iLCSoft – Status
… towards release v01-10

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DESY
ILD Software WG Meeting
November 10, 2010

new iLCSoft release: v01-10

- at IWLC2010 presented new features for release v01-10:
  - Mokka: new drivers for silicon tracking and support&services
  - GEAR: implementation of material properties w/ TGEO
  - CED, CEDViewer, ... : improved CED event display
  - MarlinReco:
    - KinematicFit: improved version (M.Beckmann)
    - RecoMCTruthLinker: added links to all particles contributing to PFO (M.Berggren)
    - fixed VTXDigitizer and others...
  - include KalTest and KalDet in iLCSoft release
  - include latest released versions of 'all' packages:
    - Mokka, LCFIVertex, Pandora,....
- → see slides at end for details
- plan was to release right after IWLC2010 - however many activities since...

activities since IWLC2010 and status

- Mokka:
  - finalized the Si-tracker drivers
    - first version exists now - needs debugging....
    - release planned for today - probably needs to be delayed
- LCIO:
  - issue with ROOT dictionary in latest version 5.27.06 fixed through patch
  - send patch to ROOT team - will be included in next release
  - → can use new TGeo functionality in GEAR w/ v01-10
- CED, CEDViewer, MarlinUtil
  - made more robust (some bug fixes)
- KalTest
  - changed default units to mm, Tesla (was cm, kGauss)
  - need further testing and iteration with MarlinTPC group
- ilcinstall, CMakeModules
  - made more consistent and compatible with 'standard cmake'

iLCSoft pre-release v01-10-pre02

CED	v01-01
CEDViewer	v01-01-pre
CLHEP	2.0.4.2
CMakeModules	v01-10-pre
CondDBMySQL	ILC-0-9-1
Druid	1.8
Eutelescope	v00-04-04
LCFIVertex	v00-04-pre
LCFI_MokkaBasedNets	v00-01
Marlin	v00-13-pre
MarlinPandora	v00-02
MarlinReco	'v00-19-pre'
MarlinTPC	v00-06
MarlinUtil	v01-01-pre
Mokka	'mokka-07-06'
MokkaDBConfig	v02-01

Overlay	v00-07-04
PandoraPFA	v03-02-02
PandoraPFANew	v00-03
QT	4.2.2
RAIDA	v01-05-pre
SiliconDigi	v00-04-02
StandardConfig	v02-01
cernlib	2006
dcap	1.9.5-5
gear	v00-15-pre
gsl	1.8
lccd	v01-01-pre
lcio	v01-51-02
mysql	5.0.45
root	5.27.06 !!
KalTest	**v01-00**
KalDet	**v01-00**

- many packages changed (wrt v01-09)
- **some new added**

final release planned for next week
→ still true

v01-10-pre in afs

- pre release versions are installed in afs (SL4,SL5 32/64bit)
- software experts can already use them for testing
  - NB: versions and libraries might change w/o notice...

/afs/desy.de/project/ilcsoft/sw/XXX/v01-10-pre

XXX:
- **i386_gcc34_sl4** # i386 CPU, 32 bit, gcc3.4, SL4 and compatible
- **i386_gcc41_sl5** # i386 CPU, 32 bit, gcc4.1, SL5 and compatible
- **x86_64_gcc41_sl5** # i686 CPU, 64 bit, gcc4.1, SL5 and compatible

