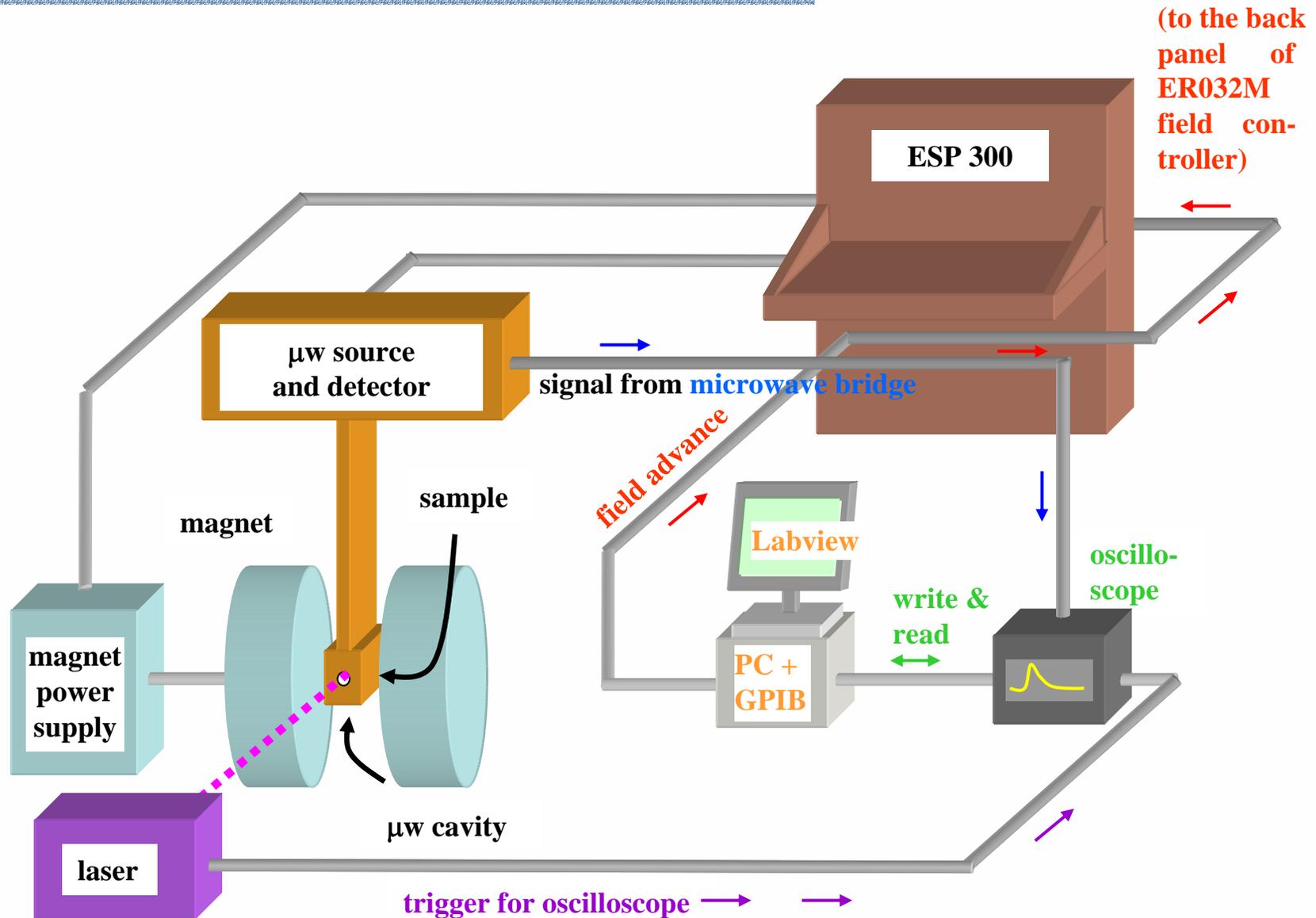

Instructions on how to set up and perform 2D-TR-EPR measurements on ESP 300

Elena Sartori 6/5/2006

2D-TR-EPR Instrumental set-up

ESP 300



2D-TR-EPR Instrumental set-up

ESP 300

Additional parts

- PC equipped with a GPIB board
- 2 GPIB cables
- Oscilloscope
- LabView Program: 2D_TR_EPR_St.vi

Connections

- The PC equipped with the GPIB board is connected to the console field controller ER032M through the GPIB cable (to the back panel)

Connections

- The PC equipped with the GPIB board is connected to the oscilloscope through a 2nd GPIB cable
- The signal coming from the microwave bridge is collected in channel 1 of the oscilloscope
- The trigger coming from the laser is entering in channel 2 (or ext) of the oscilloscope

2D_TR_EPR_St.vi

1. Reads oscilloscope parameters
2. Writes to oscilloscope the number of accumulations to average in a definite trace
3. Sets the number of points to save along time (default: 500)
4. Sets the central field, the sweep, and the number of steps in the magnetic field B_0
5. Sends the command to the console to set the field
6. Reads from the oscilloscope the averaged trace
7. Shows the averaged trace for each field position
8. Repeats steps from 5 to 7
9. Shows a section along field at a definite delay from the laser pulse while the experiment is running
10. Saves two files: one in binary format (more compact) one in Ascii format (spreadsheet) readable by every platform

How to perform the 2D-TR-experiment on ESP300

- Connect all the instruments as explained and turn them on
- In the consolle:
 1. Tune the cavity
 2. Set then microwave attenuation
 3. Turn off the modulation
 4. Make a reset in the keyboard of the field controller (optional)
- In the oscilloscope
 1. Visualize channel 1 and function E
 2. Adjust the time scale and the vertical scale (as needed)
- Shoot the laser
- Fix the trigger level and delay (if necessary) in the oscilloscope
- In Labview
 1. Set the number of accumulations
 2. Set the number of steps in the field, central field, and sweep
 3. Set the time to wait before getting the function E (sufficient to perform the accumulations)
 4. Set the delay to see the spectrum while experiment is running (optional)
 5. Press the arrow