

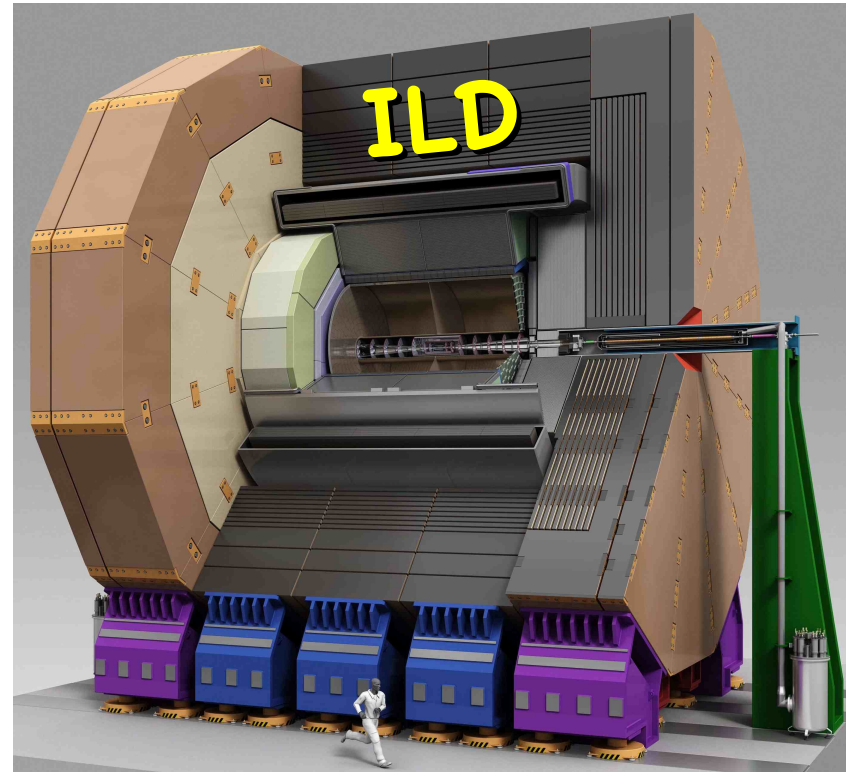
News on iLCSoft

towards a new release v01-13

Frank Gaede, DESY
Software WG Phone meeting
DESY, December 30, 2011

Outline

- patch release v01-12-01
- towards developers release v01-13
with updates of
 - Mokka
 - Clupatra, MarlinTrkProcessors
 - StandardConfig
 - -> standard reconstruction
 - CED (CEDViewer, MarlinUtil)
 - ...



patch release v01-12-01

- only LCIO (v02-00-01) changed :
 - fixed constness of getter methods parameters
 - root dictionary library was not built correctly
 - src/cpp/include/IMPL/SimTrackerHitImpl.h
 - workaround for ROOT bug (don't store MCTParticle pointer)
 - src/cpp/include/rootDict/rootio_templates.h:
 - added missing template instantiations for vectors of LCIO classes
 - src/cpp/src/UTIL/LCStdHepRdr.cc:
 - patch to fix mc particles with gen status 2 and no daughters where a PDG of 94 is present (B. Vormwald)
 - SimCalorimeterHit::addMCTParticleContribution
 - did not add energy contribution to hit energy (-> Mokka created sim hits with zero energy ...)
 - fixed printout of Vertex in dumpevent (and LCTOOLS)

ILD software timeline

5 month	Analysis and Writing	13 month
t0 - 5m	Monte Carlo production finished	
5 month	Grid Production	
t0 -10m	start Monte Carlo production	
3 month	Test, Debug and release ILDsoft	
t0-13m	freeze ILDsoft development	~20 month
>1 month	implement baseline in simulation	
t0-x	ILD baseline defined	
	evaluate technology options develop tracking package develop geometry LCIOv2 improve simulation realism improve reconstruction study machine backgrounds	

agreed timeline for ILD software:

- -> would prefer a timeline that
- has any major MC production as late as possible (13 month before DBD)
- use time until then to
 - optimize detector
 - study options/alternatives
 - develop tools
- have 'optimal' detector for DBD incl. new results from R&D groups

