**Experimental Procedure**

**Day 1**

**Magnification:**

We measured the difference between 5 pairs of crosses for the front and back sign (there is a sheet that says which crosses on the projection table correspond to front signs or back signs) and we got Δf’ and Δg’. From the provided sheet we calculated Δf and Δg. By dividing these 2 we calculated the magnification for the front and the back sign.

**p-p Interaction:**

For the measurements of the pp interaction first we aligned all 3 films to the same number. We chose to start from film 2500 (doesn’t play a role though). After that we started measuring the quantities in the pp table (# of protons, number of PRIMARY inelastic events, how many 2 vertices, 3-vertices,… we had [all these together give the total number of the inelastic events], number of elastic events [they look like an almost right track on the track of the proton and there should be no vertices there], the 2 shifts [see next paragraph] and if you want the # of electron- positron pairs you have).

The shifts were measured by overlapping two different pictures in which we made sure that the front sign overlapped as well. As described in the script points with the same z as the front sign overlapped as well. Then we measured the shift of the back sign (we made sure the sign we measured was from the back of the bubble chamber by looking at the provided piece of paper) as well as the shift of some other point (randomly chosen).

Then we searched for an electron-positron pair created by the decay of a π0. Be sure to measure everything you measured before (for the pp interaction) here as well. Also be sure to take a picture of the electron- positron track. Keep in mind you have to note EVERY electron-positron pair you find! Your results will be much better the more pairs you find!

Then we searched for a π+ decay into a muon and an electron. When we found one we measured the curvature radius of the π+ track (here you can use either the stensils OR the Saggita method) and then the length f the track (you can use a string or something that works like a string to align it to the track of the pion and then measure the length of the string using a ruler). Then we measured the kink length (muon length).

**V0 particle (can be hell):**

Then you need to search for a V0 particle through the whole film. This can take a while (took us almost 1.5-2 hours) so be ready to lose a lot of time here. Once you find it if you have time make sure it really is a V0 particle by doing the process that is described in the script in the “Investigation of association“ subsection. After that take all the other measurements (the curvature radius, and the angles of all the tracks) and that’s it!

**DON’T FORGET TO GET THE ERRORS AS WELL!!!!**

**Day 2**

First we tried out several different Bin lengths and to choose the best we did a BW fit to the omega resonance. The Bin length that yielded the best χ^2 was the bin length we used in the following.

Next we tried different energy ranges around the omega resonance to find the best BW fit (you should try to do some Gaussian as well just to be sure). We did the same for the eta resonance as well, although not as extensively.

Then we found the narrowest possible range that contained the resonance peak and used this interval to construct the radial distribution diagram. Furthermore we calculated the radial distributions for intervals with plus or minus δ/2 (δ is the length of the range we used for the successfull radius plot).