timeline for release v01-10

- need to finalize debugging and testing
  - → probably a few more days

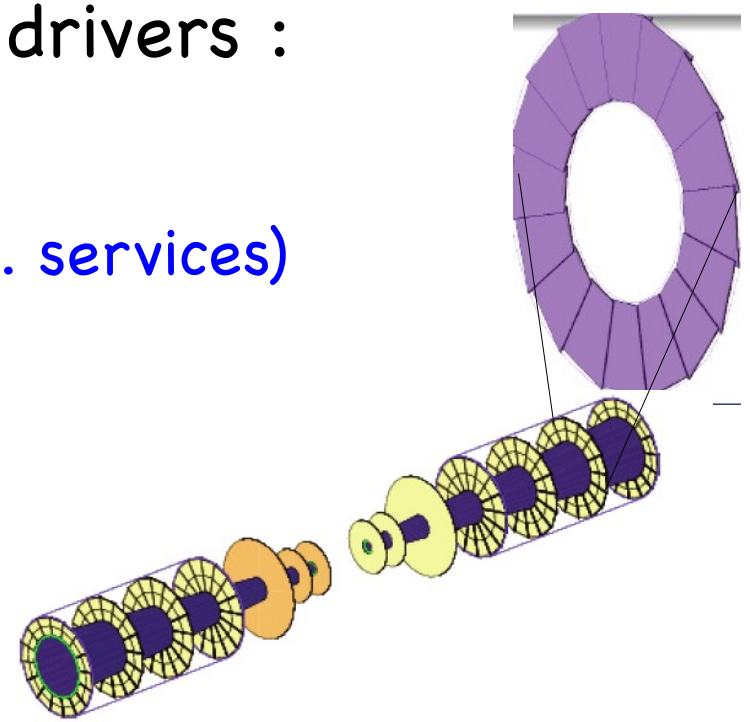
- CLIC group would like to put together a 'standard reconstruction' for the CLIC CDR
  - improvements to FullLDCTracking
  - modified SiTracking (more layers in SIT)
  - improved VTXDigitizer
  - improved CaloDigitizer
  - Overlay ? (see next talk)
- ideally these things should also go in this release
  - code exists and is tested but not yet released/comitted to svn
  - → have dedicated meeting to discuss timeline for integration
  - mainly MarlinReco affected
- is there any need to have a release asap ?

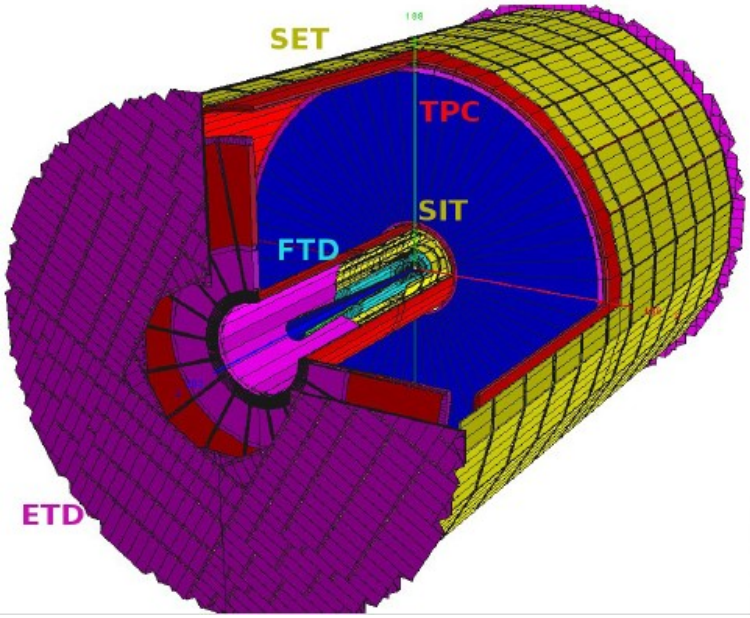
additional material:
slides shown at IWLC2010 in Geneva

new Mokka release – towards ILD_01

- major rewrite of some sub detector drivers :
  - SIT, SET, ETD – FTD – Muon
  - increased level of detail and realism (incl. services)
- TPC
  - added endcap services (cooling)
- new ECal driver:
  - mixing of Scintillator and Si layers
- improved aHcal driver:
  - included electronics & services
- overall services for TPC, Ecal, Hcal

