MC Production and Reconstruction Summary and Plans

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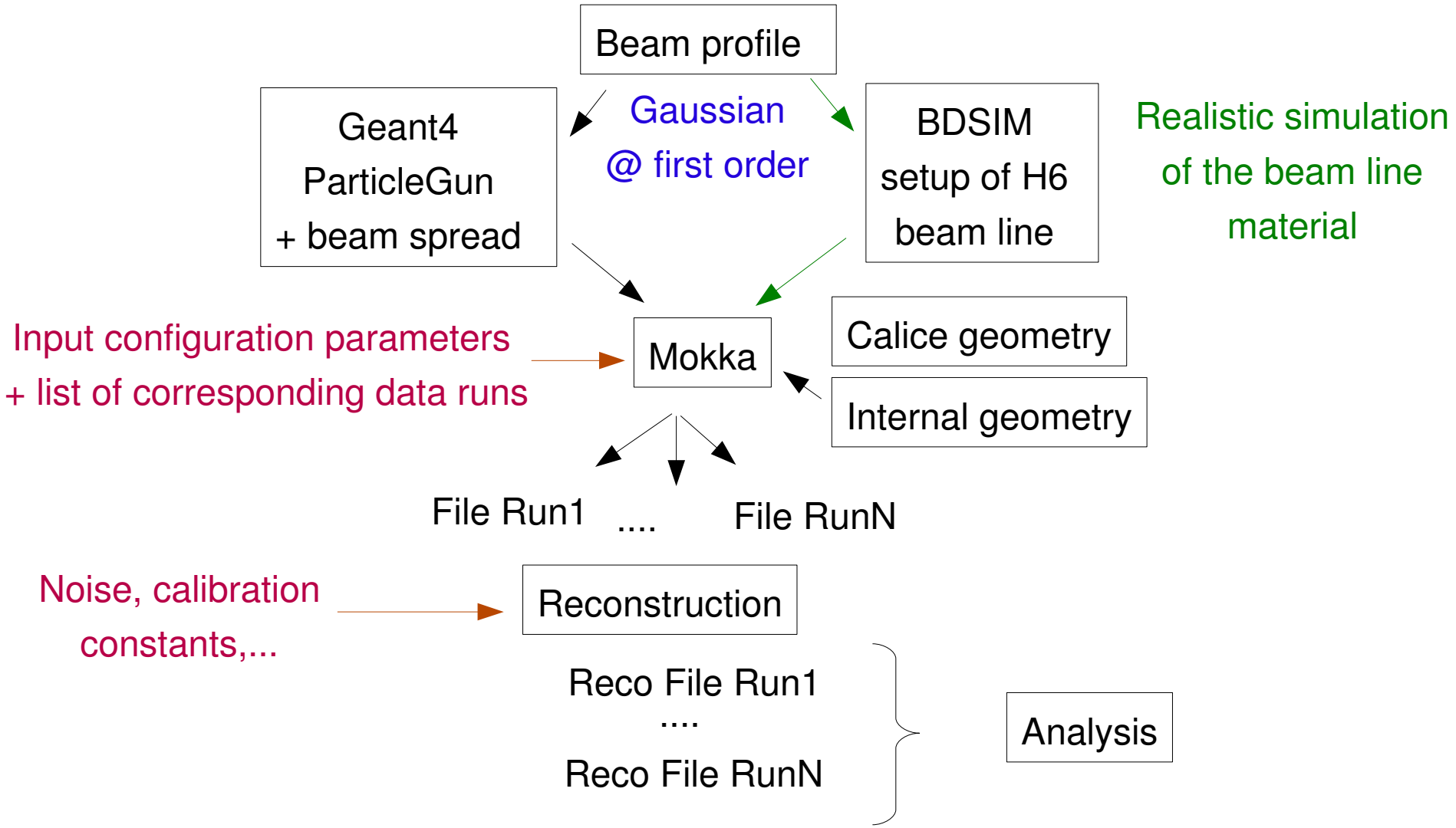
The Monte Carlo chain, from beam to reconstructed hits



First MC Production

Configuration :

default (=nominal) values

Energy, angle, beam parameters,

detector model,

ECAL, HCAL, TCMT pos w.r.t. (0,0,0)

Cerenkov pressure and gas

particle PDG ID

Statistics factor

List of runs associated

1- Give a unique identifier to each configuration: in order to easely recombine reconstructed files (MC and DATA) for analysis.

2- Create and fill a nominalConfiguration folder in the **Calice database**, containing all the parameters per run that are not already there

3- TAG database before any production

4- Define a list of runs, get all the parameters from the database in a flat file, one line per run.

5- Execute bash script to create Mokka steering and macro files from the flat configuration file.

