the water pump turned on. In order to stir the solution inside the cuvette use the small stir bar in the accessory box.

DATA COLLECTION:

- If running a baseline, insert a blank solvent cuvette in both the reference (rear) and sample (front) cell holders. Press the **Zero** button, then the **Baseline** button to run the baseline. Upon completion of the scan, press the autoscale **Y** button (_) to see the baseline. A red baseline should appear in the number box at the upper left corner of the screen, indicating a valid baseline is in memory.
- Place your sample in the sample cell holder and press the **Start** button. You will be asked for a sample name (other than the file name), then the spectrum will start running. Again, **autoscale** the spectrum if it goes offscale. Once the run is completed, a save file box will be presented to allow naming the file. Any peak information will be printed in the report box (the bottom half underneath the plot).
- Text can be added to the plot by pressing the **A** button. When running multiple scans in one session, pressing the traces button (the farthest left button in the toolbar) to select

individual data sets can be selected and made visible in the current plot. Please note that all data plots (including any baselines) are still accessible through the 'Graph' menu, and all will be printed out when printing the data. In order to omit any data set, right click on the graph with that data and select **Remove Graph**.

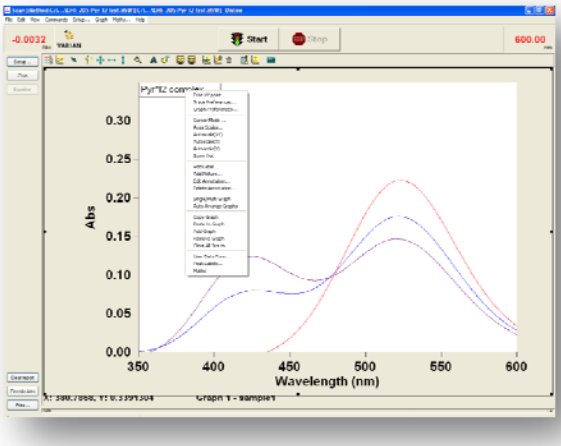

Figure 3. Right Click Menu.

- In order to manually mark a certain point on a spectrum, right click at that point and select **Print x-y Point**. The coordinates will be printed in the report window. Text can be added or changed in the report window by selecting **Edit Report** on the **Edit** menu and manipulating the text as needed. Double clicking on the report window will allow to expand it to full size.
- To save the session as-is, including the report window contents and alterations made to the scans, select **Save Data As**… from the **File** menu and enter the name for the *batch file*. In order to export some of the data for use in other programs, click on the graph of that data, select **Save Data As**…from the **File** menu, and select **Spreadsheet ascii (*.CSV)** from the **Save Files As** box.

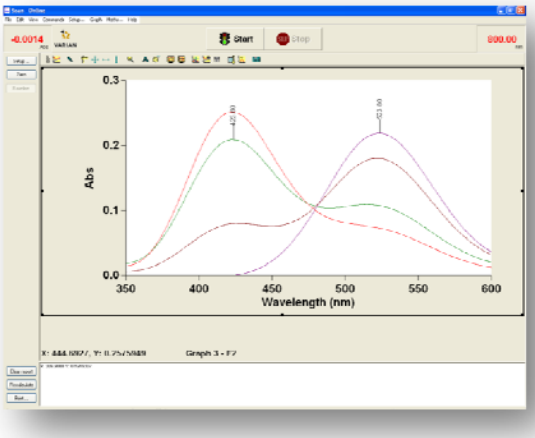

Figure 4. Peak Labels.

MICROPLATE READER:

- A fiber optic coupler is available and allows connection of a fiber optic probe to the microplate reader.
- The sample holder must be switched and the fiber optic cable connected.
- Open the **microplate** reader and proceed to mark the individual cells in the clear bottom plate used as standards, samples, controls etc.
- Proceed to set up the experiment and collect data in the same fashion as Scan software.

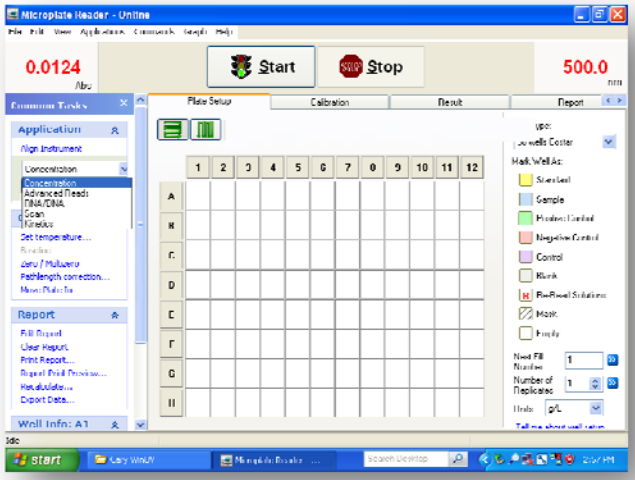

Figure 5. Microplate Reader.

SHUT OFF:

- Close the **SCAN** software.
- Make sure cuvette holders are empty and any spills are cleaned up. Turn off the instrument and the computer.