Status of HotDeadMap & BCOFilter

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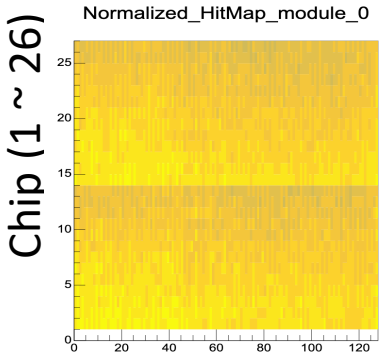
Structure of Hot channel classifier/BCO Filter

HitMap (ROOT::TH2)

Input

InttChannelClassifier.cc
- Do Gaussian Fitting
- Do classification



csv files

Input

WeiChe's Online monitoring(Grafana)

Channel list (ROOT::TFile)

Input

Updated

CDBTTree converter

Output

CDBTTree

https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/Fun4all/GaussianClassifier/CDBConverter

Input file beam_inttall-{runnum}-0000_event_base_ana.root

Input

BCOFinder.cc
- Used to find BCO peak half ladder by half ladder

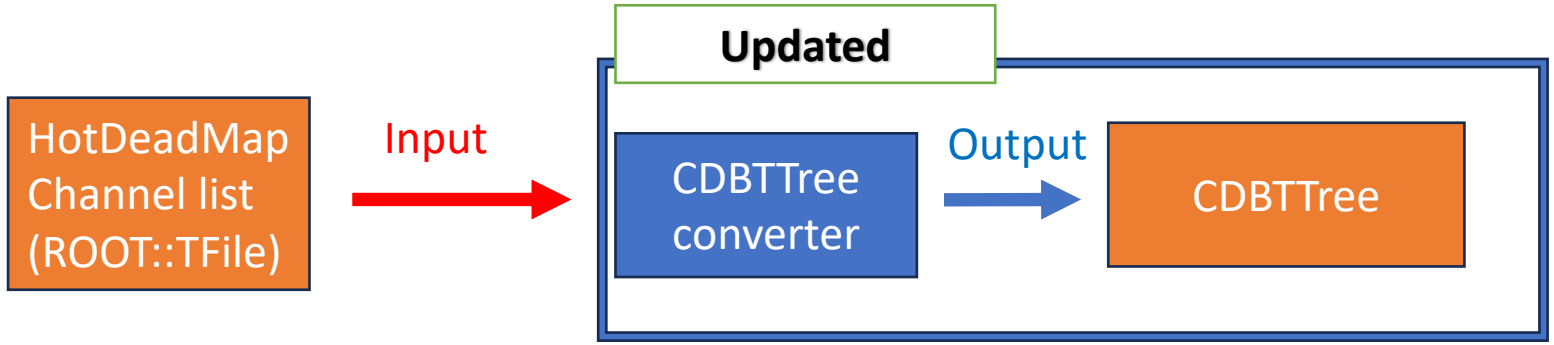
TH2::BCO distribution

Updated

CDBTTree
- Including BCO peak information

https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/BCOFinder

Structure of CDBTTree(HotDeadMap)



Location of HotDead CDB file (temporary)
/sphenix/tg/tg01/commissioning/INTT/QA/hotdeadmap
/CDB/2023

