Status Mass Production w/ ILCDIRAC

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ILD Analysis & Software Meeting

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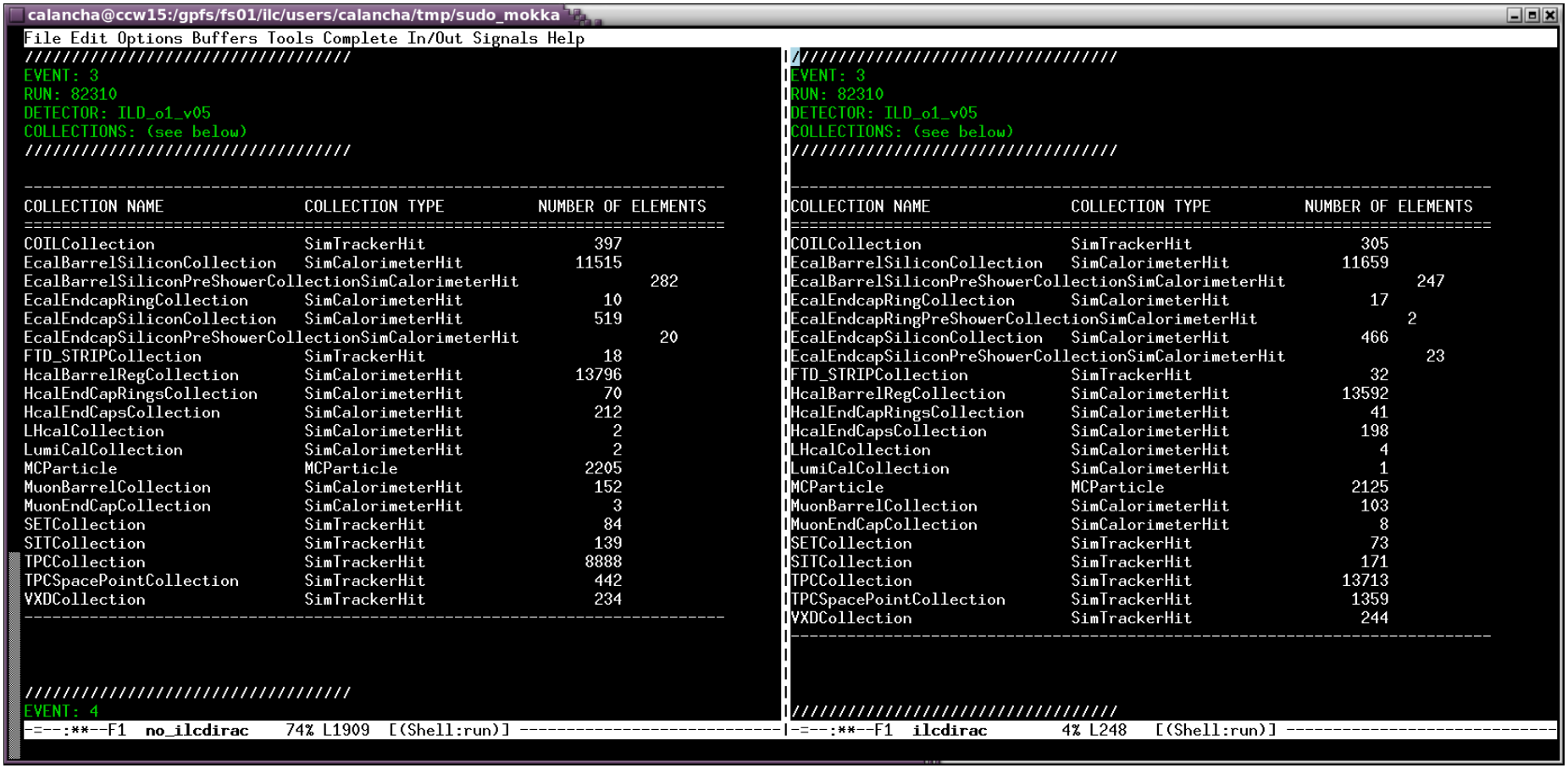
- First ILD production jobs. using `ilcdirac`.
  - Simulation and reconstruction.
- We aim to validate these productions.
  - Compare with previous DBD mass productions produced w/o `ilcdirac`.

