

## PHOTOELECTRON TEST HANDLING AND DATA ACQUISITION

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1. Confirm that the power is OFF on the high voltage supply.
2. Open the coffin removing the centre support and obtain an empty untested 4-m cardboard box.
3. With two people, fill the cardboard box with the fibres already tested from the attenuation length completed box, and place the container back in coffin.
4. Once all fibres are within the coffin, put the centre brace beam back in place.

### Moving Fibres

1. Oriented facing the computer, Person 1 sits on the right of the signal cables and is responsible for the computer and inserting the fibre into PMT.
2. Person 2 sits on the left of the signal cables and is responsible for recording information in the logbook and placing the source on the trigger.
3. Person 1 chooses a fibre from untested fibre eaves trough and holds it so that Person 2 can reach then both carefully place the fibre in the cardboard track.
4. After a successful test (see Computer Section, 'exephetest line'), the fibre is removed from the cardboard track and carefully moved by both people to the tested fibre cardboard box.
5. Once completely finished testing, remove the coffin centre brace beam, take the tested fibre cardboard box right next to the fully tested fibre box and carefully transfer the fibres. The fully tested fibre cardboard box is then labelled and moved to the shelf.

### The Data Acquisition System

1. Turn on the central white switch on the black Kinetic Systems Model 1502 CAMAC Crate located second from the bottom.
2. Turn on the small black switch on the top brown right faceplate labeled "bin".
3. The LeCroy High Voltage Power System can be checked for correct voltage by holding down the 'Channel' button and pressing the up or down arrow.
4. If Channel 2 and/or Channel 3 are not at the correct voltage (see below), the voltage can be changed by holding down the 'Voltage' button and depressing the up or down arrow.

5. Pressing the 'On' button on the mid left of the LeCroy HV crate turns on the voltage. Consequently pressing the 'Off' button immediately beside the 'On' button turns off the voltage.
6. ATTENTION: The HV must be OFF if the coffin is open and/or the room lights are on.

#### Apparatus Signal Cables/ High Voltage Power Supply Channels}

1. Signal cables should NEVER be stepped on. Be very careful when moving around them.
2. The signal cable labeled 'Calibrated PMT' on the coffin is for the PMT and it goes to the top red delay line labeled 'in'.
3. The signal cable labeled 'Photodiode' on the coffin is for the trigger (not a photodiode) and it should be connected to the splitter panel labelled '10'.
4. The Calibrated PMT is connected to Channel 3 on the LeCroy HV supply and should be set to 2200V.
5. The trigger counter ('photodiode' label) is connected to Channel 2 on the LeCroy HV supply and should set to 1700V.

#### Data Acquisition Computer

Computer name: sklavos  
 User: midas  
 Password: \*\*\*\*\*

1. In the first workspace, open two terminals and in both change to the directory `/localhome/midas/test.oldcode`
2. In one of the terminals, type `dio ./fal` and always choose option '4'.
3. In the other terminal, type `odb` and again choose option '4'.
4. SEE FIBRE HANDLING FOR PHOTOELECTRON TEST
5. After confirming that the fibre is correctly positioned the coffin lids are closed and the lights are off,
6. Person 2 turns ON the High Voltage.
7. To be ready to run a test, one terminal needs to have `dio ./fal` running and in the `odb` terminal enter 'start'. This prompts a comment line in which the fibre number is to be changed and the run number to be added:
  - Comment: Sr90 at 205cm; trig at 1700V/40mV/100ns; R329-02 at 2200V; fiber [fibre code]
  - Run number: [run number]
  - Are the above parameters correct? ([y]/n/q): [enter]
  - Starting run # [run number]
8. Person 2 enters in the logbook the end time, test verdict, and diameter of the last tested fibre and then the fibre count, fibre code, run number, and start time of the current test.

9. After the event count of the running test has met or exceeded 100000 events, Person 1 types 'stop' in the odb terminal. Then in the other terminal, '[shift] !' is pressed and 'reset' is typed. The letters will not appear as this is being typed.
10. While waiting for the terminal to reset, turn off the High Voltage.

### Data Evaluation Script

1. After the terminal has reset, type *./ana [run number]* and again choose option '4'.
2. Move over to the other workspace on the computer and view the unanalyzed data by typing *exe phetest [run number]*.
3. The peak on the distribution must be over (to the right of) bin 50 or the red line. If the mean is between the red and the green line, RESET the fibre correctly and running the test again on the next run number but same name and count number all documented in the log book. If the peak of the distribution is past the green line, the test was successful.}
4. If, after three attempts at testing the fibre, the fibre is still unacceptable, mark the fibre as failed.
5. If the test was successful, then Person 2 checks again for the High Voltage to be OFF and signals for the coffin to be open. Person 2 then removes the source to be placed on the floor of the coffin while Person 1 pulls out the fibre and wipes off optical grease with the Kim Wipe, which is available.
6. At any time measure the diameter of 30 fibres from each shipment using a micrometer calipre. Uses the micrometer sideways with the fibre oriented as to face the same direction of that of dial and take multiple readings recording the average.