InttHotDeadMap_cdb-{runnumber}_{sigmacut}.root

InttHotDeadMap_cdb-00020869_40.root

-> Runnumber : 20869 / sigma cut : 4.0 sigma

```
Attaching file InttHotDeadMap_cdb-00020869_30.root as _file0...
(TFile *) 0x1cfae90
root [1] .ls
TFile**         InttHotDeadMap_cdb-00020869_30.root
 TFile*         InttHotDeadMap_cdb-00020869_30.root
  KEY: TTree    Single;1        Single
  KEY: TTree    Multiple;1      Multiple
root [2] Multiple->Print()
******************************************************************************
*Tree    :Multiple  : Multiple                                               *
*Entries :    26315 : Total =          636816 bytes  File  Size =      54598 *
*        :          : Tree compression factor =  11.81                       *
******************************************************************************
*Br    0 :IID       : IID/I                                                  *
*Entries :    26315 : Total  Size=     106033 bytes  File Size  =      37117 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression=   2.84     *
*.............................................................................*
*Br    1 :Ichannel  : Ichannel/I                                             *
*Entries :    26315 : Total  Size=     106073 bytes  File Size  =       6698 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression=  15.76     *
*.............................................................................*
*Br    2 :Ichip     : Ichip/I                                                *
*Entries :    26315 : Total  Size=     106049 bytes  File Size  =       3843 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression=  27.47     *
*.............................................................................*
*Br    3 :Ifelix_channel : Ifelix_channel/I                                  *
*Entries :    26315 : Total  Size=     106121 bytes  File Size  =       1521 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression=  69.43     *
*.............................................................................*
*Br    4 :Ifelix_server : Ifelix_server/I                                    *
*Entries :    26315 : Total  Size=     106113 bytes  File Size  =       1029 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression= 102.62     *
*.............................................................................*
*Br    5 :Iflag     : Iflag/I                                                *
*Entries :    26315 : Total  Size=     106049 bytes  File Size  =       3450 *
*Baskets :        4 : Basket Size=      32000 bytes  Compression=  30.60     *
*.............................................................................*
```

Entires : 26315
26315 Bad chan

Ichip 0~25

Flag : 0 Good
Flag : 8 Hot
Flag : 4 Cold
Flag : 2 Half
Flag : 1 Dead

Structure of CDBTTree(BCO information)

Input file
beam_inttall-{runnum}-
0000_event_base_ana.root

Input

BCOFinder.cc
- Do Gaussian Fitting
- Do classification

CDBTTree
- Including BCO peak information

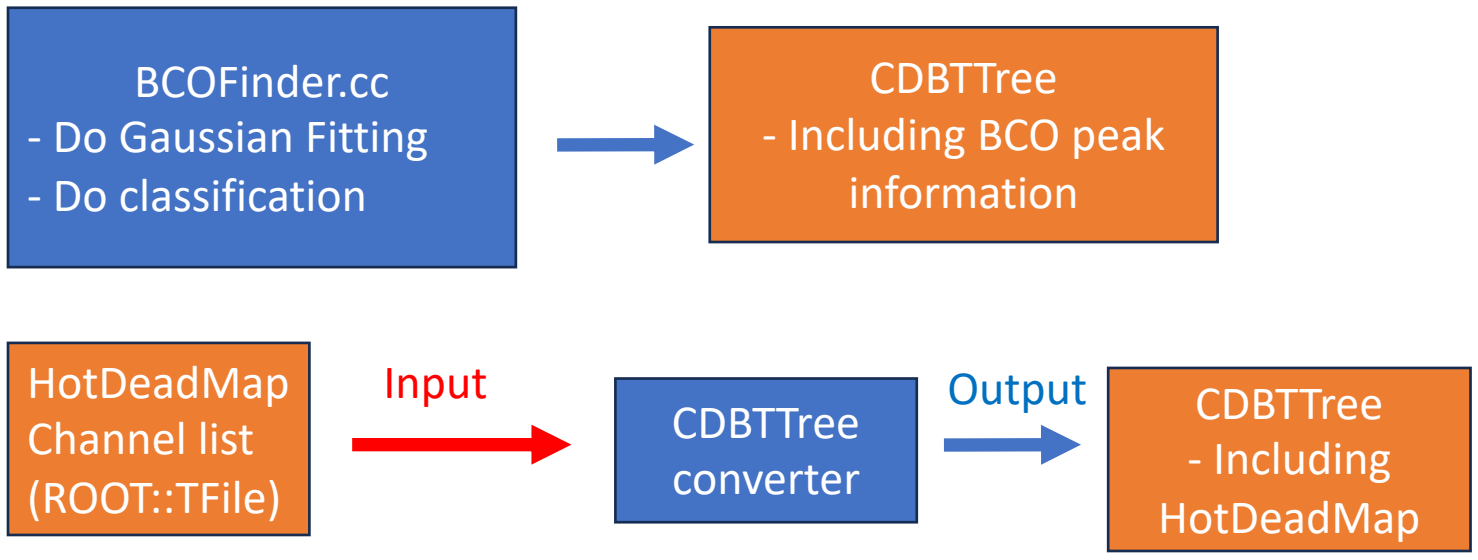
Location of BCO CDB file (temporary)
/sphenix/tg/tg01/commissioning/INTT/QA/bco_bcofull_difference/CDB/2023

