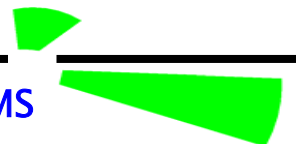


Acceptance corrections

- How is it done now
- What could be improved



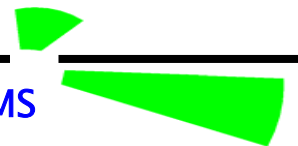
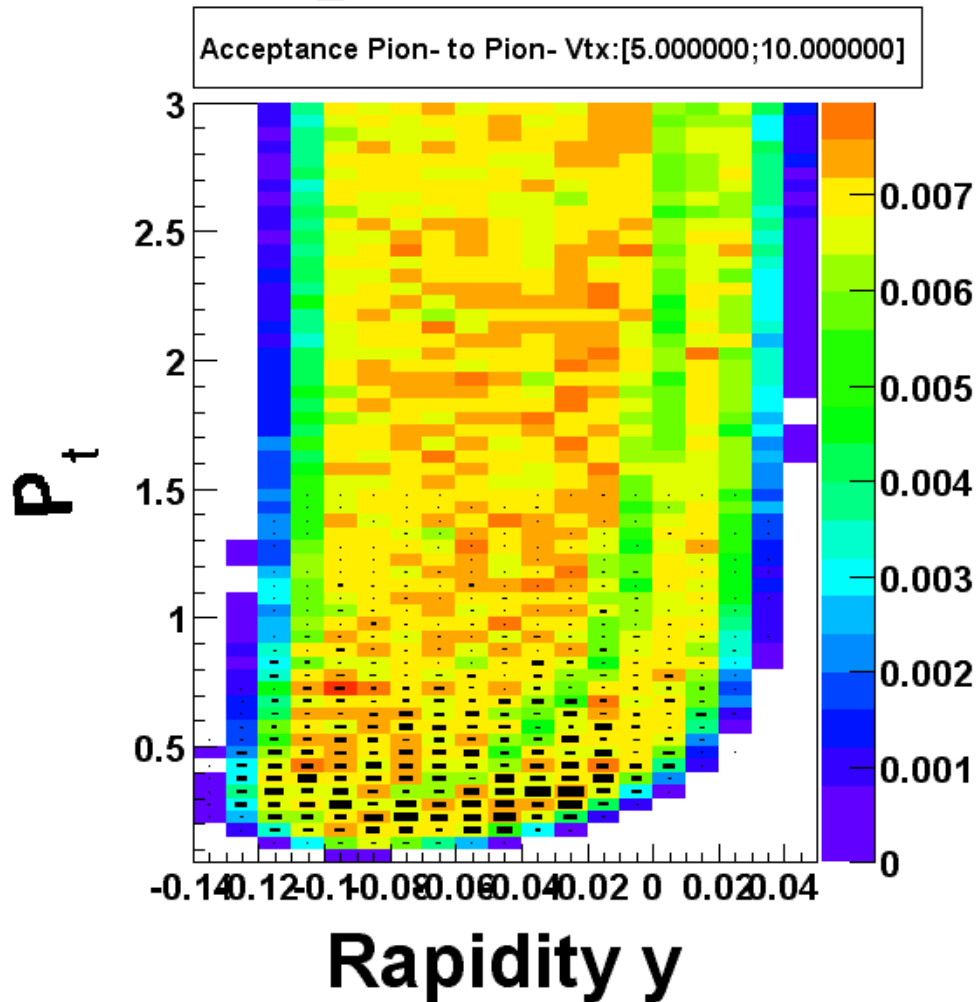
Creating the acceptance maps

Use flat (θ , ϕ , p) single particle distribution in brag with realistic vertex distribution.

A track is accepted if it has enough hits in TPM1 and TPM2 to form a track (can miss 2 rows) and a TOFW hit in a valid slat.

For each vertex bin (5 cm) a map is defined as the ratio of the 2d Pt(mt) vs y accepted to thrown.

Acceptance and data



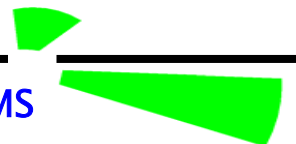
Details of acc generation

Use only pions!