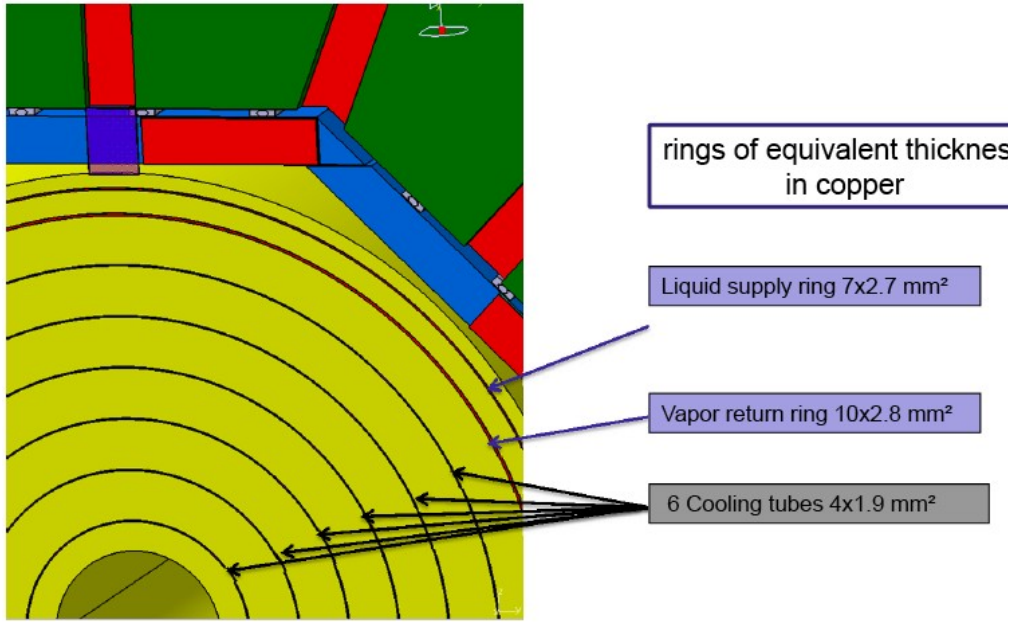
work of many people:
A.Charpy, J.Duarte, A.Saveliev, G.Musat,
A.Lucaci, P.Mora de Freitas,....

