Software status update

FCC-hh detector meeting

August 31, 2016
Joschka Lingemann
on behalf of the SW team

EP-SFT - CERN

Fast and Full simulation

Anna Z., Benedikt H., J.L., Zbynek D.

New users for Geant4 integration from calorimetry:

- Very helpful to get feedback

Status:

- The baseline functionality for simulation is there

  ‣ Geant 4 Full and Fast simulation + Delphes

- Improving user-friendliness

  ‣ Adding features to help understand output

  ‣ Easing configuration of Fast Simulation (ongoing)

- A lot of validation studies done in the recent weeks

Related: Delphes + HEPPY analysis example for FCC-hh ready and documented

Tracking

Andi S., Julia H., Valentin V.

Tracking software framework: ACTS

Status:

- Finalising integration of ACTS into FCCSW

- Prototype tracker in FCCSW

  ‣ Good enough to use as estimate of material

  ‣ Flexible in terms of adjusting dimensions

Calorimetry

Anna Z., Brandon R., Clement H., Jana F., Tony P.

Currently working on reconstruction algorithms

- New utilities:

  ‣ Change segmentation after simulation

  ‣ Navigation of volume hierarchy

  ‣ phi / eta segmentation ready to be used

Digital ECal, see next talk:

- Implementation in FCCSW on-going

- Some more feedback on needs for simulation and detector description

Detector Geometry

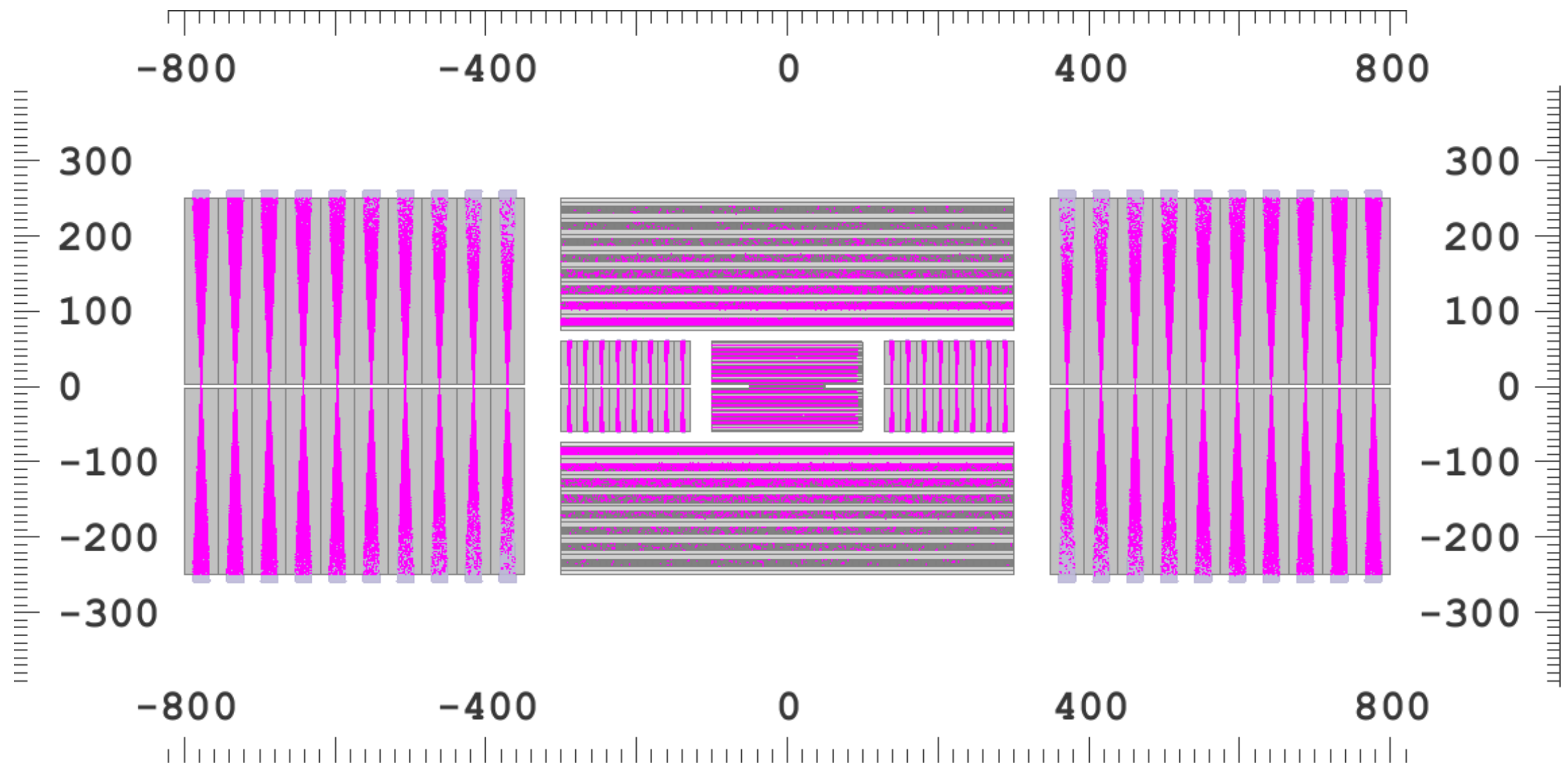Clement H.,
J. L., Valentin V.

We have defined a hierarchy for the detector geometry:

- Allow standalone tests

- Allow re-use of descriptions in different baselines

- One file containing the detector dimensions

  ‣ see: documentation for details

Waiting to implement the new FCC-hh baseline!

Related: DDEve as event display (currently being finalised)

DDEve display of tracker concept in peak pile-up conditions

Valentin V.

Tooling and Infrastructure

Benedikt H., J. L.

Extending the use of automation tools

- Releases now automated

- Documentation page being updated

  ‣ Keep track of versions

  ‣ Collect doxygen produced docs

- Code quality checks:

  ‣ Successful summer student project (David Ho)

Conclusion

Progress in many areas:

- Validation and usability improvements in simulation

- First steps towards reco for calorimeter

- Last steps in tracking integration

- Some small changes behind the scenes to ease development

- Having the first users: All feedback is welcome!

Some things almost done™, more details soon