(VERY) QUICK UPDATE ON GFLASH

Online CM 2021

GenProc parallel session

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GFlash

- Revive sampling model GFlashSamplingShowerParameterisation
  - Based on "historical" paper by G. Grindhammer and S. Peters
  - Unfinished code, not demonstrated
    - Requires serious revision / next to rewriting

- Revision on-going, there is still quite way to go !
  - This is mostly gross debugging for now
  - With little physics only…

- For now, debug with CsI-CsI "sampling" calorimeter
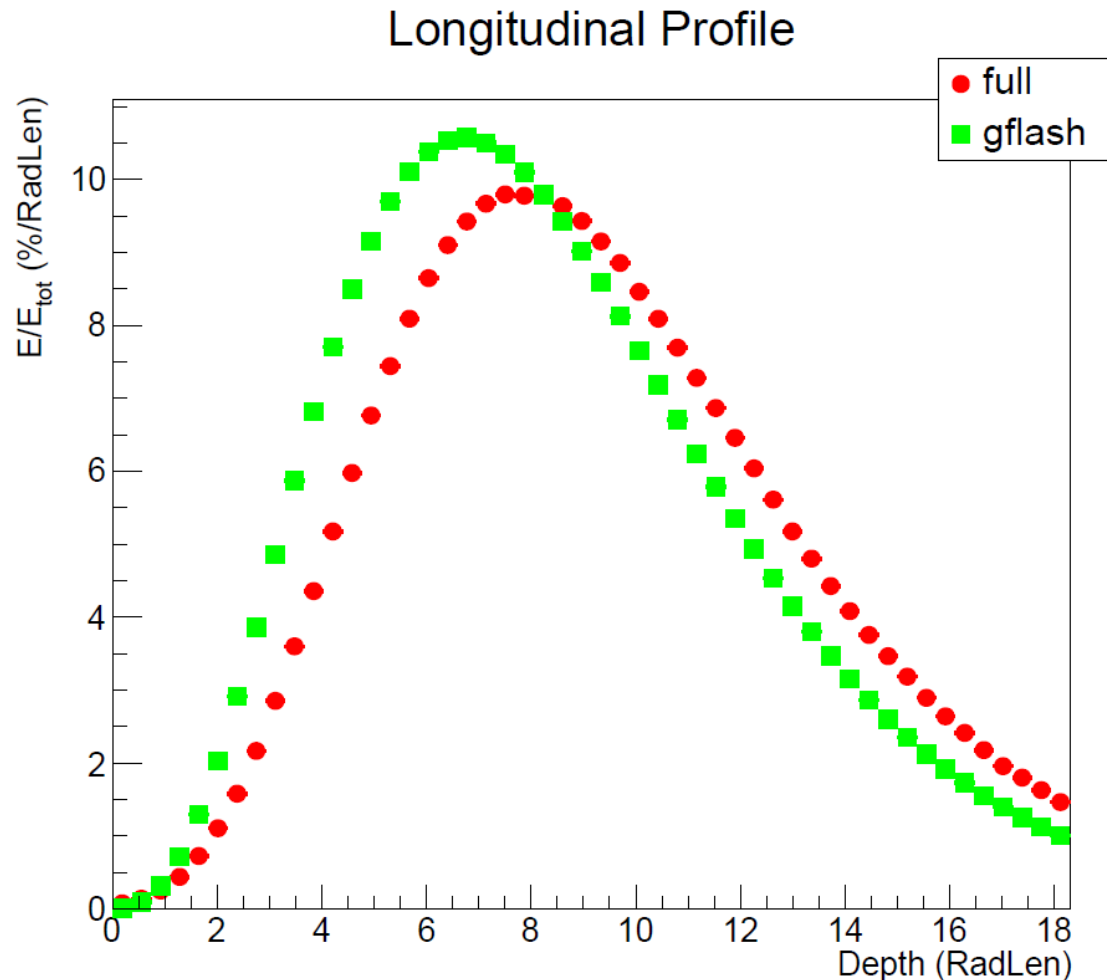 - Ie : postpone issue of difference of densities
  - Shooting 50 GeV e-

Longitudinal Profile

full
gflash
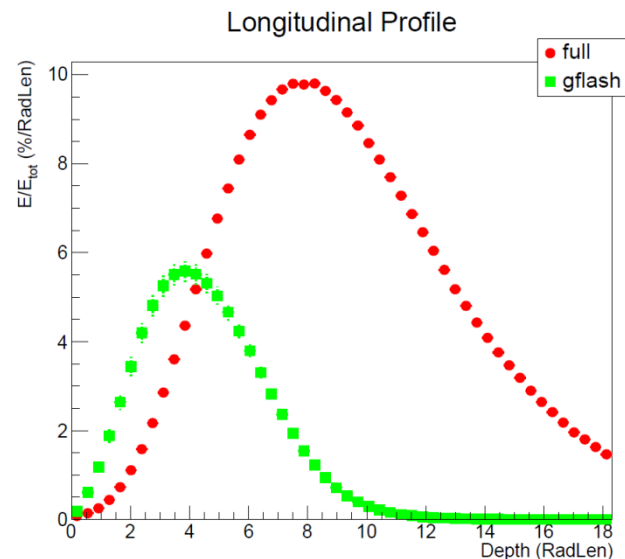
Initial profile ! ☹
But was simply wrongly interfaced in the test…

