Software Coordinators Report
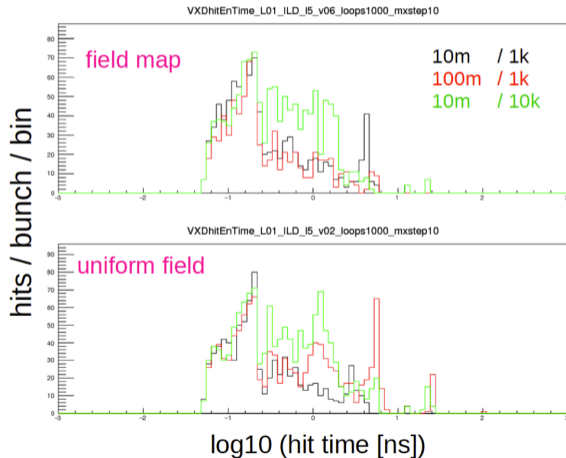
F.Gaede

ILD Phone Meeting, Sep 4, 2018
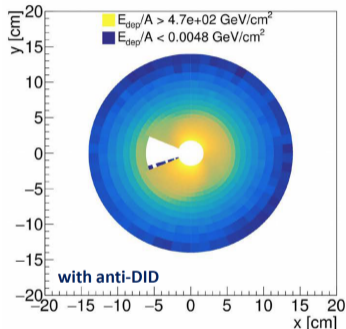
- Generator
- Simulation
- Reconstruction
- Monte Carlo Production
- iLCSoft v02-00-02
- known issues

Generator M.Berggren

- following Whizard HEAD releases
  - new proper release planned soon
- one minor issue w/ LCIO output
  - one redundant repetition of incoming particles
  - Whizard authors: "won't fix"
  - => need to check if it causes problems in ddsim
- checked parallelization of Whizard
  - OpenMP and MPI
  - MPI gives rather linear speed-up w/ #cores
  - to be used for 1TeV benchmark signal samples (WW/ZZ)
- minor issue in 1TeV seeable pairs files:
  - no initial beam energy spread used
- created new uds, bb, cc benchmark samples w/ Whizard2
  - => need to check consistency of JER performance

- study of pair bg w/ different field tracking parameters:
  - *MaxStepLength* and *MaxLoopNumber*
- observe variations of 2-3 in hit numbers in VXD L0/L1
- **ongoing study . . .**

Reconstruction R.Ete

- prepared 1 TeV reconstruction steering files
  - using new background map for BeamCal

- re-discovered knwon issue:
  - 500 GeV samples for ILD_s5_v02 model used BeamCal background for large detector (and 3.5 T field)

- created **ILDConfig v02-00-02** release with this
  - also includes fix to *knwon issue* with missing PFO's from charged particles at $cos(\theta) = 0.8$

Monte Carlo Production <small>A. Miyamoto</small>

- produced all additionally requested 500GeV samples :
- flavor tag training samples
- 6q-jets (u,d,s,c,b):
  - 500 GeV, >100k events each, w/wo overlay, ILD_ls5_o1_v02
- some leftover 500 GeV SM-background samples
  - 2f_Z_nuNg, 2f_Z_bhabhaNg, 4f_lowmee: w overlay, ILD_ls5_o1_v02
  - aa_lowpt/seeablepairs : reconstruction w.o. overlay (500 GeV)
  - light Higgs like samples : waiting generator files.
  - low mass Higgsino : waiting generator files.
- next step: 1 TeV vvqqqq :
  - required background and configuration files now available
  - production can **start now with iLCSoft release v02-00-02**

Latest information in elog: `https://ild.ngt.ndu.ac.jp/elog/dbd-prod/`

iLCSoft release v02-00-02

- have created v02-00 for large scale Monte Carlo production
- important bug fix in v02-00-01
  - treatment of FSR for lepton(-pairs) was incorrect
  - used for **complete 500 GeV SM sample**
    - ILD_l5_v02 and ILD_s5_v02 *hybrid models*
- since then a number of issues identified and (partly fixed)
- prepared v02-00-02 for benchmark analyses and dedicated studies
  - see next slides for changed packages

v02-00-02 has just been released

- **LCIO**
- bug fix in *dumpevent* (FG)
    - seg faults when browsing events with TOF-PID objects

- **lcgeo**
- apply anti-DID field map to small ILD models (D.Jeans)
    - assume same anti-DID field as for large models

- added QD0 and QDEX1A magnet strengths for 1 TeV (D.Jeans)
    - new models ILD_(sl)5_v08(7) : 1 TeV fwd magnets, solenoid field map, w/(w/o) anti-DID

- **DD4hep**
- bug fix in *Geant4EventReaderGuineaPig* (FG)
    - fix ignoring input lines with 'nan'

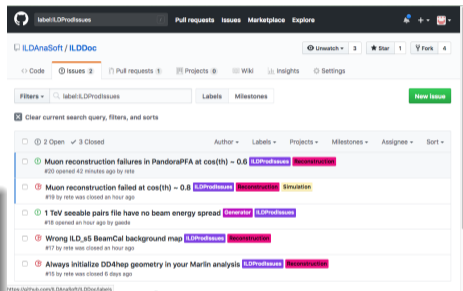# (High-Level) Reconstruction Tools in v02-00-02

- **MarlinReco**
- added new analysis tool *TJjetsPFOAnalysisProcessor* (J.Beyer)
  - combine PFOAnalysis with TrueJet/TrueJet_Parser
- improved/fixed *IsolatedLeptonTagger* (J.Tian)
  - fixed issue with track impact parameters and IP-z-position smearing
  - minor updates about pre-cut values and symmetric treatment for d0/z0 significance
  - new weights trained for new samples are provided
- **KalTest**
- added Runge-Kutta (RK) track propagation functions (B.Li)
  - could be used for track fits in non-homogeneous B-fields
  - to be checked if this works w/ *MarlinTrk*

(High-Level) Reconstruction Tools in v02-00-02

- **CEDViewer**
- improved CEDViewer/DDCEDViewer, ced2go (FG)
  - print run and event number at end of event
  - added missing new collections (mostly calo hits) from ILD mass production
- added a command line option, "-n 1" to ced2go (A.Miyamoto)
  - if this option is specified, glced server is not started

- **LCFIPlus**
- bug fix (R. Yonamine)
  - cope with events having no vertex track candidates
  - fix spurious crashes in production

Known issues in Monte Carlo production

- created a list of known issues in mass production (R.Ete): `https: //github.com/ILDAnaSoft/ILDDoc/issues? utf8=%E2%9C%93&q=label%3AILDProdIssues`

important for benchmark analyses

- please chek this page frequently
- report any workaround, comment or new issue:

- `https: //github.com/ILDAnaSoft/ILDDoc/issues/new`

Summary

- 500 GeV standard model sample completed (ILD_ls5_o1_v02)
  - **benchmark analyses have started**
- also all additional 500 GeV samples have been produced
- 1 TeV production will start soon
- some issues identified for mass production
- see *knwon issues page*

some issues are fixed in *ilcsoft patch release* **v02-00-02**