Status report on
BRAHMS and SIMDET simulation packages

Outline:

- Present BRAHMS Status

- Further BRAHMS Developments

- Present SIMDET Status

- Further SIMDET Developments

BRAHMS Status

- BRAHMS is a GEANT3 based full simulation tool including a reconstruction part for the TESLA detector (http://tesla.desy.de/new_pages/TDR_CD/PartIV/detect.html) .

- It has a well defined interface between the GEANT3 hits generation and reconstruction part which provides several options:
  - run GEANT3 simulation only and write a "hitfile"
  - run reconstruction only reading a "hitfile"
  - run GEANT3 simulation and reconstruction in one job without a "hitfile"
  - run GEANT3 simulation and reconstruction in one job with a "hitfile"

- Two formats are possible writing and reading a "hitfile" :
  - a binary stream with compression on the fly ("GZIO")
  - an output file using the new common data and storage model "LCIO"
    $\rightarrow$ described in F. Gaedes presentation.

BRAHMS Status cont.

- This can save a lot of computing time in developing reconstruction algorithms.

- Using the ("LCIO" file produced by the GEANT4 based simulation tool MOKKA the reconstruction can be done in the BRAHMS reconstruction module.

BRAHMS Developments

- Improvements in the reconstruction code

  – Forward Tracking Detector (FTD) - pattern recognition

  – Calorimeters (ECAL + HCAL) - variable cell size digitization

- Output of the reconstruction results (energy flow objects, ...)
  using the LCIO framework
  $\rightarrow$ first implementation of a reconstructed particle model in LCIO
  (see F. Gaedes presentation)

SIMDET Status

- input from generator files written in StdHep format added

- default library for PYTHIA is now 6.2 (cernlib 2002/2003)

- support for Windows/Cygwin with gcc included

- some small bugs corrected

SIMDET Developments

- Implementation of LCIO to write SIMDET results
  (analog to the output of BRAHMS reconstruction results with LCIO).

- Open:
  update of the SIMDET parametric calorimeter description
  to the present Brahms implementation.