Introduction

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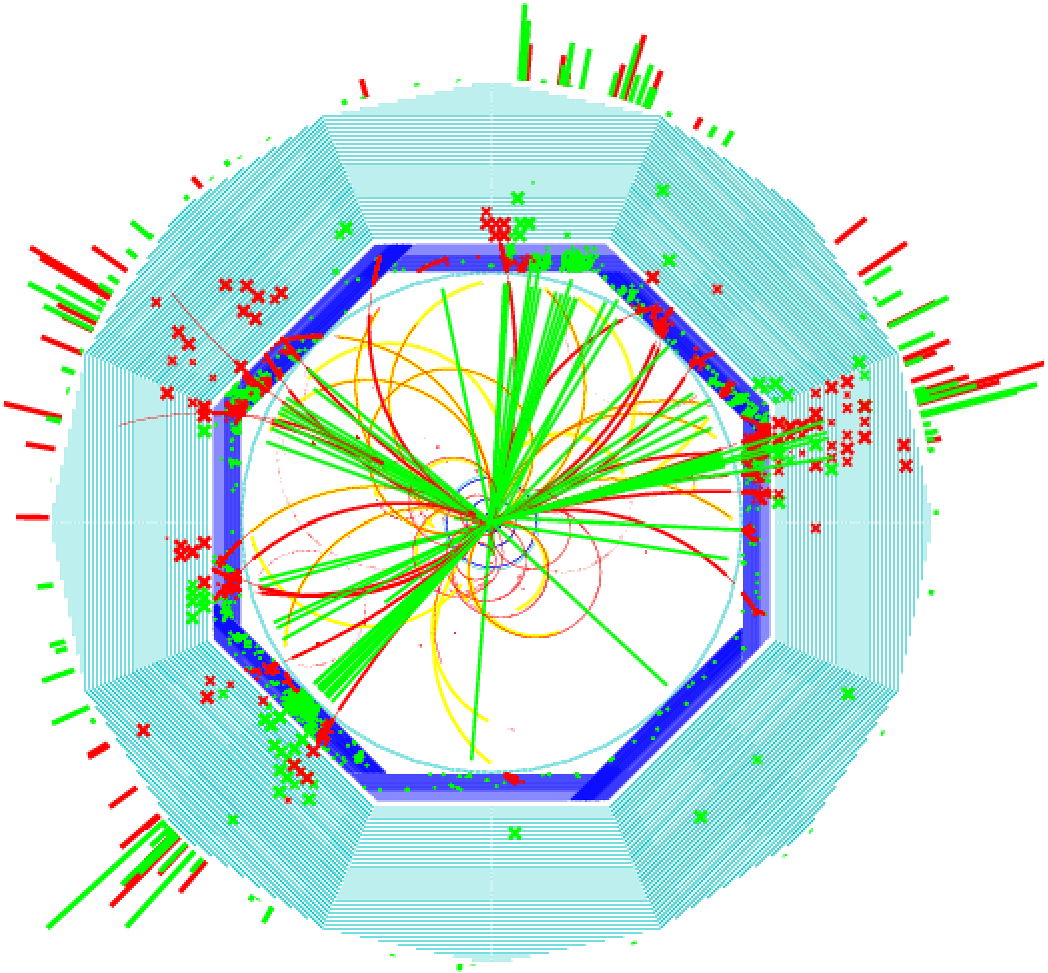
- Simulation
- Reconstruction and related tool
- Geometries
- Summary and Outlook



Simulation

Main Full Simulation tools:

- MOKKA (GEANT4 based: see next talk)
- BRAHMS (GEANT3 based)

The transition GEANT3 -> GEANT4 is in full swing

BRAHMS is still being used, and is still useful

Most development is concentrated on MOKKA

Encouraging: The number of contributors to MOKKA is increasing!

Discussion: Continue (?) the move towards a more open software like development environment for MOKKA

MOKKA: Open Questions

Continue to improve the sub-detectors

work is needed in particular in the area of tracking detectors

Continue to discuss and develop the way the database is used, in particular during development (sattelite databases? private databases? support for multiple databases)

Conceptually we have adopted the database approach for the short and medium term developments.

note: we still maintain an interest in providing an interface to the XML based geometry systems used and developed in the US

General Software Framework

Proposed basic guidelines:

All software from simulation to reconstruction:

- is based on the LCIO data model
- uses LCIO as a persistency mechanism
- uses LCIO as a transient data model between modules

A de-facto standard: core software (simulation, reconstruction) is based on plain C++

- no root dependencies in any central software
- other languages, if used, are integrated through wrappers from C++

We are very interested to provide
a close integration of JAVA into this,
but the technical side is not really solved.

The user backend is totally open: Root, JAS, PAW, ...

Reconstruction

- First "reconstruction framework" exists: MARLIN LCIOFrame

Modular Analysis and Reconstruction for the LiNear Collider

- see talk by J. Samson in this session
- simple, open framework
  - dynamically configured through steering file
  - defines a standard structure for a module
  - LCIO based
- Its a starting point, lots still needs to be done

existing modules:

HCAL prototype ganging module
Jet Finder, Lepton Finder, ZVTOP module
soon: wrapped reconstruction software (tracking, ...)

Interfaces

- Need to develop common tools – the wider the user community, the better
- First attempts to agree on common programs have not converged
- Proposal: concentrate on the definition of interfaces

LCIO: interface between data and programs:
an example for a very successful collaboration (SLAC-DESY-LLR)

CGI: Common Geometry Interface

define access methods for the basic geometry items
examples:

- getmaterial
- getX0
- getposition
- ....

prepare a concrete proposal based on the existing CGA

Have to get the discussion started!

Data Access

Agreement on LCIO facilitates the sharing of data:

now we need to develop the tools to actually share the data

Possible approaches:

"stand-alone" client server architecture

example: the "old" US system integrated into JAS2

GRID based infrastructure

use GRID tools to access data transparently from different servers around the world

Work has not really started on this .... need to make a real effort in the near future to get things going.

Summary

We are making progress – some at least

- LCIO development is converging (see separate talk)
- Several groups are using LCIO both in test experiments and in simulation
- MARLIN is starting point for a modern reconstruction system
- First tools for modern reconstruction framework start to appear