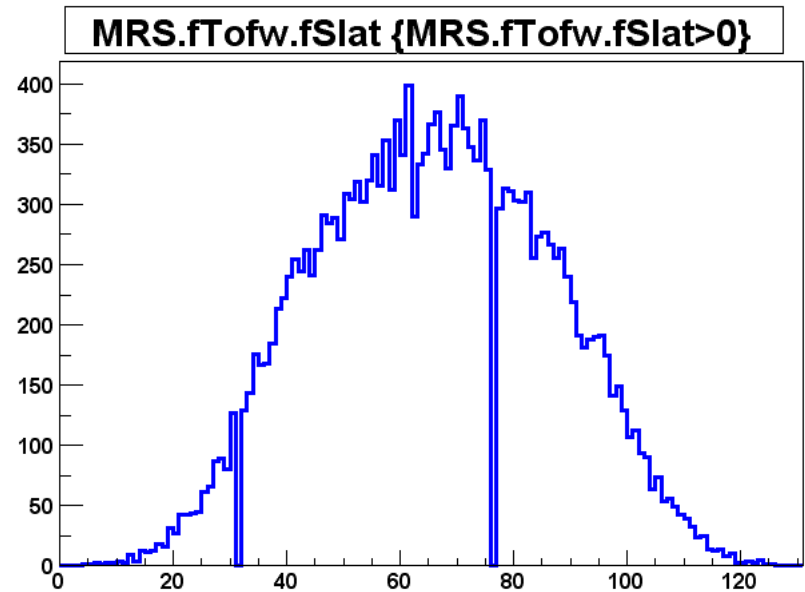
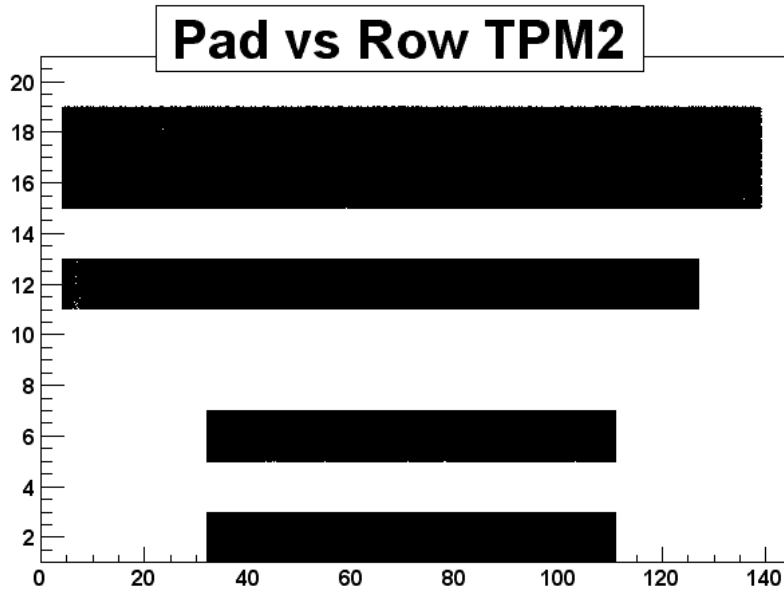
Only physics is energy loss. Assumes ok for kaons and protons (Looks ok too).

Use momentum of thrown particle for both thrown and accepted particle.

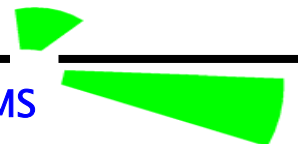
No digitization of the geant hits.



Missing slats / pads



Slats are hardcoded and TPC performance is only for one run



Random numbers

We use random numbers 2 places in brag :

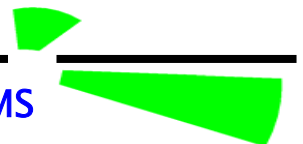
- GEANT
- User distribution (if not external)

Initialise with `intrandom(integer)` in `gbr2c.f`

`GEANT : CALL GRNDMQ`

`guxint.f : CALL RLUXGO`

(See also documentation in code)

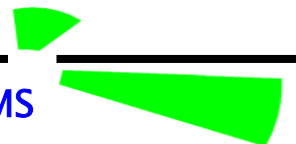


Status

Procedure to generate is very automatic,
needing only runnumber and vertex
distribution = EASY TO USE AND FAST
WHEN USING BSUB!

Good agreement between shape of data and
acceptance maps and our normalized data
compares well to data from other
experiments.

No reason to use brag as it is!



Future

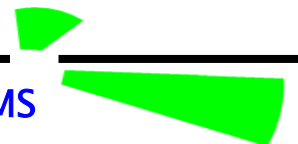
Better statistics. Maybe step to reduce file sizes.

Our corrections are factorized
=acceptance*multiple*absorption

Is this ok ? Include physics (decay, multiple, nuclear processes) ? Include vtx resolution, tracking and PID ? Bin accepted at “measured” vtx and p?

WE COULD LEARN A LOT FROM A BETTER MC! NEEDS TO BE FAST AND EASY TO USE!

5 cm vtx bins. Is there a difference – Claus can tell.



My suggestion

Make a script that does simple reconstruction : don't digitize TPC or DC, but make TPC/DC hits. Do Local tracking. Make Tof hits that can be matched to. Make BB vtx (with sigma). Make global tracking and PID.

Difficult because it requires good knowledge about BRAT and geometry.

Next step could be good digitization of TPC and DC tracks for efficiency studies.