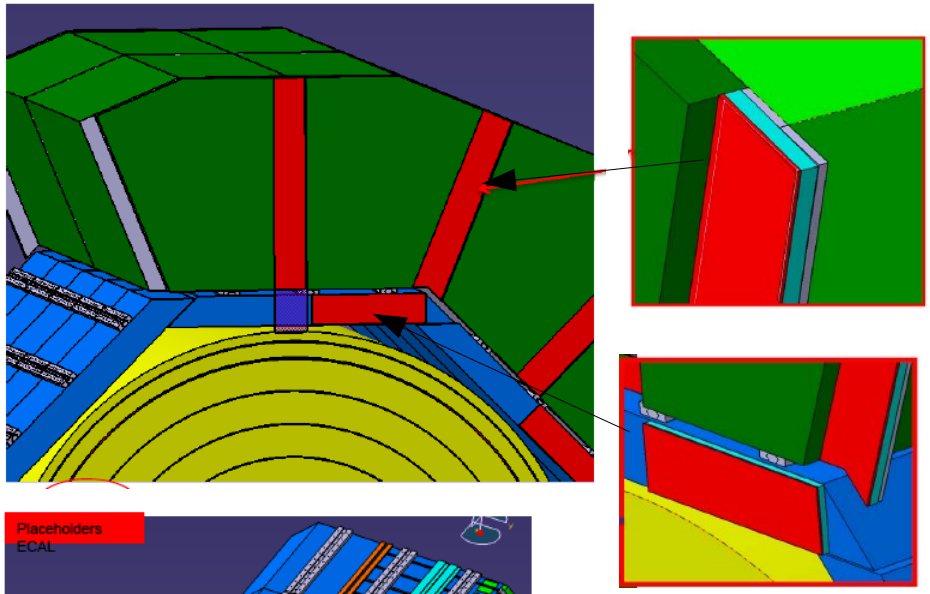


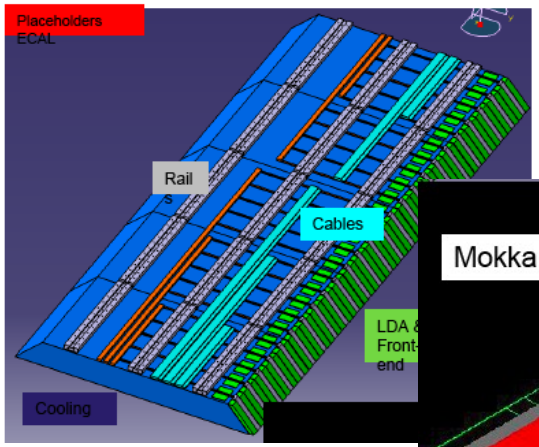


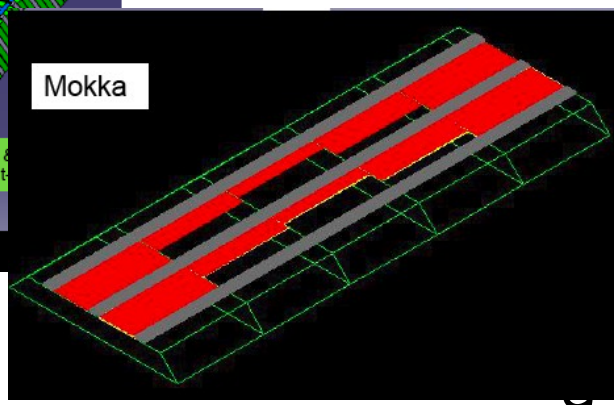
new Mokka release – towards ILD_01

- added cabling and services for TPC, ECal & Hcal (C.Clerc, G.Musat)
- still missing: inner detector services (to be defined by R&D groups)









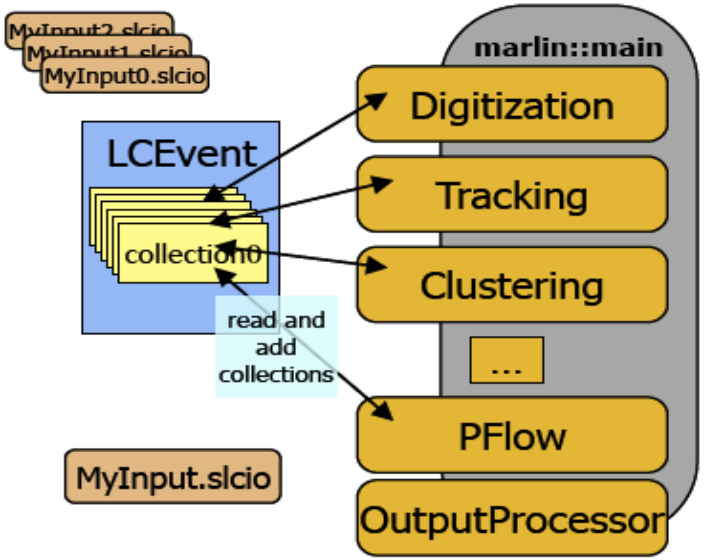
big step forward in increasing realism of ILD detector simulation !

new Marlin release

- new features in v00-(12)13:
  - processors can have local Verbosity parameter
    - can turn off messages from other processors for debugging
  - exit if processor specified in steering file not found
  - processor return values have to be set if used in logical expression in steering file
  - added macro streamlog_level(LEVEL)

```
if( streamlog_level( DEBUG ) && x ) {
    // do additional computation for debugging ...
    streamlog_out( DEBUG ) <<  " ..." << std::endl ;
}
```

