- The slides are presenting in detail the example changes I had to introduce in order to run my BarrelTrackFinder in PROOF

track_BARREL.C

```
// ##########################################################   MVD
PndMvdDigiTask* mvddigi = new PndMvdDigiTask();
mvddigi->SetVerbose(iVerbose);
fRun->AddTask(mvddigi);
// -----   MDV cluster producer   ------------------------------------
PndMvdClusterTask* mvdmccls = new PndMvdClusterTask();
mvdmccls->SetVerbose(iVerbose);
fRun->AddTask(mvdmccls);

// ##########################################################   STT
PndSttHitProducerIdeal* sttHitProducer = new PndSttHitProducerIdeal();
fRun->AddTask(sttHitProducer);

// ##########################################################   GEM
// -----   GEM digi producer   ----------------------------------------
PndGemDigitize* gemDigitize = new PndGemDigitize("GEM Digitizer", iVerbose);
fRun->AddTask(gemDigitize);
// -----   GEM hit producer   -----------------------------------------
PndGemFindHits* gemFindHits = new PndGemFindHits("GEM Hit Finder", iVerbose);
fRun->AddTask(gemFindHits);

// ##########################################################    BTF
// -----   Barrel Track Finder ----------------------------------------
PndBarrelTrackFinder* barrelTF = new PndBarrelTrackFinder();
barrelTF->UseMvdSttTpcGem(kTRUE,kTRUE,kFALSE,kTRUE);
fRun->AddTask(barrelTF);
// -----   BTF QA   ---------------------------------------------------
PndBarrelTrackFinderQA* barrelQA = new PndBarrelTrackFinderQA();
barrelQA->UseMvdSttTpcGem(kTRUE,kTRUE,kFALSE,kTRUE);
fRun->AddTask(barrelQA);
```

notes

- Do not add all the tasks at one.
- Fix them one by one.
- The debugging is tedious.

- Worker log files are located in:

```
$HOME/.proof/pandaroot_installation_directory_trunk-macro-yourmacrodir/session-
$hostname-$jobID-$jobID2/worker-0.$workerNumber.log
```

- For example for me it is:

```
karabowi@lxi012::~/pandaroot_proof/proof/macro/global$ ls ~/.proof/pandaroot_proof-proof-
macro-global/session-lxi047-1330966740-31330/worker-0.0.*
/misc/karabowi/.proof/pandaroot_proof-proof-macro-global/session-lxi047-1330966740-31330/
worker-0.0.env
/misc/karabowi/.proof/pandaroot_proof-proof-macro-global/session-lxi047-1330966740-31330/
worker-0.0.log
/misc/karabowi/.proof/pandaroot_proof-proof-macro-global/session-lxi047-1330966740-31330/
worker-0.0.rootrc
karabowi@lxi012::~/pandaroot_proof/proof/macro/global$
```

```
10:50:31 32160 Wrk-0.1 | Info in <TProofServLite::Setup>: fWorkDir: /misc/karabowi/.proof
EXECUTING libFairRoot.par/SETUP.C without includes
  ************************************************************
  * The Pluto event generator
  * Developed by HADES and all contributing AUTHORS
  * www-hades.gsi.de/computing/pluto/html/PlutoIndex.html
  * Version: 5.37
  * Compiled on 19 Januar 2012
  ************************************************************
(int)0
PndGeoHandling. No FairRun object found. If used in a macro take another constructor.
10:50:38 32160 Wrk-0.1 | *** Break ***: segmentation violation



============================================================
There was a crash.
This is the entire stack trace of all threads:
============================================================
#0  0x00007facd53a09e5 in waitpid () from /lib/libc.so.6
#1  0x00007facd5340e11 in do_system () from /lib/libc.so.6
#2  0x00007facd6e32a6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007facd6e33acc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007facd25c13f1 in ROOT::delete_TGeoManager ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libGeom.so
#6  0x00007facd6dfa357 in TClass::Destructor ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#7  0x00007facd3c30d7f in TBufferFile::ReadFastArray ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#8  0x00007facd3cea034 in TStreamerInfo::ReadBuffer<char**> ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#9  0x00007facd3c76e7e in TStreamerInfoActions::GenericReadAction ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#10 0x00007facd3c2b18d in TBufferFile::ApplySequence ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#11 0x00007facd3c2b650 in TBufferFile::ReadClassBuffer ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#12 0x00007facc941cb69 in PndGeoHandling::Streamer (this=0x1c87450
============================================================

The lines below might hint at the cause of the crash.
```