- **13 month before handing in the DBD is today !!**
- need to freeze the simulation models **very soon - ideally now**
- **finalize reconstruction** software (new tracking, PFA, flavor tag) before end of year
- **have developers release v01-13 early next week with first running reconstruction of 'ILD_01'**
- this talk: main features in v01-13

new Mokka release

- new development model `ILD_01_dev`
 - simplified versions of planar SIT/SET and petal based FTD
 - -> needed for finalizing the new C++ tracking code
- additional model for ATcal:
 - 'Videau' geometry (S.Lu)
 - -> disentangle geometry and technology effects
- new scheme of reading `stdhep/MCParticles`
 - "present only particles with finite flight length to geant4"
 - see presentation last meeting by B.Vormwald

new tracking packages

- iLCSoft v01-13 will contain new packages:
 - Clupatra
 - cleaned up code wrt. v00-02
 - write canonical track states
 - MarlinTrkProcessors
 - simplified digitizers
 - C++ versions of SiTracking/FullLDCTracking
- > see Steve's talk

towards a standard reconstruction

- new version of StandardConfig
- -> modified files in current to run on ILD_01(_dev):
 - bbudsc_3evt.steer : simulate 3 ttbar evts
 - bbudsc_3evt_stdreco.xml: reconstruct these events
 - bbudsc_3evt_viewer(DST).xml: display in CED

(see: StandardConfig/current/README for details)

will only support ILD_01 simulation and reconstruction from now on !

towards new standard reconstruction

```
<execute>
  <processor name="MyAIDAProcessor"/>

  <!-- ===== track digitization and tracking ===== -->
  <processor name="VXDSimplePlanarDigiProcessor"/>
  <processor name="SITSimplePlanarDigiProcessor"/>
  <processor name="FTDSimpleDiscDigiProcessor"/>
  <processor name="MyTPCDigiProcessor"/>

  <!-- ===== the new C++ tracking ===== -->
  <processor name="MyClupatraProcessor" />
  <processor name="MySiliconTracking_MarlinTrk"/>
  <processor name="MyFullLDCTracking_MarlinTrk"/>

  <!-- ===== the track cheater ===== -->
  <Xprocessor name="MyTruthTracker"/>

  <processor name="MyV0Finder"/>
  <XXXXprocessor name="MyKinkFinder"/>

<!-- ===== calorimeter digitization and PFA ===== -->
  <processor name="MyNewLDCCaloDigi"/>
  <processor name="MySimpleBCalDigi"/>
  <processor name="MySimpleLCalDigi"/>
  <processor name="MySimpleLHCalDigi"/>
  <processor name="MySimpleMuonDigi"/>

  <processor name="MyMarlinPandora"/>

<!-- ===== particle ID ===== -->
  <!--processor name="MyPFOID" /-->

<!-- ===== full and DST output ===== -->
  <processor name="MyRecoMCTruthLinker"/>

<!-- ===== vertex finder ===== -->
  <processor name="MyLcfiplusProcessor"/>

  <processor name="MyLCI0OutputProcessor"/>
  <processor name="DSTOutput"/>
</execute>
```

simplified track digitizers -> to be replaced by more sophisticated versions !?

