

CMD-3 Detector Offline Software Development

Thursday, March 26, 2009 4:30 PM (20 minutes)

CMD-3 is the general purpose cryogenic magnetic detector for VEPP-2000 electron-positron collider, which is being commissioned at Budker Institute of Nuclear Physics (BINP, Novosibirsk, Russia). The main aspects of physical program of the experiment are precision measurements of hadronic cross sections, study of known and search for new vector mesons, study of the $p\bar{p}$ and $n\bar{n}$ production cross sections in the vicinity of the threshold and search for exotic hadrons in the region of center of mass energy below 2 GeV.

The essential upgrade of CMD-2 detector (designed for VEPP-2M collider at BINP) computing farm and data storage system is being carried out to satisfy the new detector needs. In this talk I will present the general design overview and a status of implementation of CMD-3 offline software for reconstruction, simulation, visualization and storage management.

Software design standards for this project are object oriented programming techniques, C++ as a main language, Geant4 as an only simulation tool, Geant4 based detector geometry description, CLHEP library based primary generators, ROOT toolbox as a persistency manager and Scientific Linux as a main platform. The dedicated software development framework (Cmd3Fwk) was implemented in order to be the basic software integration solution and a high level persistency manager. The key features of the framework are modularity, dynamic data processing chain handling according to the XML configuration of reconstruction modules and on-demand data provisioning mechanisms.

Presentation type (oral | poster)

poster

Summary

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The essential upgrade of CMD-2 detector (designed for VEPP-2M collider at BINP) computing farm and data storage system is being carried out to satisfy new detector needs. In this talk I will present the general design overview and status of implementation of CMD-3 offline software for reconstruction, visualization, storage management and user interfaces.

All the software components involved in CMD-3 data analysis are implemented within the dedicated Cmd3Fwk Software Development Framework.

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