~~Some~~ Random thoughts for Data Analysis and Software Development

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LAMPS collaboration meeting

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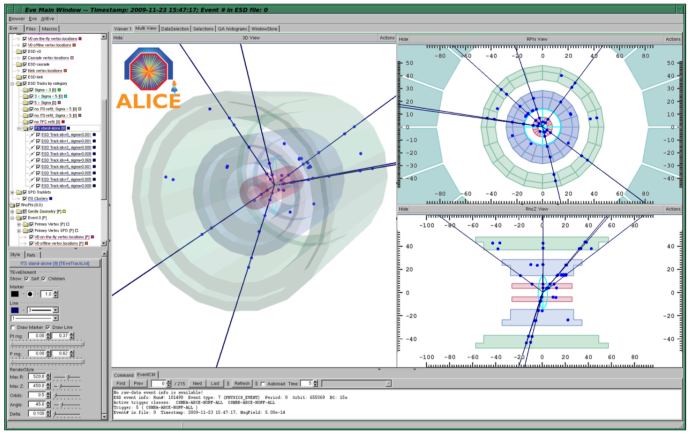
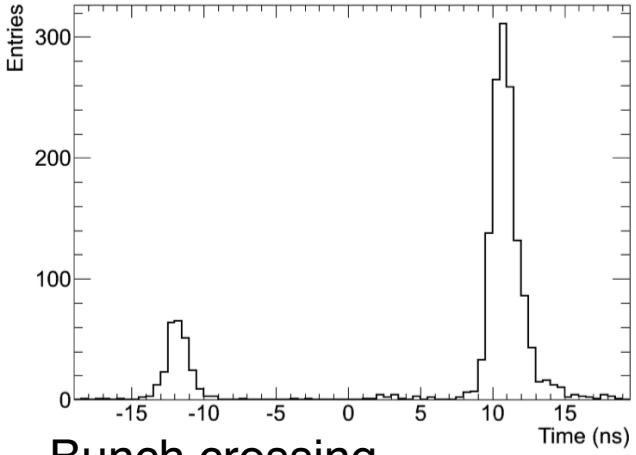
We need our logo and a nice schematic view of detector for public presentation **:)**

First physics paper by ALICE

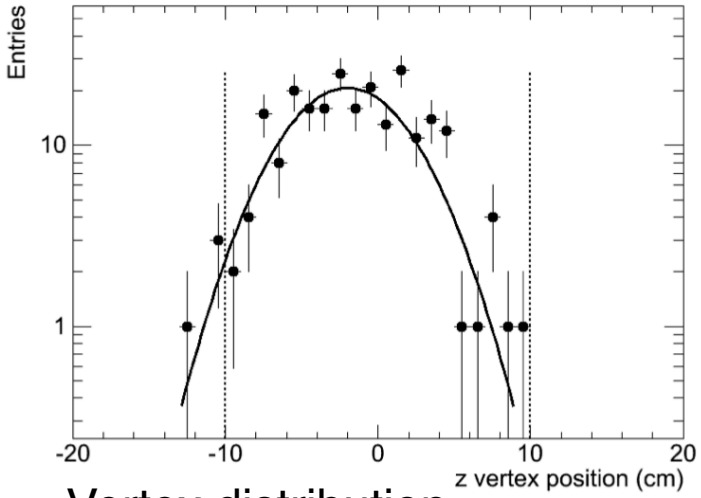
- *Measurement of the charged-particle pseudorapidity density at 900 GeV*
- What did they show in this paper?



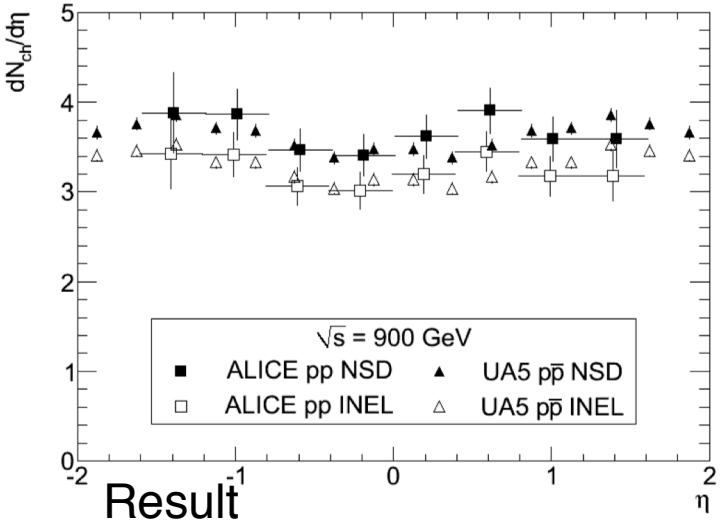
Event diaplay



Bunch crossing



Vertex distribution



Result

First physics paper by ALICE

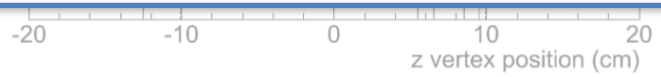
- *Measurement of the charged-particle pseudorapidity density at 900 GeV*
- *V*

