Introduction to ILCSoft Frmawork

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Welcome in Göttingen

- Focus for this workshop:
  - Discuss analysis steps & improve Eutelescope based TB analysis.
  - Discuss status of TB analysis for 2008 and 2009 (-> TB paper).
  - Discuss preparations for testbeams in 2010.

Outline

- Why do we care about ILCSoft?
- Basic structure of LCIO = data persistency
- Basic structure of Marlin = modular analysis

MC Studies for Belle II

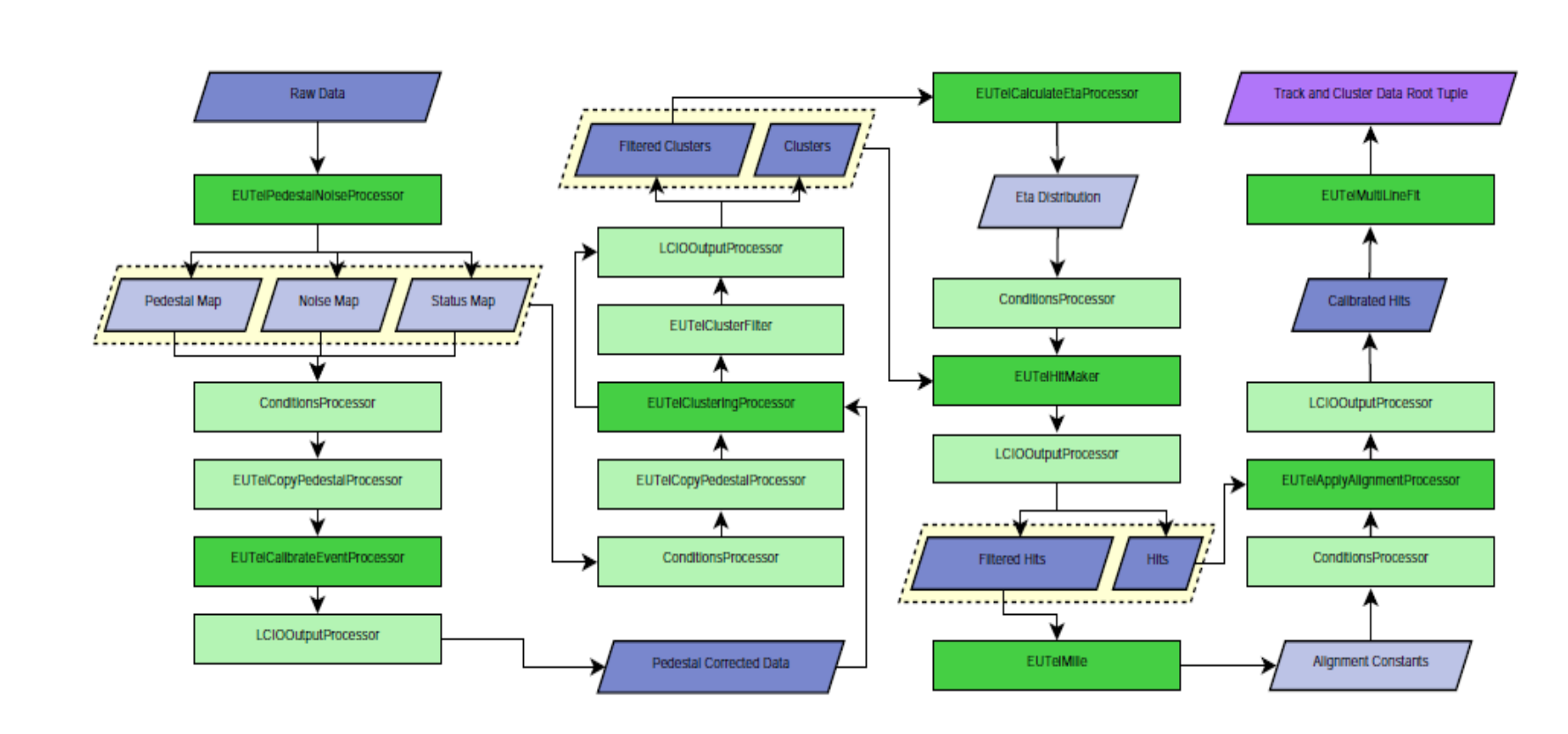
ILC Framework

- PXD, SVD with advanced digitisation
  - some material missing
- CDC implemented, both as
  - 'real' CDC
  - fake - TPC
- Full Reconstruction Chain (so far only with fake - TPC)
  - Pattern recognition
  - TrackFitting
  - Vertex
- Many other Tools
  - Eventviewer, MC Tracking Cheater,...