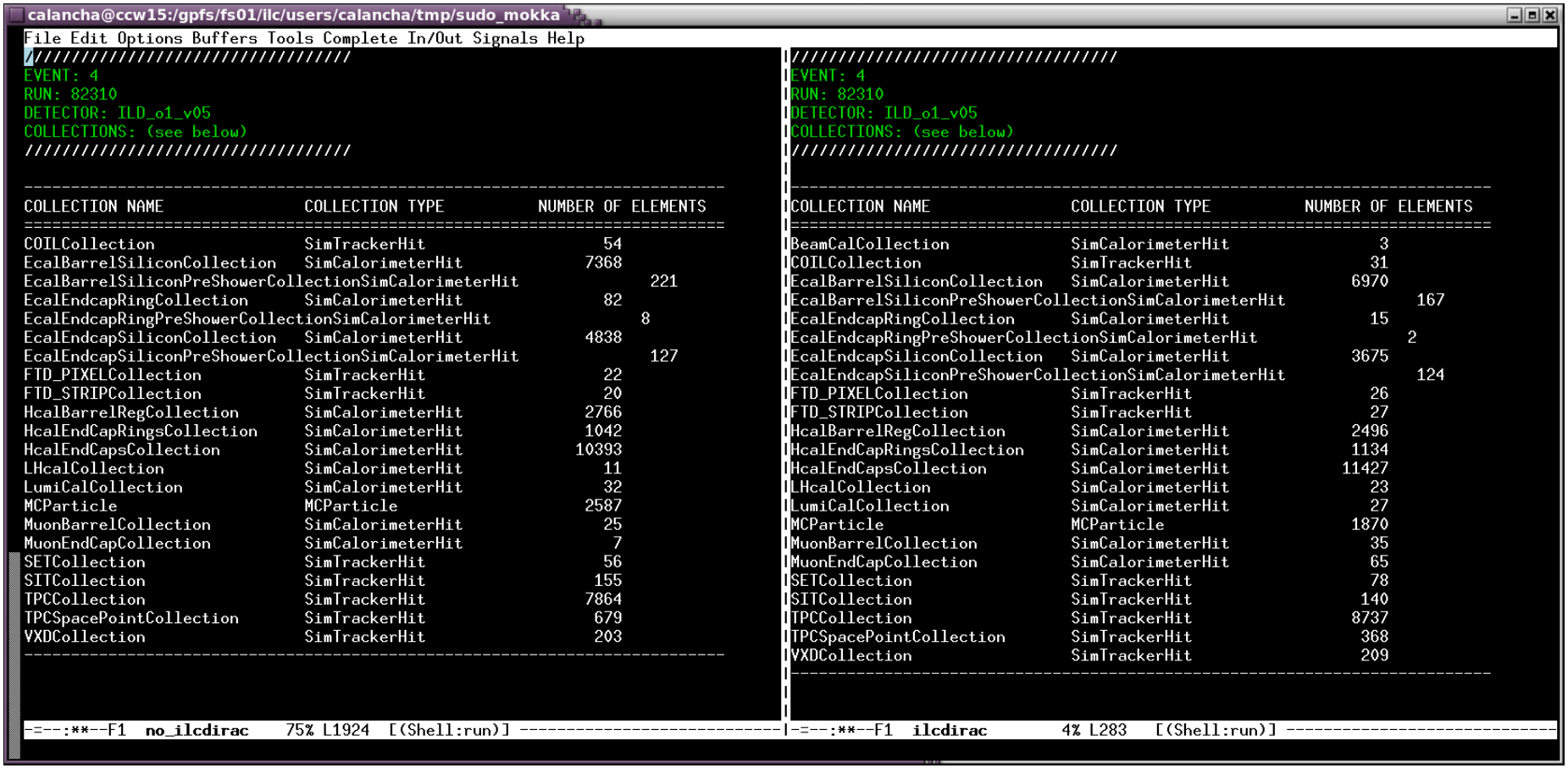
Initial Validation Plan

- Choose one process: 4f_ww_h, eR.pL @ 500 GeV .
- Simulate/Reconstruct process w/ `ilcdirac`
  - Using same input as used for the DBD: ILDConfig, Mokka seeds, ...
- Compare output with DBD samples using $LCIO/bin/anajob.

Problems Found

1. The Mokka seeds cannot be set by hand in production jobs.
   - In user jobs it is allowed to set those seeds by the user.
2. Comparison of the events in a binary basis seems not possible
   - Found small differences on hit collections.
     - I cannot conclude the diffs. appear because using VS not using `ilcdirac`.
     - I found similar fluctuations when running `Mokka` locally w/o textttilcdirac.
   - Running jobs on different platforms may cause small differences.
     - Different c++ compiler versions.
     - 32 vs 64 bits architectures.


calancha@ccw15:/gpfs/fs01/ilc/users/calancha/tmp/sudo_mokka
File Edit Options Buffers Tools Complete In/Out Signals Help
EVENT: 3
RUN: 82310
DETECTOR: ILD_o1_v05
COLLECTIONS: (see below)
COLLECTION NAME COLLECTION TYPE NUMBER OF ELEMENTS
COILCollection SimTrackerHit 397
EcalBarrelSiliconCollection SimCalorimeterHit 11515
EcalBarrelSiliconPreShowerCollectionSimCalorimeterHit 282
EcalEndcapRingCollection SimCalorimeterHit 10
EcalEndcapSiliconCollection SimCalorimeterHit 519
EcalEndcapSiliconPreShowerCollectionSimCalorimeterHit 20
FTD_STRIPCollection SimTrackerHit 18
HcalBarrelRegCollection SimCalorimeterHit 13796
HcalEndCapRingsCollection SimCalorimeterHit 70