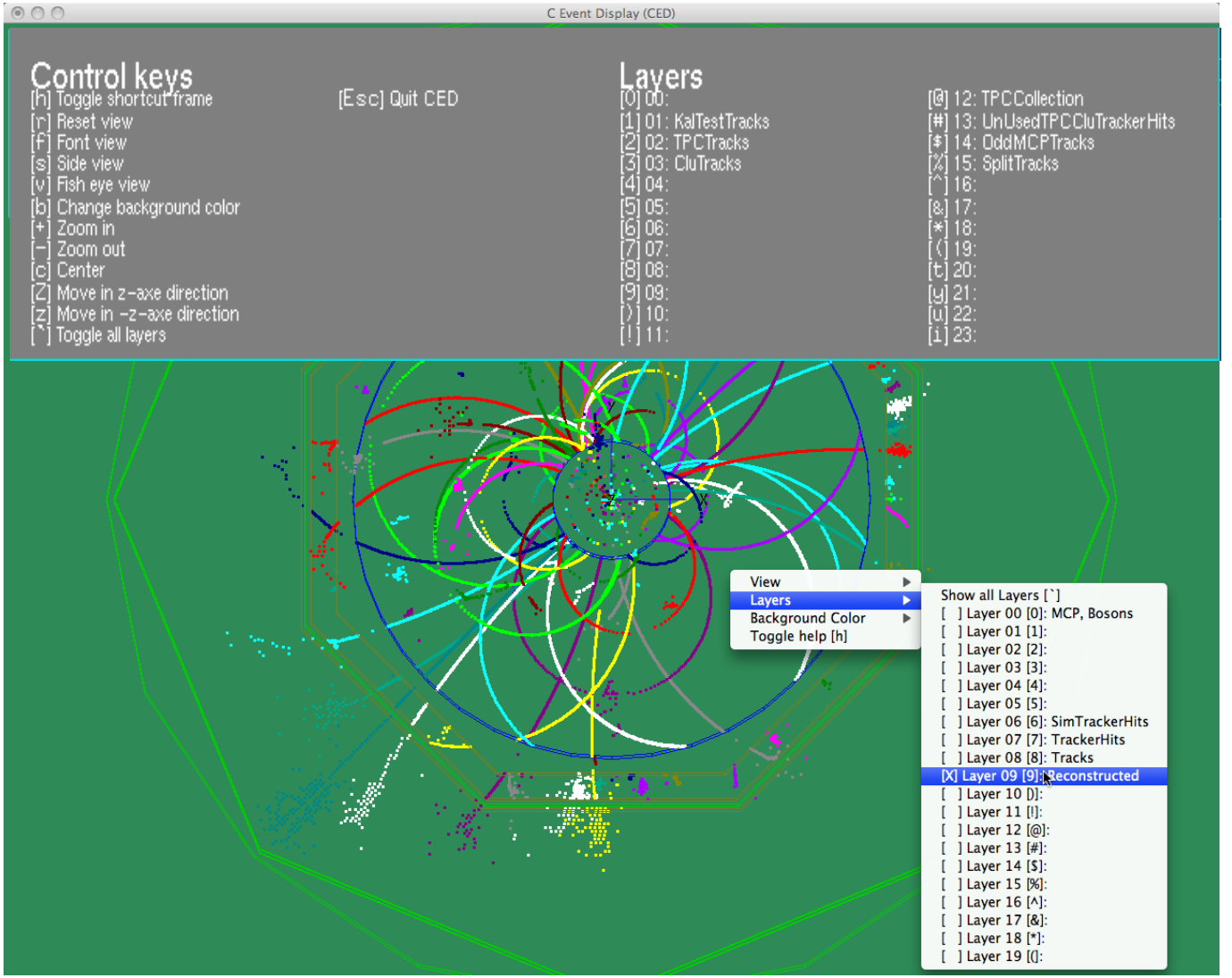
  - minor fixes
    - made compliant w. gcc4.1
    - AIDAProcessor: switched default to *.root
    - protect against converting false strings to float



to do for next release: introduce command line parameters – **from JSF framework**

improved CED event display

- added help menu
  - toggled with 'h'
  - shows all keys
  - shows all 'collections'
- added mouse menu
  - toggle single visualization layers
  - choose bg colors
  - views
  - zoom
- commands to add layer description and picking also for user code



- new python script to start CED & CEDViewer in on go: ced2go.py

(H.Hoelbe)

