

# Software Coordinators Report

ILD Software and Analysis Meeting

19.07.23

Frank Gaede, DESY

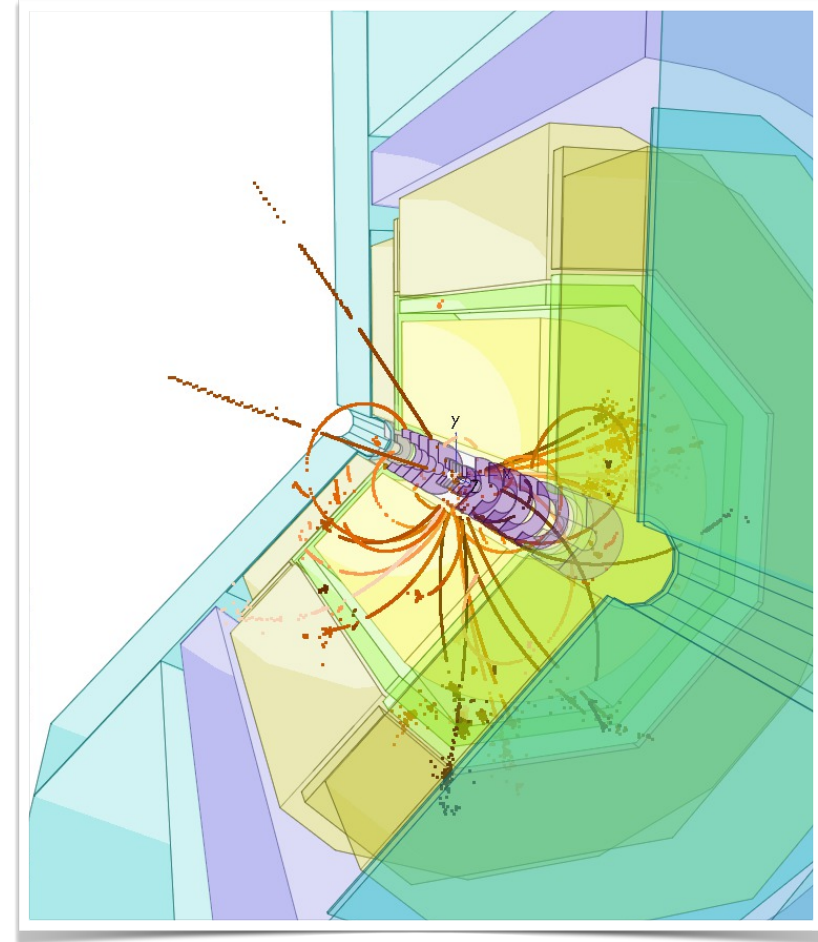


# Outline



- Generator
- Simulation
- Reconstruction
- Monte Carlo Production

report from SW convenors meeting last Friday



# Generator

M.Berggren



- no news
- currently nothing in the pipeline for generator
- until new - dedicated - sample requests come in ...

# Reconstruction

T.Madlener

- ECFA reconstruction workshop
- at CERN, last week
- interesting talks and discussions on
  - Key4hep/EDM4hep
  - ACTS/Pandora
  - Flavour Tag/PID
  - ....

<https://indico.cern.ch/event/1283129/>

## ECFA Higgs Factories: 2nd Topical Meeting on Reconstruction

11 Jul 2023, 09:00 → 12 Jul 2023, 18:00 Europe/Berlin

40/S2-C01 - Salle Curie (CERN)

Description **The meeting will be held at CERN**

As follow-up of the WG2 activities for the ECFA workshops on e+e- Higgs/top/EW factories, this is the SECOND topical meeting on reconstruction.

In this two-day meeting, we will discuss the status and possible future developments as well as discuss with experts of the software framework common to FCC, ILC, CLIC, in order to efficiently interface the developments of the reconstruction algorithms for future accelerators and discuss with experts from LHC and Belle.

