BT_29aug_notes

Meeting 53: August 29, 2007

Unedited notes taken during the meeting, additions/corrections are welcome, LL

Participants: Leon S Rochester (LSR), Luca Latronico (LL), Benoit Lott (BL), Elliott Bloom (EB), Bijan Berenji (BB), Philippe Bruel (PB), Carmelo Sgro (CS), Berrie Giebels (BG), Takaaki Tanaka (TT), Gary Godfrey (GG), Hiro Tajima (HT), Ping Wang, MarioNicola Mazziotta (MNM), Anders, Jan Conrad (JC), Markus Ackermann,

News

BTRelease status

LL: there is a tag now available, michael made it for better tracking of the changes and a more fresh reference, he is still hunting the bug
LSR: our little system test ran on it, 100MeV vertical gammas, some changes wrt to long ago last one (v9r25), just minor changes in the ACD distribution
LL: thanks

Comparison of geometry model with measurements - Leon

LSR: finally got around this last weekend. current gleam geometry established from data I had in 2003 from original spreadsheet. Not only I made a number of compromises and decisions, but several things have changed since then so I made a comparison with measurements that Sandro presented here some time ago.
3: nbs agrees quite well with tower mass measured
4: details of the calculation
5: I used detCheck which produces a breakdown of materials in the geometry model; it outputs 2 versions, 1 is broken down by material type (slide 5) and a second broken down by element name (6).
I stuck numbers from these tables to calculate what gleam thinks we have in the model
7: very general comparison between gleam and sandro's numbers
active mass is the mass seen by a particle going down, passive mass is closeout mass

EB: does active mass include W?
LSR: yes it does
LL: correct, just want to add that active mass is defined as anything inside the silicon area, and does not take into account holes between ladders
LL: actually Sandro scaled the mass for a solid surface and a surface with such holes
EB: what is measured using muons?
LSR: I shot vertical muons through the TKR and in the tuple I get a number that is amount of material traversed by the particle (*firgit the variable name LL*); in any case you see a minor difference
EB: passive is crossing towers right? so it has an effect for inclined tracks
LSR: exactly, but that is for most particles so it can matters, although as you will see the difference is small
8: comparison of active masses; *stuff* is basically the payload (glue, bias circuit...) the main differences shows in the *stuff*, i seem to be missing 40gr/tray
9: passive mass: generally closeout are heavier in reality, while walls are heavier in the model, which probably balances the missing cables in the model
10: tray masses: minor difference with sandro (140gr), but by and large the bottom tray is much heavier, next is the top tray. I guess some other fixtures (corner flexures, brackets, cable retainer on the top) were included in the trays
11: bottom line is that all discrepancies are understood and easy to correct; by easy I mean that somebody with time and patience can do it, it is not rocket science but a far amount of work

LL: thanks leon, this agreement was somehow expected, but it is good to see it done thouroughlly; I will ask the same to Sasha and CAL people

New LowEnergy simulations - Carmelo

see slides for clear explanation LL

10: McPositionHit shows different behaviour for TKR and ACD, McIntegratingHits shows no difference for the CAL energy deposit. this is more for the experts to check, francesco is looking at this as well.

LL: before we start discussing, I would like to add that we had LE sims in the past which showed no difference, so we are investigating on that. the difference with those simulations is the more complicated environment and the geometry (cal with non-empty gaps)
LSR: i think there is no threshold in standalone sim
CS: anyway the energy deposition is bigger (alide10) and this is strange
EB: slide 10, lower right, it seems that if you divide by two the red plot it overlaps with the black, could it be some calibration issue?
CS: yes, we are thinking about something like that, but it is not clear to understand if it is a factor 2 or what
MNM: there seem to be less hits but more energetic wrt standard ones
CS: these are not hits, these are single energy depositions, do not know how to relate this to tkr hits
LL: we should anyway normalise the plots to compare (*audio problems could not hear if plots are already normalized LL*)

BL: to what extent can we expect differences wrt std phyisics? LE does not refer to incoming energy, but to the range of particles and how we follow them right? so we should not see this difference
LL: that is what I understand from LE, but i think those are a completely different set of cross-sections. it remains strange to understand how you can get up to 10-15 GeV more in the CAL, as is the case for high energy incoming electrons, by following very low energy particles to shorter ranges
BL: agree with that
LL: maybe this is a good thing to show to g4 people, if the only change we have is in the selection of physics list we have a clear example to show them
BG: why not checking on a simpler geometry like a single CsI bar? why would you show them this is standalone sims with LE and w/o match?
LL: good point, that is why we are redoing the LE sim in standalone g4, in any case they might help and show us what we do wrong in the way we handle different physics lists

CS: g4 standalone sim is part of BTRelease, so you can play yourself

BL: what do you expect from the last line test with QGSP_BERT? that is a hadronic model, you should see no difference

CS: we do not expect changes, I agree. Francesco wanted to do that. Another comment is that we sure have a bug in the ToT and need to fix it

CS: just made the plot that EB suggested (get it from the shared files tab). actually by dividing the LE energy deposit by two the plots overlap well

EB: david has preliminary results in CsI cal comparing g4 and egs5 and got very similar results, but what we may be seeing here is some bug in geometry

LL: we may have something similar to what we had for the TKR alignment. I invite all to check those files anyway and help discovering is and what bug we have