Initial model

Longitudinal Profile
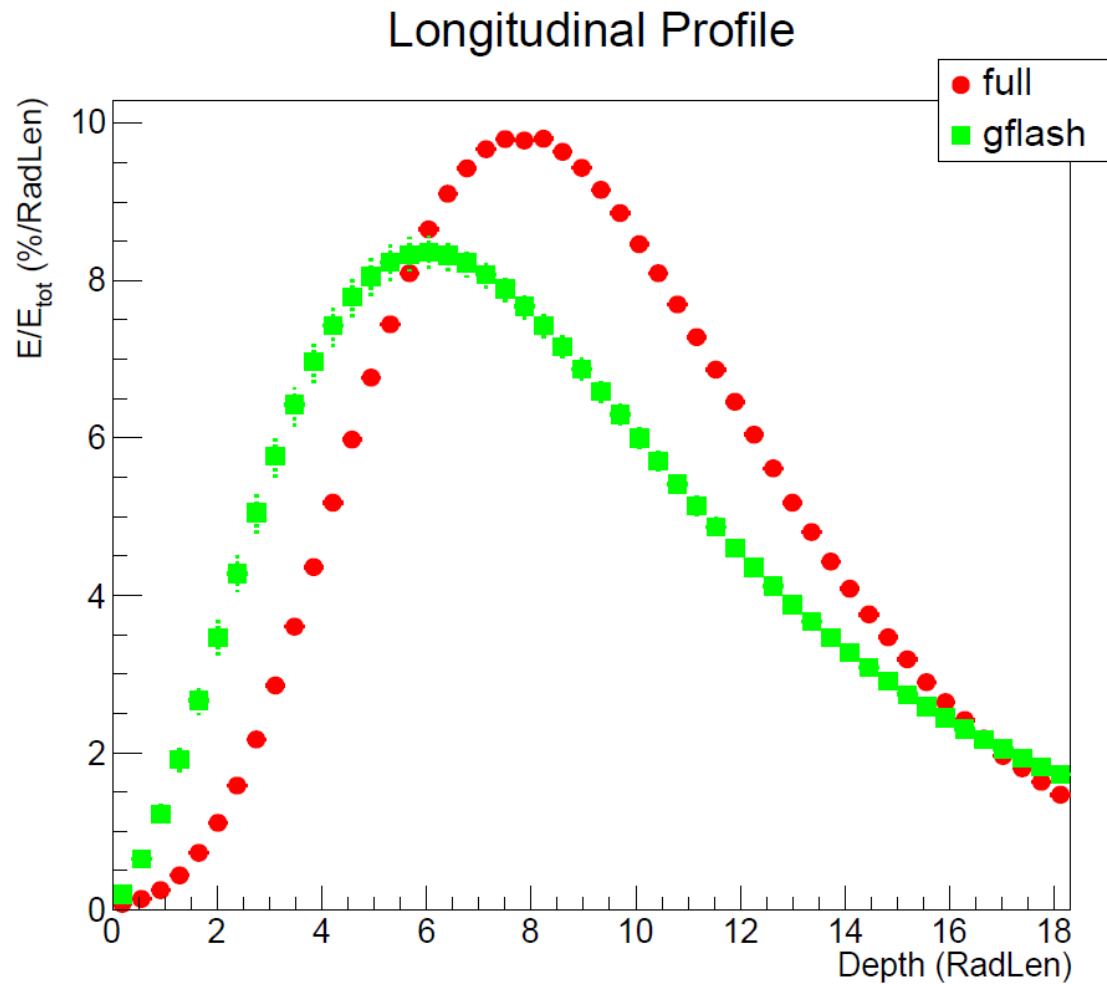
After many (gross) fixes


Longitudinal Profile

Many shower parameters were wrong, even returning NaN… Many fixes done in May, with MR done in September.