HcalEndCapsCollection SimCalorimeterHit 212
LHcalCollection SimCalorimeterHit 2
LumiCalCollection SimCalorimeterHit 2
MCParticle MCParticle 2205
MuonBarrelCollection SimCalorimeterHit 152
MuonEndCapCollection SimCalorimeterHit 3
SETCollection SimTrackerHit 84
SITCollection SimTrackerHit 139
TPCCollection SimTrackerHit 8888
TPCSpacePointCollection SimTrackerHit 442
VXDCollection SimTrackerHit 234
EVENT: 4
-=--:**--F1 no_ilcdirac 74% L1909 [(Shell:run)]
EVENT: 3
RUN: 82310
DETECTOR: ILD_o1_v05
COLLECTIONS: (see below)
COLLECTION NAME COLLECTION TYPE NUMBER OF ELEMENTS
COILCollection SimTrackerHit 305
EcalBarrelSiliconCollection SimCalorimeterHit 11659
EcalBarrelSiliconPreShowerCollectionSimCalorimeterHit 247
EcalEndcapRingCollection SimCalorimeterHit 17
EcalEndcapRingPreShowerCollectionSimCalorimeterHit 2
EcalEndcapSiliconCollection SimCalorimeterHit 466
EcalEndcapSiliconPreShowerCollectionSimCalorimeterHit 23
FTD_STRIPCollection SimTrackerHit 32
HcalBarrelRegCollection SimCalorimeterHit 13592
HcalEndCapRingsCollection SimCalorimeterHit 41
HcalEndCapsCollection SimCalorimeterHit 198
LHcalCollection SimCalorimeterHit 4
LumiCalCollection SimCalorimeterHit 1
MCParticle MCParticle 2125
MuonBarrelCollection SimCalorimeterHit 103
MuonEndCapCollection SimCalorimeterHit 8
SETCollection SimTrackerHit 73
SITCollection SimTrackerHit 171
TPCCollection SimTrackerHit 13713
TPCSpacePointCollection SimTrackerHit 1359
VXDCollection SimTrackerHit 244
-=--:**--F1 ilcdirac 4% L248 [(Shell:run)]