- Set everything to NULL in PndGeoHandling constructor. Now 5 workers started, 3 crashed, with error:

```
11:13:38  3953 Wrk-0.1 | Info in <TProofServLite::Setup>: fWorkDir: /misc/karabowi/.proof
EXECUTING libFairRoot.par/SETUP.C without includes
  ******************************************************
  * The Pluto event generator
  * Developed by HADES and all contributing AUTHORS
  * www-hades.gsi.de/computing/pluto/html/PlutoIndex.html
  * Version: 5.37
  * Compiled on 19 Januar 2012
  ******************************************************
(int)0
DONT MIND THE ERRORS HERE, ITS EXECUTED.
PndGeoHandling. No FairRun object found. If used in a macro take another constructor.
11:13:45  3953 Wrk-0.1 | Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer
created, Parameters will be taken from RTDB
11:13:45  3953 Wrk-0.1 | Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer
created, Parameters will be taken from RTDB
11:13:45  3953 Wrk-0.1 | Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
11:13:45  3953 Wrk-0.1 | Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
11:13:45  3953 Wrk-0.1 | Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
11:13:45  3953 Wrk-0.1 | Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
11:13:45  3953 Wrk-0.1 | *** Break ***: segmentation violation


============================================================
There was a crash.
This is the entire stack trace of all threads:
============================================================
#0  0x00007faade11c9e5 in waitpid () from /lib/libc.so.6
#1  0x00007faade0bce11 in do_system () from /lib/libc.so.6
#2  0x00007faadfbaea6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007faadfbafacc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007faacf4f60d0 in delete_PndSdsDigiStripWriteoutBuffer (p=0x242b1)
    at /misc/karabowi/pandaroot_proof/build_testjan12_Lenny64/sds/SdsDict.cxx:2583
#6  0x00007faadfb76357 in TClass::Destructor ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
```

- The 5 started still create MvdDigis only for the first tree. Initialize members in PndMvdNoiseProducer, which does not use PndSdsNoiseProducer (arrgh). Crashed again, this time on all worker nodes:

```
InBranchId: 1 for Branch: MVDPoint
OutBranchId: -1 for Branch: MVDStripDigis
-I- FairRootManager::GetObject(MVDPoint)...
-I- FairRootManager::GetObject(MVDPoint) Object 0x2758260 is in a memoery
branch
[WARNING] Branch MVDStripDigis is already registered in WriteoutBufferMap
[WARNING] Branch MVDPixelDigis is already registered in WriteoutBufferMap
-I- FairRootManager::GetObject(MCEventHeader.)...
-I- FairRootManager::GetObject(MCEventHeader.) Object 0x277e350 is in a
memoery branch
11:26:22  4805 Wrk-0.0 | *** Break ***: segmentation violation


==========================================================
There was a crash.
This is the entire stack trace of all threads:
==========================================================
#0  0x00007fe2a2d219e5 in waitpid () from /lib/libc.so.6
#1  0x00007fe2a2cc1e11 in do_system () from /lib/libc.so.6
#2  0x00007fe2a47b3a6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007fe2a47b4acc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007fe293ad0de5 in PndMvdNoiseProducer::FillSensorLists
(this=0x237cb20)
    at /misc/karabowi/pandaroot_proof/proof/mvd/MvdDigi/
PndMvdNoiseProducer.cxx:162
#6  0x00007fe293ad12e0 in PndMvdNoiseProducer::Init (this=0x237cb20)
    at /misc/karabowi/pandaroot_proof/proof/mvd/MvdDigi/
PndMvdNoiseProducer.cxx:97
#7  0x00007fe298498e73 in FairTask::InitTask (this=0x237cb20)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:48
#8  0x00007fe298498f0a in FairTask::InitTasks (this=0x22f4340)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:120
#9  0x00007fe298498ed4 in FairTask::InitTask (this=0x22f4340)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:53
#10 0x00007fe298498f0a in FairTask::InitTasks (this=0x2247cf0)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:120
#11 0x00007fe298498ed4 in FairTask::InitTask (this=0x2247cf0)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:53
#12 0x00007fe298498f0a in FairTask::InitTasks (this=0x2462ee0)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:120
#13 0x00007fe298498ed4 in FairTask::InitTask (this=0x2462ee0)
    at /misc/karabowi/pandaroot_proof/proof/base/FairTask.cxx:53
```

- The problem was that the PndGeoHandling was not initialized properly. When adding all the tasks to fTask, the fTask on the master looks OK, but on the worker nodes there's some "shit" attached to it, as seen when doing fTask->ls():

```
>>>>> fairTaskList->ls():
FairTaskList    FairTask
 MVD Digitization BlacBox Task  FairTask
  MVD Hybrid Hit Producer       FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer)       FairTask
  Charge Noise Producer FairTask
 GEM Digitizer  FairTask
 GEM Hit Finder FairTask
 OBJ: TObjArray TObjArray       An array of objects : 0

StreamerInfo for class: FairRuntimeDb, version=0, checksum=0xeabf61dc
  TObject       BASE            offset=  0 type=66 Basic ROOT object
>>>>> end of fairTaskList
```

OK, After discussion with Mohammad he suggested adding "//!" after declaration of PndGeoHandling fGeoH; in all 3 Mvd/Sds header classes. Together with implementation of new method in FairRun.h SetTask(FairTask* t) the PndGeoHandling reads the parameters from the root file and seems to be initialized properly.

