BT Meeting Minutes 16 april

News

Sasha (AC): just a comment on those slides, the CsI density of 4.51 is correct, as we have found out later, so do not change that. Aous is looking at T for those runs using pedestal drift, and he got rather high T, around 29-30, so real T would be really interesting to look at, if T is that high there will be some effect. At the end of SPS we had similar T, so if we made muon calib at the same T, light yeld would be the same, while since the PS runs were mostly taken with lower T (22), we would see differences for those runs, although in the wrong direction, i.e. we should have lower signal. So it will not compensate for all our discrepancy, and possibly go in the other direction, so it is important that we get this information

Low E simulations - Carmelo (CS)

2: these runs were simulated with both std and LE physics. we observe no big effect below 10GeV, as expected, but we find a surprising increase in number if hits which gets closer to the data as energy increases. I have put all reports here http://www.pi.infn.it/~sgro/reports_EleLowEnergy_16_4_08.zip

3: left is tower not hit by the beam, right is tower hit by the beam; top is cluster, bottom is hits. interesting to notice that red curve for cluster matches better data (black)

4: plotted the ratio and the hit and cluster profile, again 5GeV gives no big change, 50 gives better agreement for LE physics

5: some cluster variables from the merit, same behaviour

6: some CAL variables show no difference between std and LE physics

Leon (LSR): very interesting, in physics lists that emphasize LE behaviour, it might make sense to test with models of the detector that have shorter range cuts and more fine granularity in the geometry
CS: we have used std cuts
Luca (LL): what do you mean by finer geometry?
LSR: we made tests with realistic honeycomb geometry and glue dots which showed no changes, it would be interesting to test LE physics with such models
CS: the honeycomb tests were done with 1 and 10GeV, away from these energy, would be good to redo those tests

Philippe (PB): we know, at least for energy discrepancy, that we will need to add some material in front of the CU, I showed some time ago that if you add 10%X0 the cluster nb gets into agreement with data, so at least for 50GeV, where you have a perfect matching, you will loose agreement with extra material - so we need to keep this in mind (see https://confluence.slac.stanford.edu/download/attachments/13893/beamtestmeeting_20071107.pdf?version=1)

Johan (JB): i do not remember that, but at some point there was some plot suggesting that at SPS we might have too much mnaterial in the beam line, which was provoking some spread of the beam with wrong divergence, so we do not know yet if and how much material we have to add for the SPS simualtion. For cuts, we use 10um, as usual, and showed many times that going below this does not make any change; i am currently in touch wiht Vladimir Ivantchenko at CERN, and he is suggegsting some test with configurable parameters to understand where these changes come from. I plan to make these test in the CU standalone tower simulation, at that point it will make sense to test different geometries as Leon suggest

David (DP): I had found no difference when changing production cuts, although I did not check with LE phsyics (see here https://confluence.slac.stanford.edu/download/attachments/4096462/Check_ProdTh_Geant4_2008_02_06.pdf?version=1). Did you check what happens with runs with energy>50GeV?
CS: yes, you can find plots for all those runs in the link I pasted in the chat window, I just selected two representative runs
DP: is the agreement that you find good at high energy? is there a different behaviour?
CS: agreement is good at any energy>20GeV; there is something strange in the sim at the highest energy, slightly worse than 50GeV, but anyway better than std physics