cdb_bco_20869.root

Bco_diff
: peak position of bco_full-bco for each half ladders

```
TFile**         cdb_bco_20869.root
 TFile*         cdb_bco_20869.root
  KEY: TTree    Single;1        Single
  KEY: TTree    Multiple;1      Multiple
root [2] Multiple->Print()
******************************************************************************
*Tree    :Multiple  : Multiple                                                *
*Entries :      112 : Total =            4499 bytes  File  Size =       1347 *
*        :          : Tree compression factor =   3.02                       *
******************************************************************************
*Br    0 :IID       : IID/I                                                  *
*Entries :      112 : Total  Size=        999 bytes  File Size  =        260 *
*Baskets :        1 : Basket Size=      32000 bytes  Compression=   2.01     *
*.............................................................................*
*Br    1 :Ibco_diff : Ibco_diff/I                                            *
*Entries :      112 : Total  Size=       1029 bytes  File Size  =        160 *
*Baskets :        1 : Basket Size=      32000 bytes  Compression=   3.30     *
*.............................................................................*
*Br    2 :Ifelix_channel : Ifelix_channel/I                                  *
*Entries :      112 : Total  Size=       1054 bytes  File Size  =        144 *
*Baskets :        1 : Basket Size=      32000 bytes  Compression=   3.70     *
*.............................................................................*
*Br    3 :Ifelix_server : Ifelix_server/I                                    *
*Entries :      112 : Total  Size=       1049 bytes  File Size  =        137 *
*Baskets :        1 : Basket Size=      32000 bytes  Compression=   3.88     *
*.............................................................................*
```

HotDeadMap & CDB TTree loader



InttDeadMapTest.cc

InttDeadMapTest.h

InttBCOFilterv1.cc

InttBCOFilterv1.h

https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/Calibration

Two temporary classes, one is for HotDeadMap(InttDeadMapTest.cc/h) and another is for BCOFilter(InttBCOFilterv1.cc/h), are available to load calibration parameters from CDBTTree structure.

Summary & Plan

- CDBTTree convertor updated

https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/Fun4all/GaussianClassifier/CDBConverter

- Structure of CDBTTree for HotDeadMap and BCOCut introduced

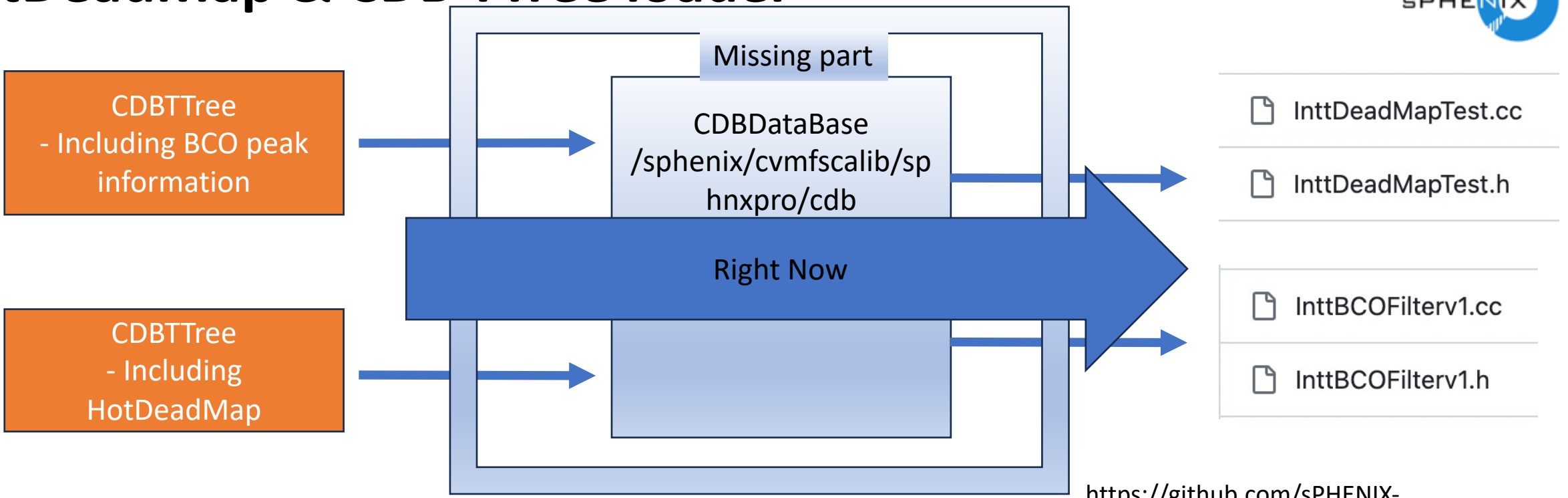
https://github.com/sPHENIX-Collaboration/coresoftware/blob/06057da642e2c63530a99926d96cec273226e985/offline/packages/intt/InttMaskedChannelSet.cc

