IDEA simulation

- In the master:
  - Script to produce a single podio file including calorimeter hits and tracks (scripts/commonRecoIDEAFile.sh, using converter/ buildRecoLevelIDEAFile,.cc)
  - New MCParticle collection in the final podio file (containing information about the primary particles - meant to be useful to carry information about single particle generation.
  - Simualtion runs smootly on many events.
  - Reconstruction more problematic - see next slides.

Problems

- I am running a production of electrons from 1 to 125 GeV for particle flow studies. There are issues.
- Issue number 1: file size. For 100 single electrons events:

```
-rw-r--r-- 1 iv41 iv41_g 3.0G Oct 10 18:47 hits00000.root
-rw-r--r-- 1 iv41 iv41_g 3.9M Oct 10 18:47 simhits_podio00000.root
```

  - hits00000.root contains the tracking system information. 30 M per single particle event is not affordable.
- Issue number 2: reconstruction. The track reconstruction runs out of memory (on a 14 GB machine) for the higher energy single particle electrons above.
- We need some of the tracking experts to look into these issues.

More details on issue 2

- This call

```
gmcanalyzer.exe -b -q -i geant4MC-IDEA-fit.xml  -r 1 >& out-reco_1.log
```

- gives this memory consumption after a minute of running

```
  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
32571 iv41      20   0 5956268   5.3g  68200 R  96.4  4.2   1:23.97 gmcanalyzer.exe
```

- and dies shortly after. I can provide the input file to reproduce the problem.