Contribution ID: **428** Type: **poster**

The RAVE/VERTIGO Vertex Reconstruction Toolkit and Framework

Wednesday, September 5, 2007 8:00 AM (20 minutes)

A detector-independent toolkit (RAVE) is being developed for the reconstruction of the common interaction vertices from a set of reconstructed tracks. It deals both with “finding” (pattern recognition of track bundles) and with “fitting” (estimation of vertex position and track momenta). The algorithms used so far include robust adaptive filters which are derived from the CMS experiment, and the ZvTop topological vertex finder from the ILC-LCFI project. Further contributions from outside are welcome.

The toolkit is supplemented by a standalone framework (VERTIGO) for testing, analyzing and debugging. Tools include visualisation, histogramming, artificial event generation (”vertex gun”), an LCIO interface, and flexible I/O (”data harvester”, see separate presentation). Emulation of various detector environments is supported by a flexible “skin concept”.

Main design goals have been ease of use, high integrability into existing software environments, extensibility, general openness and platform independence. The toolkit and framework are coded in C++, with interfaces for other languages (Java, Python). RAVE has been successfully embedded into the ILC software packages MarlinReco and (via a wrapper) org.lcsim. VERTIGO is used as a framework for the development of new RAVE algorithms, and for standalone vertex reconstruction of data created by detector simulation packages like the “LiC Toy” (see separate presentation).

Source code and documentation of RAVE and VERTIGO are maintained in a subversion repository accessible via the web. A beta release is available.

Primary authors: PFLUGFELDER, Bernhard (Institute of High Energy Physics, Vienna); Mr MOSER, Fabian (Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna); Mr RIEDEL, Herbert V. (Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna); Dr MITAROFF, Winfried A. (Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna); Dr WALTENBERGER, Wolfgang (Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna)

Presenter: Dr MITAROFF, Winfried A. (Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences, Vienna)

Session Classification: Poster 2

Track Classification: Event Processing