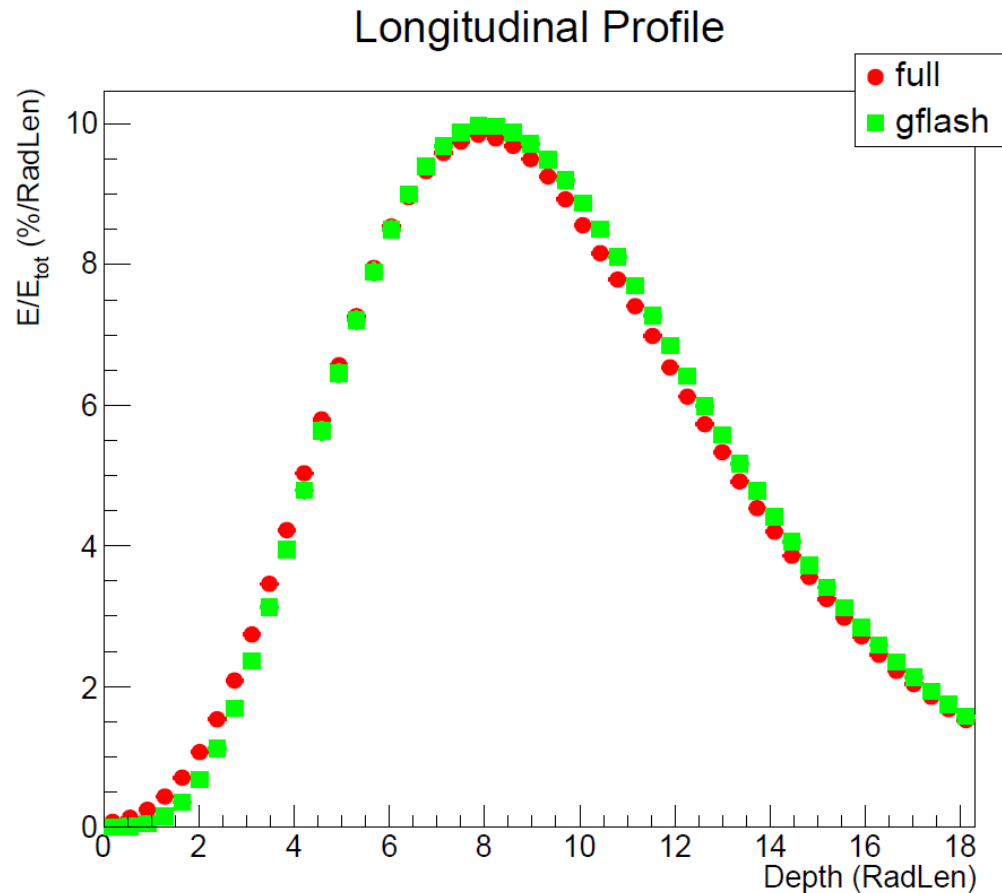Profile is:
- Less bad
- But still bad

Fluctuation of shower starting point ?

- In G. Grindhammer and S. Peters' paper, shower starting point defined as :
  - "space point where the first electron or positron bremsstrahlung process occurs"
  - Ambiguous : brem. above what energy ?
- Anyway, starting point is not fluctuated here.
- So, take brem. mean free path (with 1 mm threshold) and add fluctuation to starting point.
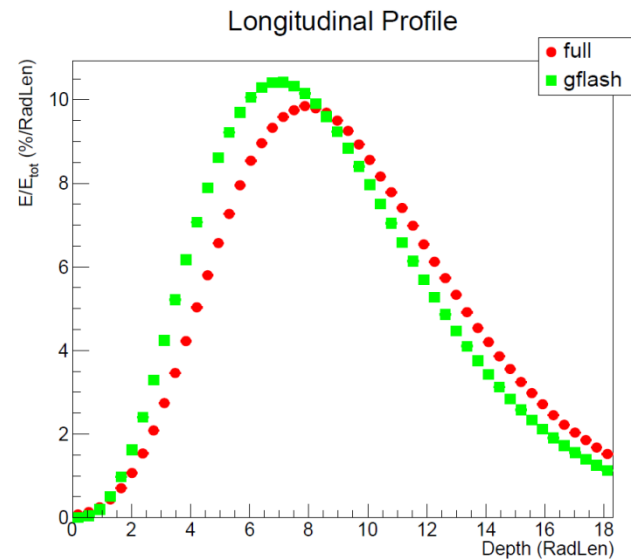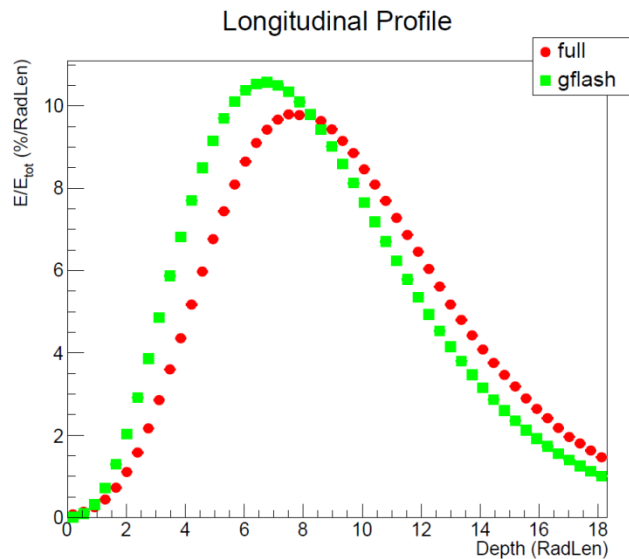
- Tiny effect… ☹

With brut force (fake) fluctuation x 10 (!)

- Looks much better ! But is cheating…

What's next ?

- Continue gross-debugging
  - Very likely, we did not hunt all the bugs…
- Then gross-debug of lateral profile too
  - Expect the same level of problems
- And go for more physical inspection

- An example is also in preparation, gflashc.