(Martin Heck @ B2GM)

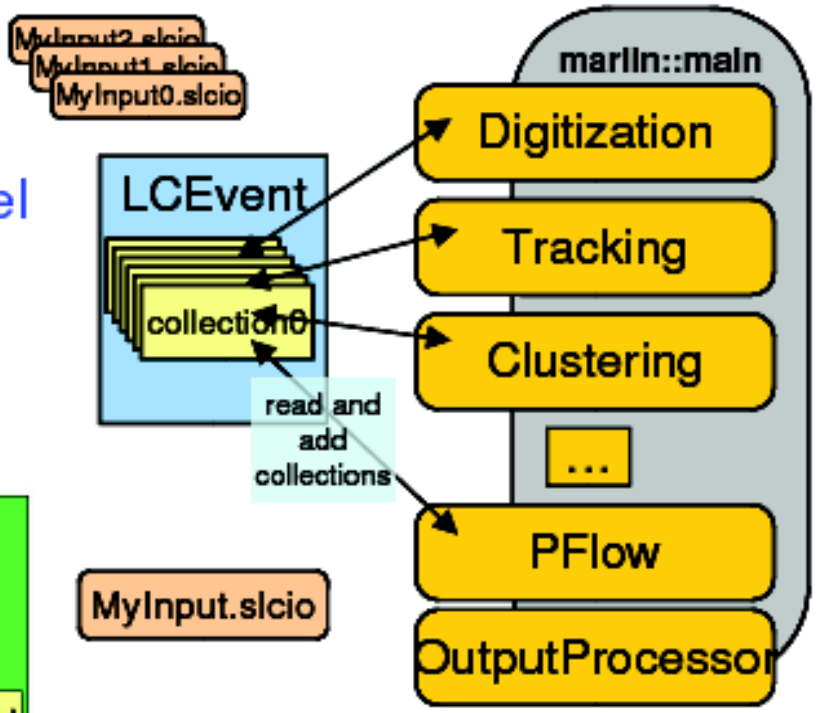
Eutelescope Package

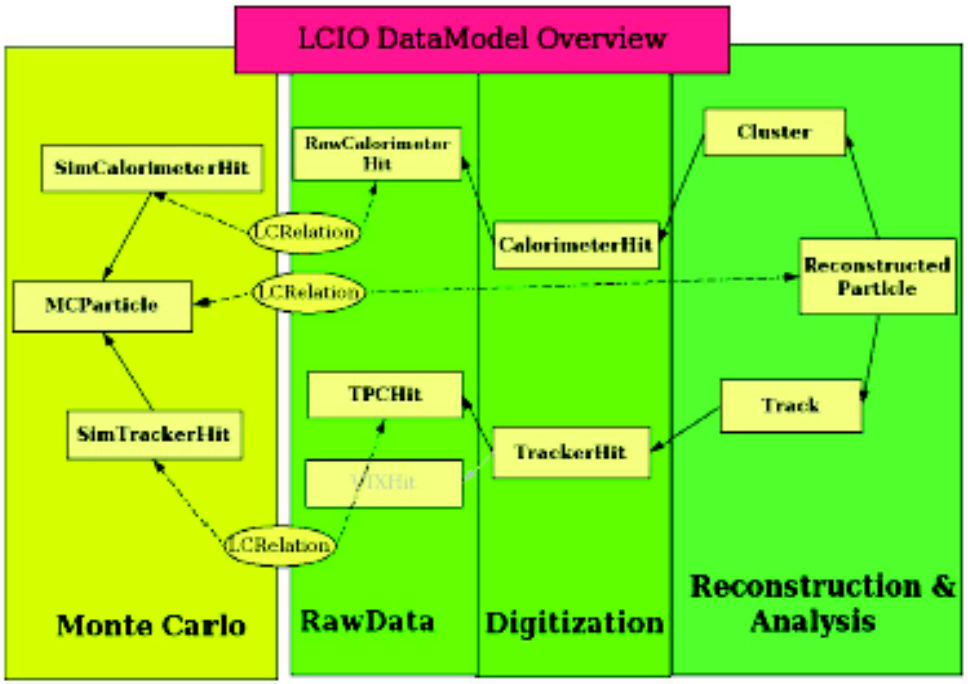
- Advanced module library for TB analysis in th ILC framework.



Marlin/LCIO

- modular C++ **application framework** for the analysis and reconstruction of LCIO data
- uses LCIO as transient data model
- software modules called Processors
  - **Plug&Play** of processors





ILC Framework

- Documentation and software repository available at http://ilcsoft.desy.de/portal
- But: we will need an additional repository to share DEPFET specific modifications.
  - Additional/modified Eutelescope processors

LCIO
A Data Persistency Model

- LCIO offers a standardized data model for all stages from simulation (DAQ), preproessing, clustering, hit reconstruction, tracking.
- Relevant examples for TB:
  - MCParticle
  - TrackerRawData
  - TrackerData
  - TrackerPulse
  - TrackerHit
  - ReconstructedParticle
- Permanent storage for all processed results

Marlin

- Each analysis step is matched by one Marlin Processor.
- Analysis on data sample = Marlin calls series of Marlin processors for each event.
- We only need to deal with Marlin processors. They are simple:
  - All C++, derived from single base class
  - Modify one function: processEvent()
  - Can access all previouly processed data.

Summary and Outlook

- Quite extensive body of functionality is already available in ILCSoft (-> for example Eutelescope package).
- Promise: ILCSoft analysis chain will be compatible to the final Belle II software framework (Munich group).
- But: current state of Eutelescope analysis chain is not yet compatible with Prague analysis.
- Therefor: further development and code integration is needed.