calancha@ccw15:/gpfs/fs01/ilc/users/calancha/tmp/sudo_mokka
File Edit Options Buffers Tools Complete In/Out Signals Help
EVENT: 4
RUN: 82310
DETECTOR: ILD_o1_v05
COLLECTIONS: (see below)
COLLECTION NAME COLLECTION TYPE NUMBER OF ELEMENTS
COILCollection SimTrackerHit 54
EcalBarrelSiliconCollection SimCalorimeterHit 7368
EcalBarrelSiliconPreShowerCollectionSimCalorimeterHit 221
EcalEndcapRingCollection SimCalorimeterHit 82
EcalEndcapRingPreShowerCollectionSimCalorimeterHit 8
EcalEndcapSiliconCollection SimCalorimeterHit 4838
EcalEndcapSiliconPreShowerCollectionSimCalorimeterHit 127
FTD_PIXELCollection SimTrackerHit 22
FTD_STRIPCollection SimTrackerHit 20
HcalBarrelRegCollection SimCalorimeterHit 2766
HcalEndCapRingsCollection SimCalorimeterHit 1042
HcalEndCapsCollection SimCalorimeterHit 10393
LHcalCollection SimCalorimeterHit 11
LumiCalCollection SimCalorimeterHit 32
MCParticle MCParticle 2587
MuonBarrelCollection SimCalorimeterHit 25
MuonEndCapCollection SimCalorimeterHit 7
SETCollection SimTrackerHit 56
SITCollection SimTrackerHit 155
TPCCollection SimTrackerHit 7864
TPCSpacePointCollection SimTrackerHit 679
VXDCollection SimTrackerHit 203
-=--:**--F1 no_ilcdirac 75% L1924 [(Shell:run)]
EVENT: 4
RUN: 82310
DETECTOR: ILD_o1_v05
COLLECTIONS: (see below)
COLLECTION NAME COLLECTION TYPE NUMBER OF ELEMENTS
BeamCalCollection SimCalorimeterHit 3
COILCollection SimTrackerHit 31
EcalBarrelSiliconCollection SimCalorimeterHit 6970
EcalBarrelSiliconPreShowerCollectionSimCalorimeterHit 167
EcalEndcapRingCollection SimCalorimeterHit 15
EcalEndcapRingPreShowerCollectionSimCalorimeterHit 2
EcalEndcapSiliconCollection SimCalorimeterHit 3675
EcalEndcapSiliconPreShowerCollectionSimCalorimeterHit 124
FTD_PIXELCollection SimTrackerHit 26
FTD_STRIPCollection SimTrackerHit 27
HcalBarrelRegCollection SimCalorimeterHit 2496
HcalEndCapRingsCollection SimCalorimeterHit 1134
HcalEndCapsCollection SimCalorimeterHit 11427
LHcalCollection SimCalorimeterHit 23
LumiCalCollection SimCalorimeterHit 27
MCParticle MCParticle 1870
MuonBarrelCollection SimCalorimeterHit 35
MuonEndCapCollection SimCalorimeterHit 65
SETCollection SimTrackerHit 78
SITCollection SimTrackerHit 140
TPCCollection SimTrackerHit 8737
TPCSpacePointCollection SimTrackerHit 368
VXDCollection SimTrackerHit 209
-=--:**--F1 ilcdirac 4% L283 [(Shell:run)]

Need to Change Original Plan

- Validation should be performed comparing physical distributions.
  - What distributions to look at?
- Any suggestion would be appreciated.

Summary/Prospects

Validation

- Comparison of new samples with DBD ones should not be made just looking the event hit collections.
  - It may be differences according with OS used.
- The validation should be done checking event distributions.