Before Lab: Read the textbook section on oscillators, pp 1276-1285. Draw the schematic of a High Frequency Oscillator that tunes from 50 to 100 MHz. Calculate how much the capacitance in the tuned circuit needs to change to tune over an octave.

Lab 2 Task for the week of April 29 to May 3 2013. Power up the POS-100 VCO and observe the output on an Oscilloscope and Spectrum analyzer. Tune the frequency using a variable voltage on the VCO pin. Measure kVCO at 52 MHz and 92 MHz.

In the Lab week 5 April 29 - May 3

Connect the POS-100 using BNC clip lead cables to the oscilloscope and spectrum analyzer, with 50 ohm terminations. Connect a variable power supply to the VCO input and observe the frequency versus voltage curve. Then connect the VCO output to the SBL-1 LO input from Lab 1, and a signal generator to the RF input. Observe downconversion of the RF signal to within your IF filter passband.

Capture a screen shot of the measured output waveform and spectrum. Have the Lab TA check off the simulation and measurement by Wednesday May 1.

In the Lab week 2
As discussed in class, float the IF output of the SBL-1 mixer, and set the voltage using a voltage divider to several volts. Connect the IF output of the SBL-1 to the VCO input of the POS-100 to make a simple first order phase locked loop. Tune the signal generator connected to the RF port of the SBL-1 slowly through the POS-1 frequency, and observe lock. Capture waveforms on the screen.

Lab 1 Progress Report Due April 24:
Include Block Diagrams showing all of your lab setups, the schematic of the inside of the SBL-1 and your Low-Pass filter design, screen shots of your LTspice simulations of the SBL-1 as a frequency mixer and phase detector. This first lab report will be graded and commented, and you will need all of this information to proceed with the second lab.