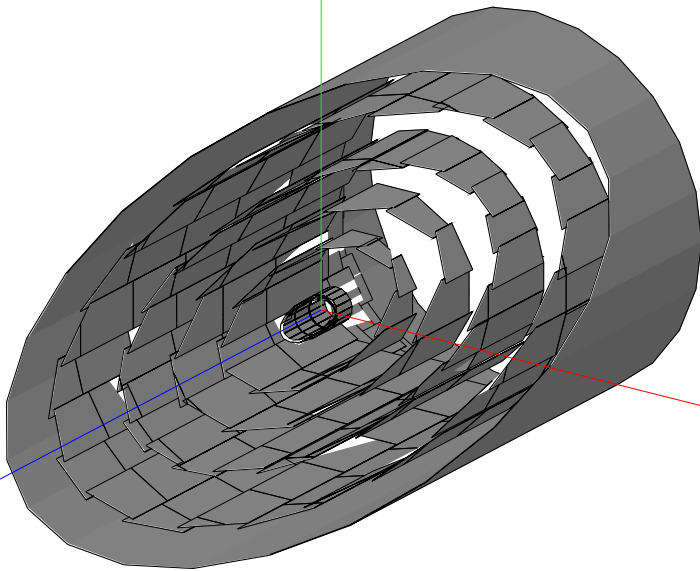


Software

- . G4 simulation
- . Reconstruction
- . Difficulty
- . Future direction

Simulation

. GEANT4-based simulation “g4superb”
(as of b20090127_0910 + α)



- . works within basf (and roobasf) framework
- . maybe crash when KLM is included
(should be checked)

- . G. Pakhlova will work on scinti. KLM
- . does not have PXD yet, officially
- . SVD is enough for vtx resolution study ...
- . has still memory leak ?
 - . Job crashes at ~1,000 events on analysis server ?
 - . I could make 5,000 events on login server, though...

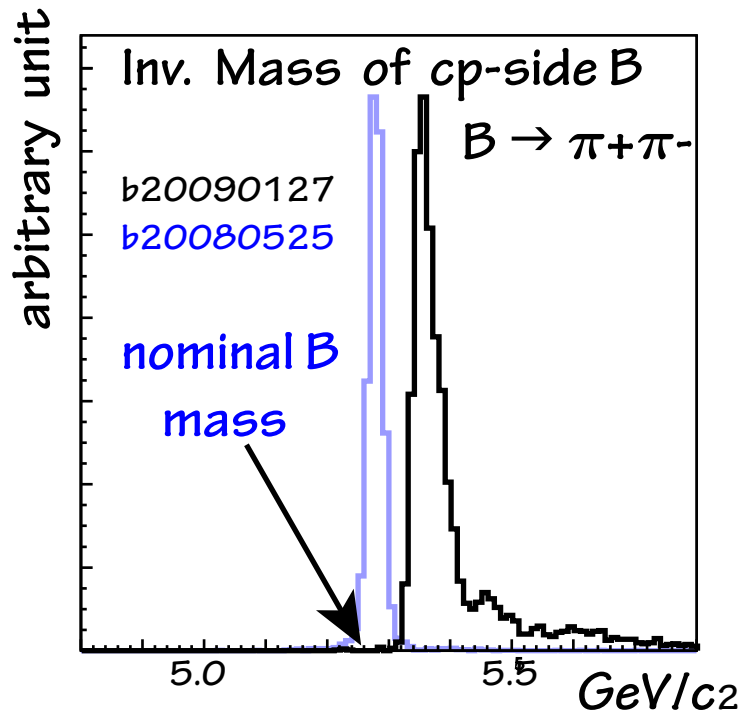
. Visualization tools

- . we are trying to recover david, dawn (OpenGL/Mesa problem ?)
- . event-by-event display works to some extent ? (I have never used)

Reconstruction

. Tracking tools “trasan” and “trak”

(as of b20090127_0910 + α)



. something strange in tracking

. reconstructed Bcp invariant mass is shifted?