- Temporary classes to load calibration parameters updated

- Eventually, I will change codes to follow Takashi's template and to load from CDB database.

backup

HotDeadMap & CDB TTree loader



https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/Calibration

Structure of Hot channel classifier

Jan. 17

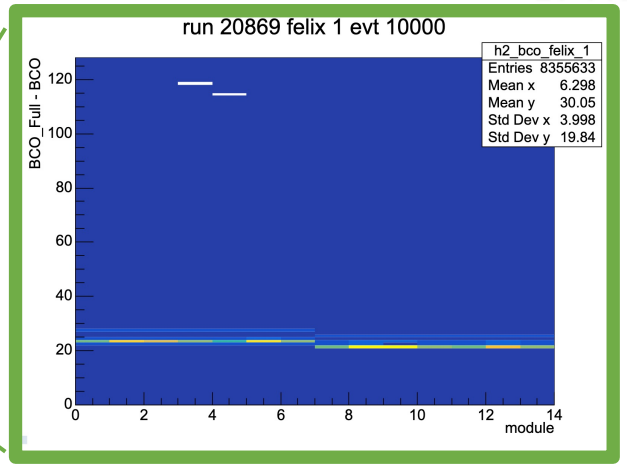
InttHitMap.cc/h
- Make the hitmaps
(Fun4All module)

Input

Input file
beam_inttall-{runnum}-0000_event_base_ana.root

Input file(BCO distribution)
ladder_{runnum}_3BCO.root

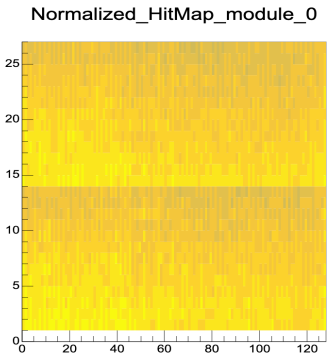
Not necessary




```
class InttHitMap : public SubsysReco
```

Output

HitMap
(ROOT::TH2)



Input

InttChannelClassifier.cc
- Do Gaussian Fitting
- Do classification

Output

csv files

Input

WeiChe's Online monitoring(Grafana)

Channel list
(ROOT::TFile)

Input

Update

CDBTTree converter

Output

CDBTTree

https://github.com/gwd213/INTT/tree/main/general_codes/Jaein/Fun4all/GaussianClassifier

You can find :
InttHitMap.cc/h
InttChannelClassifier.cc

Flag : 0 Good
Flag : 8 Hot
Flag : 4 Cold
Flag : 2 Half
Flag : 1 Dead

https://github.com/sPHENIX-Collaboration/INTT/tree/main/general_codes/Jaein/Fun4all/GaussianClassifier/CDBConverter