Contribution ID: **403**   Type: **oral presentation**

Simulation and event reconstruction inside the PandaRoot frameworks.

Wednesday 5 September 2007 15:40 (20 minutes)

The PANDA detector will be located at the future GSI accelerator FAIR. Its primary objective is the investigation of strong interaction with anti-proton beams, in the range up to 15 GeV/c as momentum of the incoming anti-proton. The PANDA offline simulation framework is called "PandaRoot", as it is based upon the ROOT 5.12 package. It is characterized by a high versatility; it allows to perform simulation and analysis, to run different event generators (EvtGen, Pluto, UrQmd), different transport models (Geant3, Geant4, Fluka) with the same code, thus to compare the results simply by changing few macro lines without recompiling at all.
Moreover auto-configuration scripts allow installing the full framework easily in different Linux distributions and with different compilers (the framework was installed and tested in more than 10 Linux platforms) without further manipulation. The final data are in a tree format, easily accessible and readable through simple clicks on the root browsers.
The presentation will report on the actual status of the computing development inside the PandaRoot framework, in terms of detector implementation and event reconstruction.

Summary

The PandaRoot framework is part of the FairRoot project, a common framework for the future FAIR experiments, such as CBM, Panda and HADES upgrade. The talk will explain the general structure of the framework, the several event generators implemented, the possibility to use Geant3 and Geant4 at the same time, thus to compare results (which are substantially different in the case of EM showers), the implemented detectors via the geometry visualization tool, and the reconstruction status (cluster finding in the em calorimeter, pattern recognizion and global tracking by using a Kalmann filter and the GEANE track follower).

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

Panda

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Session Classification: Event processing

Track Classification: Event Processing