The workshop will be in hybrid form both at CERN and ZOOM.

Please register (irrespective of whether you will participate via Zoom or in person) preferably before June 20.

Connection information will be made available to the registered participants.

We are very interested in your participation in this common effort. Do not hesitate to contact us if you would like to make a presentation or if you would like to help with the work!

### 14:00 → 16:00 Afternoon Session 1: KEY4HEP

#### 14:00 Overview of KEY4HEP

Speaker: Frank-Dieter Gaede (Deutsches Elektronen-Synchrotron DESY)

gaede\_key4hep\_rec...

#### 14:30 LCIO2EDM4HEP converter and applications

Speaker: Thomas Madlener (Deutsches Elektronen-Synchrotron DESY)

lcio2edm4hep\_ecfa...

#### 14:55 Overlay in KEY4HEP

Speaker: Andre Sailer (CERN)

230711\_sailer\_overl...

#### 15:15 Overlay for C\*3

Speaker: Lindsey Gray (Fermi National Accelerator Lab. (US))

c3Overlay\_LindseyG...

#### 15:35 Discussion

#### 16:30 ACTS tracking in a muon collider

Speaker: Karol Krizka (University of Birmingham (GB))

ecfatracking-20220...

#### 17:00 Lepton ID in jets

Speaker: Leonhard Reichenbach (University of Bonn (DE))

230711\_ECFAReco...

### 09:30 → 10:45 Morning Session 2: Particle ID

#### 09:30 Cluster Counting with IDEA Drift Chamber

Speaker: Nicola De Filippis (Politecnico/INFN Bari (IT))

DeFilippis\_DCH\_CC...

#### 09:55 A Comprehensive Particle ID Framework

Speaker: Ulrich Einhaus

2023\_07\_12\_ECFA...

### 10:45 → 11:15

Coffee Break

### 11:15 → 12:30 Morning Session 2: ML based Reconstruction

#### 11:15 ParticleNet ML tagger

Speaker: Dolores Garcia (CERN)

jettagging-ECFA202...

#### 11:40 DNN particle flow

Speaker: Taikan Suehara (Kyushu University (JP))

230712-dnnpfa-ecfa...

#### 12:05 Particle Flow reconstruction with the DR calorimeter in Pandora Framework

Speaker: Biagio Di Micco (Universita' degli Studi di Roma Tre e Istituto Nazionale di Fisica Nucleare (INFN))

ECFA\_meeting.pdf

### 14:00 → 15:10 Afternoon Session 2: Kinematic Fits

#### 14:00 Reconstructing Higgs pair production events

Speaker: Julie Munch Torndal (Deutsches Elektronen-Synchrotron (DE))

ECFA\_Reconstructio...