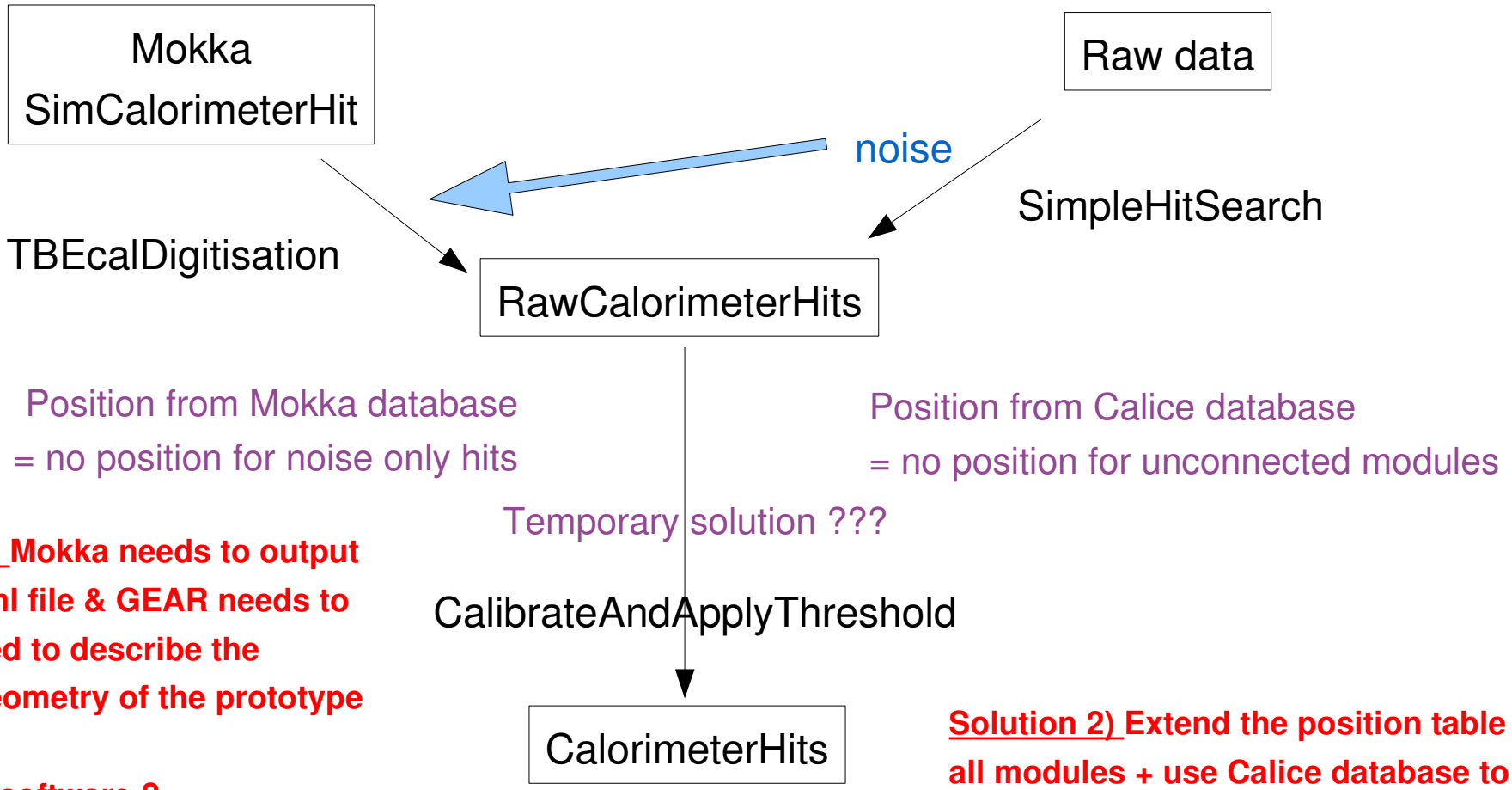
6- Grid submission

7- Scripts to automatize jobs output, retrieve output statistics (and write it somewhere??)

Iterations

- Going from nominal to real values:
  - Create a second folder realConfiguration. Unique identifier ?? and fill database with measured values.
  - In the script creating the configuration flat file from the list of runs, specify a flag to know which folder should be used per run: real or nominal ?
  - Re-use bash script to create corresponding Mokka steering and macro files.
- Information needed in Mokka output: one integer (run number) and one string (database tag) in the runHeader.

Reconstruction and Geometry problem



Solution 1) Mokka needs to output a GEAR xml file & GEAR needs to be extended to describe the detailed geometry of the prototype

Iterations (software ? Regeneration ?) necessary to obtain the same position as in the data.

Solution 2) Extend the position table to all modules + use Calice database to generate the Mokka driver.

Conclusion

- Mokka production will start ASAP with nominal parameters, and should be completed in the timescale of the next reprocessing of the data.
- Will need manpower to fill the database with missing values for all runs.
- Lots of iterations to find the real values and feedback to MC: need to be organised !!
- Data need to be reconstructed before MC, e.g. to fill the noise in the database.
- Reconstruction code is being finalized : POSITION ISSUE STILL NOT SORTED. No good solution, which one is less worse ??? My feeling: Calice database position, and discarding hits in unconnected layers. HCAL reconstruction uses Calice database position.... TCMT? Tracking ?

Thank you for your attention