What was changed?

. track reconstructed in CDC can not find SVD hits

. geometrical inconsistency in sim. and recon. exists

. track finding is done with CDC only

. PXD+SVD+CDC track finding has to be developed.

. PID

. Even the detector design/type has not been fixed yet.

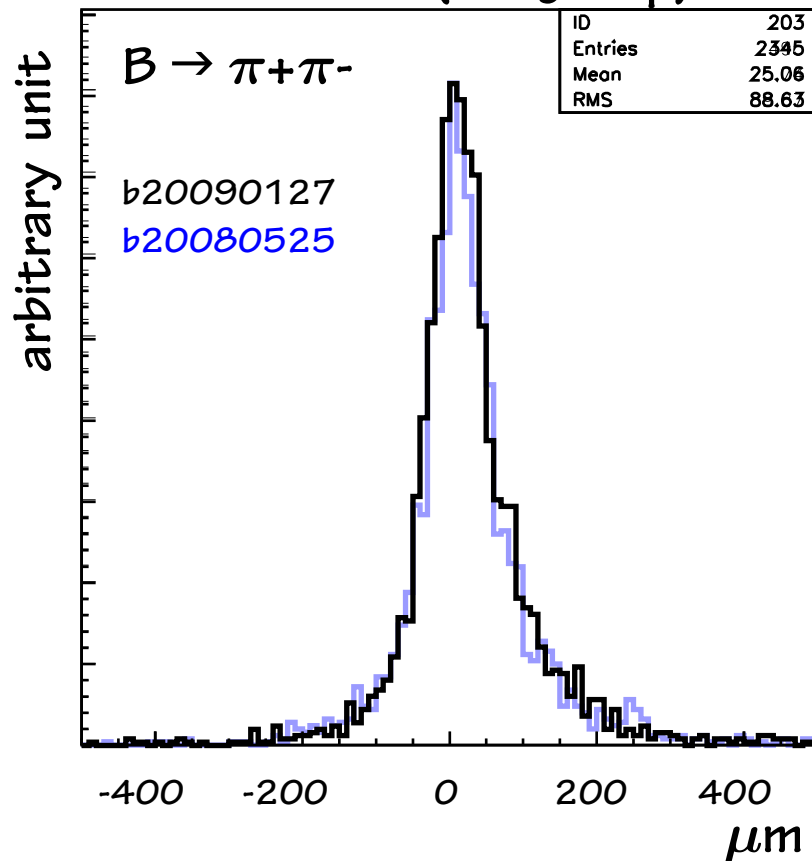
. No information from PID group

Reconstruction

. Kinematic vertex fitting “kfitter” and “tagv”

(as of b20090127_0910 + α)

$$\sigma \Delta z = \sigma (V_{\text{tag}} - V_{\text{cp}})$$



. works at least for CP/Tagging sides

Obstacles to progress

- . many “real” g4superb code developers have left Belle
w/o the takeover, e.g. concept.
→ it makes hard for new people to join?
- . Belle reconstruction modules were emulated for Belle-II
and mixed up with Belle library.
→ it is annoying for caretakers of each module to maintain
 - . We need to pay attention whether it works fine with Belle,
When it is updated/modified for Belle-II simulation
- . Geometry database? → no extensibility or flexibility
- . CLHEP+belleCLHEP
→ limitation of the patchwork art

Though we need a sim/recon. tools for writing the TDR,
it is better to make new sim/recon tools from scratch.
For that purpose, we need real workers

Future Direction

- . sim/recon. should be loadable module works within a framework
- . which data model ?
 - no manpower to develop a new data model by ourselves
 - should not be away from the worldwide trend
- . better to have Geometry Database ?
 - easy to handle geometry updates ?
 - But in reconstruction software,
 - isn't it better to use geometrically-approximated materials ?
 - ILC group has knowledge about this.
- . better to make new library repository for Belle-II

The final destination is a successful Belle-II experiment,
we need to build up a more effective cooperation
for simulation and reconstruction (esp. tracking) tools