FCC SW

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FCC SW Meeting, 24 April 2020

Reminder: Vidyo meetings and connections

- Should we move to ZOOM ?
- Following CERN restrictions from now on - and until further notice - this meeting will be Vidyo only

- The meeting is open to everybody, but people connected **must make themself recognisable**
  - People with a CERN account **must register** to he meeting with their own CERN credentials
  - For people without a CERN primary account, GUEST connection will allowed **only** if agreed previously via email to Gerardo.Ganis@cern.ch or Clement.Helsens@cern.ch

What happened since last meeting

- EDM4hep / key4hep
  - EDM4hep ([31 March](), [14 April]())
    - First tag (v0.1) available!
    - Still pending a decision about "run" metadata
  - Key4hep ([7 April](), [21 April]())
    - First release coming (-> V Volkl talk)
  - Next meetings: April 28th (EDM4hep), May 5th (Key4hep)
- FCC Physics meeting (30 March)
  - [Delphes and FCC-ee]() (M Selvaggi)
  - [Detector requirements/specifications]()(A Blondel, M Dam)
- EP Newsletter [article]() about FCC SW tutorials
- Web site: Drupal 8 [test version]()

Detector requirements/specifications (Blondel, Dam)

1. **starts from statistical errors as precision reference (rather than starting from LEP/SLD)**
2. **attempt to indentify the places were detector design esp. construction can/will be the limiting factor.**
3. **identify places where further input requires full simulation results**
4. **ignore theory systematics or algorithmic systematics**

- Measurements considered so far
  - Z Lineshape + Z-gamma interference
  - Tau physics at Z peak
  - Heavy Quark EW physics
  - W mass and higher energies
- FCC-ee expected statistics puts requirements on detector understanding at unprecedented level
- Need to be supported by software
  - Completeness and detail
  - Performance efficiency

Back-of-the-envelop exercise (at Z peak)

- $N_{events} \sim 10^{13}$
- $T_{\{gen+sim,reco,ana\}} \sim 1\ week = 6 \cdot 10^5\ s$
- $T_{\{gen+sim,reco,ana\}}/evt = T_{\{gen+sim,reco,ana\}} / N_{events} \cdot N_{cores} \sim 6 \cdot 10^{-8} \cdot N_{cores}$

- Example: CMS in 2018
  - $N_{cores} \sim 250\ k$
  - $T_{\{gen+sim,reco,ana\}}/evt \sim 15 \cdot 10^{-3}\ s\ /\ evt$

- Tough for gen+sim and reco

Bookkeeping with Git repository

- Need for bookkeeping of {config, cards} files discussed at last meeting
- Investigating a solution based on Git ([example](#))
- Set of markers to support comments and parameters
- Static self-updating visualization