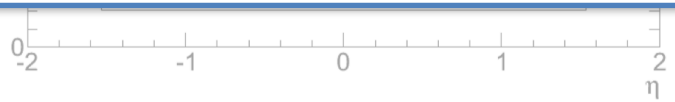
Key messages of this paper

* Argued the comprehensive understanding about the detector rather than physics itself
* Calibration/alignment was complete well before day-1
* Geant4 simulation nicely agreed with data

CMS released the preliminary full simulation package a year ago, spent several weeks after day-1 to find the discrepancy between data and MC in the tracker

Lesson is 유비무환. We need a well organized all-in-one Software to do (1) data quality check (2) MC simulation (3) analysis, which can be easily used for beginners





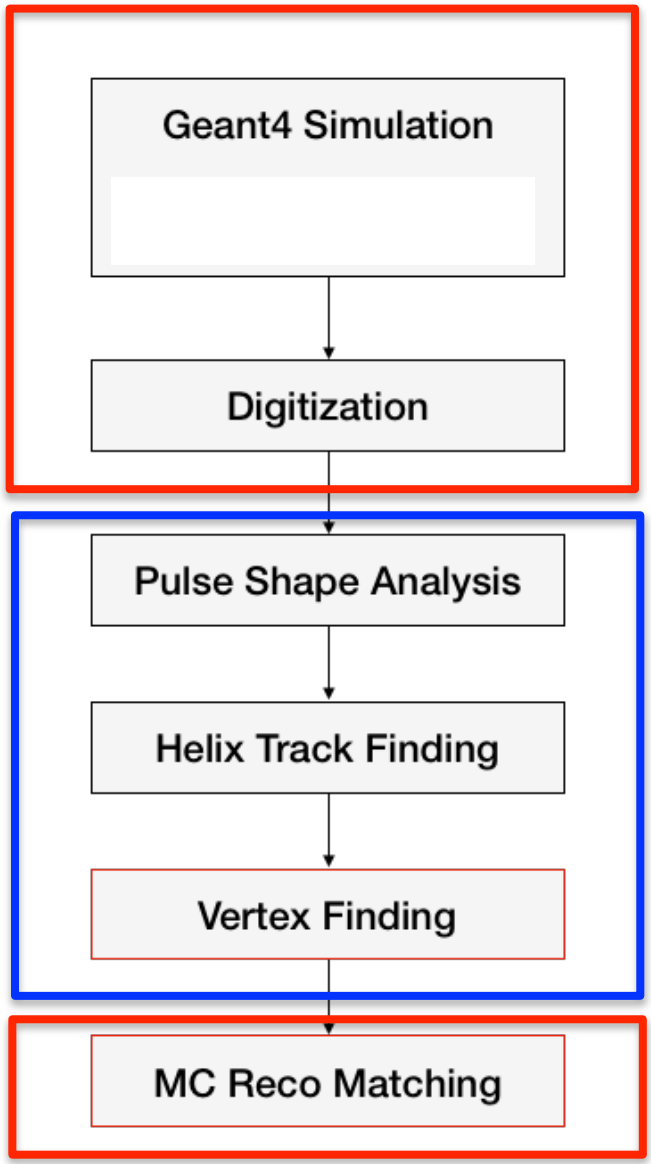
Software Preparation

- Individual packages made by taskforce of each component
  - Existing packages : TPC and neutron system
  - To be developed : Beam Diagnosis detector and Start Counter

- For easy integration to the full chain, each package should be …
  - Added in **Git**
    - A private git space is suggested (e.g. KU server)
    - TPC package is a good example
  - Controllable by an unified framework
    - preferrably PYTHON
  - Ended up with ROOT file (TObjects)
  - Nicely documented. (Git wiki)

Data format (very rough idea)

Example of TPC



MC only

MC and data

MC only

Step1. Physics generation

Step2. SIM-DIGI(Geant4)

Step3. RECO of low-level objects

Step4. RECO of Analysis-level objects

Extra fragments for brainstorming

- Do we know the typical particle multiplicity of collision events and background?
- Should we take care of the beam-gas interaction?
- bibliography and code repository?
- Technical meetings would be very useful, but how?