C++ tracking code - partly new+rewrite -> to be replaced by new code

need complete re-write of V0 and kink finders

calo digitizers might need new calibration constants

need some iteration to make use of new tracking

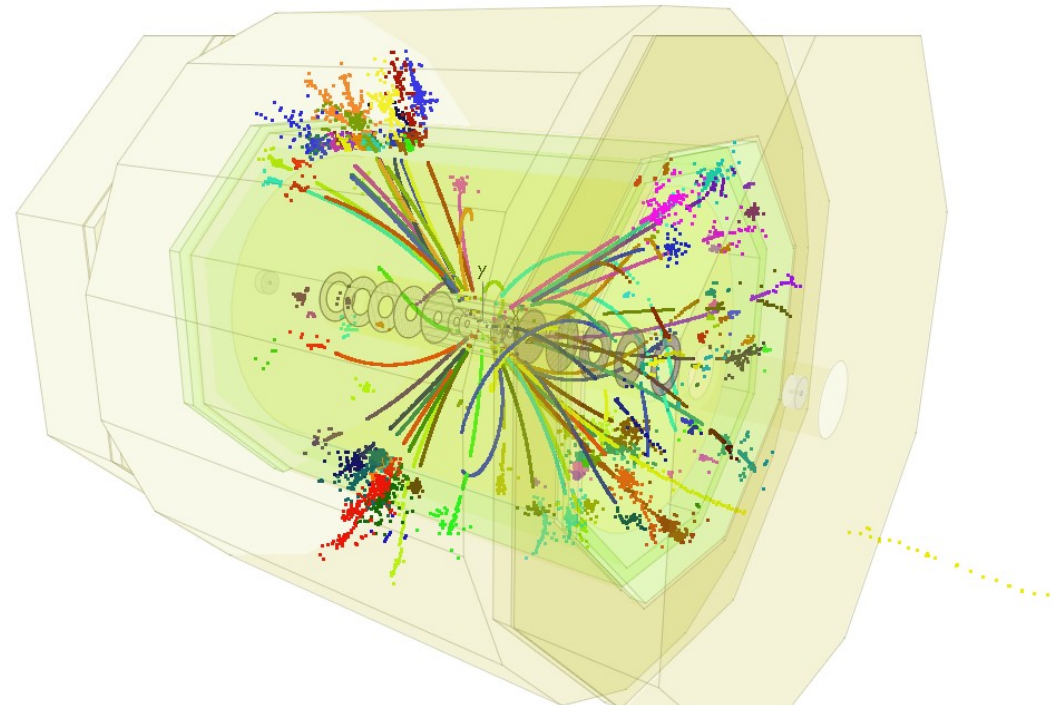
PID in Pandora much improved - do we need more ?

will run vertex (primary&secondary) finding from LCFIPlus - flavor tag in user land

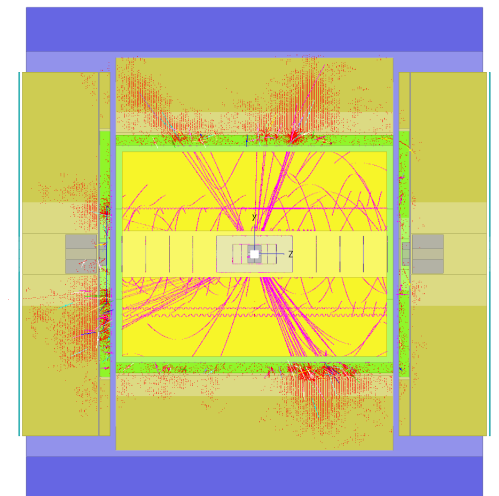
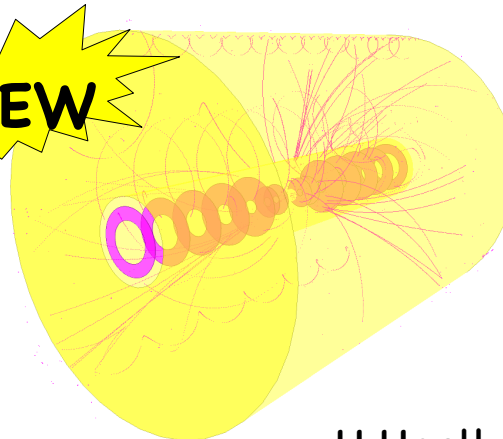
new features in CED event display

- many new features in CED, CEDViewer & MarlinCED :

- added a New View with
 - 3d transparent surfaces
 - cut open detector
 - **save display settings**
 - turn on/off detector components
 - new projections:
 - r-phi ("F")
 - r-z ("S")
 - toggle view of axes
 - **high resolution screen shots**
 - improved menu
 - detailed [User Manual](#)



NEW



Summary & Outlook

- time for finalizing software for DBD is getting short
- preparing a developers release v01-13 for next week
 - ILD_01_dev simulation
 - first standard reconstruction
 - C++ tracking
 - PandoraPFANew
 - LcfiPlus
- we need people interested in analysis to run the new software in order to find (and fix) problems
- we might have to de-scope a little from original plans in order to meet the timeline for the DBD