#### 14:20 Discussion

#### 14:35 W physics

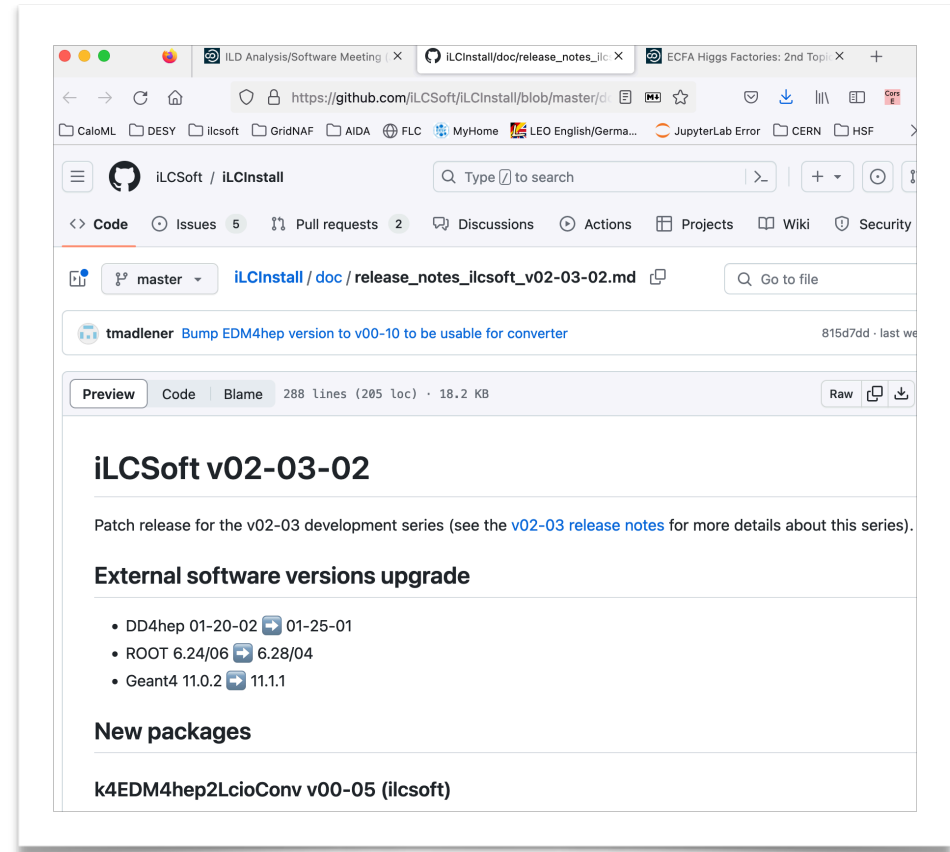
Speaker: Graham Wilson (The University of Kansas (US))

WWreco\_Talk.pdf

# Reconstruction

T.Madlener

- released **iLCSoft patch** release: v02-03-02
- new package k4EDM4hep2LcioConv:
  - convert ILD 1st files to EDM4hep
- updates to many (new) core packages:
  - EDM4hep, polio, MarlinUtil, ilcinstall, LCIO, ...
- new and updated (sub) packages in MarlinReco:
  - TOF (B.Duhdar)
  - SLDCorrection (Y.Radkhorrani)
  - ComprehensivePIDProcessor (U.Einhaus)
- ... and many more ...



see: [https://github.com/iLCSoft/iLCInstall/blob/master/doc/release\\_notes\\_ilcsoft\\_v02-03-02.md](https://github.com/iLCSoft/iLCInstall/blob/master/doc/release_notes_ilcsoft_v02-03-02.md) for details

# Monte Carlo Production

H.Ono, R.Yonamine

- 600 GeV ZHH production completed
- paused production of virtual photon samples
  - will restart production asap
- updated disk space at DESY-SE
  - now have an additional 120 TB free disk space
  - ... more to come, later this year ....

## 250 GeV samples

group	nbjobs	total_nb_inputs	totev_submit	CPUday	SIM	REC	DST
				sim+rec	(TB)	(TB)	(TB)
aa_2f_leptonic_eW_pW	133,800	446	267,600,000	9,450	40.8	180.9	6.17
aa_2f_leptonic_eW_pB	123,433	529	370,300,000	10,383	40.4	177.2	8.45
aa_2f_leptonic_eB_pW	123,400	617	370,200,000	10,839	44.6	160.9	7.41
aa_2f_hadronic_eW_pW	71,600	358	71,600,000	6,042	38	83.7	2.9
aa_2f_hadronic_eW_pB	60,133	451	90,200,000	6,613	43.9	82.4	3.39
aa_2f_hadronic_eB_pW	60,267	452	90,400,000	6,672	40.6	87.4	3.47
aa_4f	229	40	929000	14	0.03	0.08	0
5f	946	52	620000	87	0.8	1.09	0.03
3f	617008	1504	712440000	71949	460.3	752.78	18.76
<b>Total</b>	<b>1,190,816</b>	<b>4,449</b>	<b>1,974,289,000</b>	<b>122,049</b>	<b>709</b>	<b>1,526</b>	<b>51</b>

-> ~ 40days for 3000 CPUs