new packages in iLCSoft - v01-10

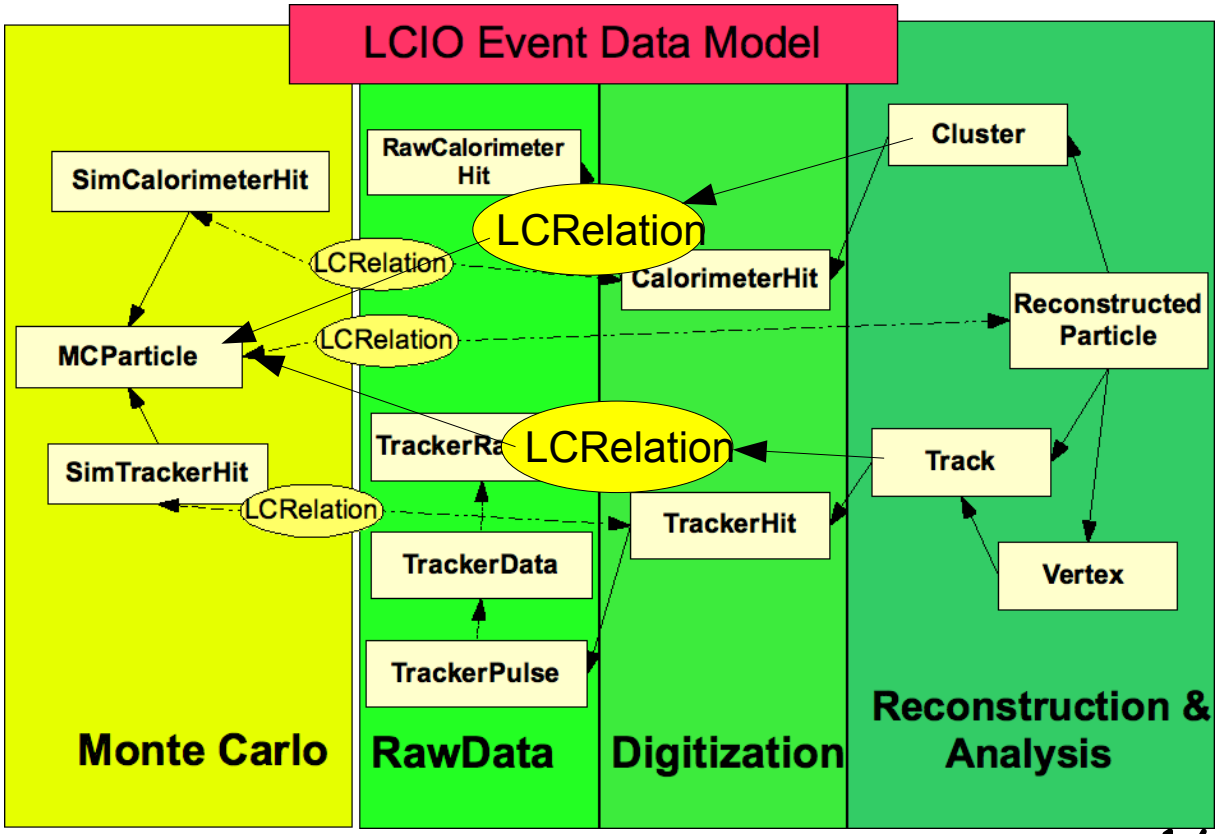
- KalTest
  - Kalman Fitting library (Keisuke Fuji et al)
    - migrated code base to SVN
    - added cmake build scripts
- KalDet
  - detector description (geometry and material) for KalTest
    - currently writing the geometry build up from GEAR
  - both packages will be used by LCTPC (MarlinTPC) and ILD
  - ILD: will use (as one option) for new tracking code - started to use for TPC tracking (see talk FG)
  - -> try to share as much common code as possible, i.e. is reasonable given the slightly different requirements for testbeam and global detector optimization

MarlinReco - v00-(18)19

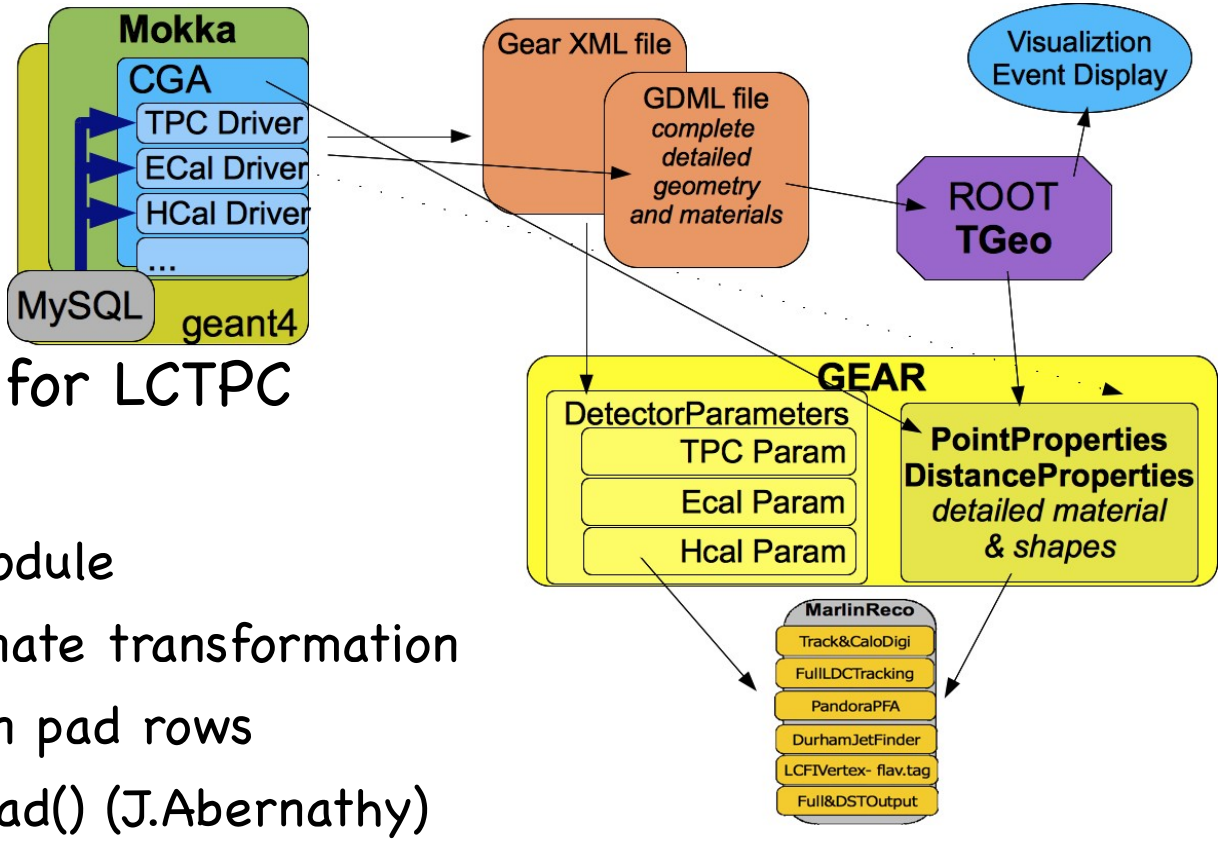
- new package KinkFinder (M.Thomson, J.Marshall)
- new package BCalTagEfficiency (J.List, M.Berggren)
- new package FPCCDDigi (D. Kamai)
- Analysis/MarlinKinfit
  - improved fitting (M.Beckmann)
- TPCDigitizer
  - fixed hit smearing (M.Thomson)
- VXDDigitizer
  - fixed issue w/ smearing off the ladder (S.Aplin)
- SimpleMuonDigi
  - improve calibration of muon hits (M.Thomson)

MarlinReco - v00-19

- V0Finder
  - improved checking to avoid false positives (M.Thomson)
- BCalTagEfficiency
  - fixed memory leak bug (C. Bartels)
- RecoMCTruthLinker
  - added additional relations between MCParticle and Tracks and Clusters - to be used for DST (M.Berggren)



new GEAR release - v00-15



- new in v00-14(15):
  - made pure C++ (no Java)
  - improved TPCParameters for LCTPC (M.Killenberg)
    - implemented z-Position of module
    - improved global-local coordinate transformation
    - introduced circle segments in pad rows
    - improved TPCP.::getNearestPad() (J.Abernathy)
  - Point/DistanceProperties implemented with TGeo (A.Muennich - see talk by S.Poss)
    - uses GDML interface to geant4
    - introduced material map in memory (performance)
  - Mokka-CGA (geant4) implementation of Point/DistanceProperties released in Mokka