The problem now is that all the Mvd/Sds tasks' Exec is called only for the first tree. When another tree is loaded in, the Mvd tasks don't do anything at all. They are not called at all... The tasks are still in fTask list though.

- OK, added cout to FairTask::ReInit:

```
void FairTask::ReInitTask()
{
  if ( ! fActive ) { return; }
  InitStatus tStat = ReInit();
  std::cout << "ReInitTask " << fName.Data() << " finished with " << (Int_t)tStat << std::endl;
...
}
```

and the result on the worker was:

```
ReInitTask FairTaskList finished with 0
ReInitTask MVD Digitization BlacBox Task finished with 1
ReInitTask MVD Hybrid Hit Producer finished with 0
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: The container names list
contains 10 entries
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelDigiPar
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParRect
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTrap
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTD
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTS
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelTotDigiPar
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParRect
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTrap
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTD
14:45:07 21305 Wrk-0.0 | Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTS
ReInitTask MVD Strip Digi Producer(PndMvdStripHitProducer) finished with 0
ReInitTask Charge Noise Producer finished with 0
Hi there, i am in PndGemDigitize::ReInit and will simply return kERROR!
ReInitTask GEM Digitizer finished with 0
ReInitTask GEM Hit Finder finished with 0
```

Because some funny guy made (actually I made that error also in some of my tasks, so there a chance we are all ‘funny’):

```
InitStatus PndBlackBoxTask::ReInit()
{
  return kERROR;
}
```

- Guess what, after changing the return kERROR to kSUCCESS, it is still crashing totally in the first event of the second tree...

```
PndSdsHybridHitProducer::Exec
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
PndSdsStripHitProducer::Exec
-I- PndSdsStripHitProducer::Init(), fPointArray 0x265cb60 has 9 points
PndMvdNoiseProducer::Exec
In Exec fPoints = 0x26808c0
FairRootManager::ReadEvent(998): fCbmroot=0x24d63b0 .
FairRootManager::ReadEvent(998): FROM THE TREE 0x233c660
IN EVENT 998 >>> fTask->ls():
FairTaskList    FairTask
 MVD Digitization BlacBox Task  FairTask
  MVD Hybrid Hit Producer       FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer)       FairTask
  Charge Noise Producer FairTask
 GEM Digitizer  FairTask
 GEM Hit Finder FairTask
 PndGeoHandling FairTask
```

BTW, why is EventHeader so important for MVD/ SDS?

- and it is:

```
PndSdsHybridHitProducer::Exec
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
.......
-I- FairRootManager::GetObject(EventHeader.)...
-I- FairRootManager::GetObject(EventHeader.) Object 0x4580da0 was already activated by another task
PndSdsStripHitProducer::Exec
-I- PndSdsStripHitProducer::Init(), fPointArray 0x265cb60 has 14 points
14:49:25 21834 Wrk-0.0 | *** Break ***: segmentation violation



============================================================
There was a crash.
This is the entire stack trace of all threads:
============================================================
#0  0x00007f2d25f269e5 in waitpid () from /lib/libc.so.6
#1  0x00007f2d25ec6e11 in do_system () from /lib/libc.so.6
#2  0x00007f2d279b8a6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007f2d279b9acc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007f2d230bf4df in TGeoManager::GetCurrentNavigator ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libGeom.so
#6  0x00007f2d230bf5e9 in TGeoManager::GetPath ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libGeom.so
#7  0x00007f2d19f7b2d0 in PndGeoHandling::MasterToLocalPath (this=0x458bc60,
    master=
0x7fff48992d80, path=
0x7fff48992ad0)
    at /misc/karabowi/pandaroot_proof/proof/PndTools/generalTools/PndGeoHandling.cxx:430
#8  0x00007f2d19fa7950 in PndGeoHandling::MasterToLocalShortId (
    this=0x458bc60, master=
0x7fff48992d80, shortId=
0x7fff48992d7c)
    at /misc/karabowi/pandaroot_proof/proof/PndTools/generalTools/PndGeoHandling.h:100
#9  0x00007f2d172de0d0 in PndSdsStripHitProducer::Exec (this=0x2249090,
    opt=0x7f2d1b77b520 "")
    at /misc/karabowi/pandaroot_proof/proof/sds/SdsDigi/PndSdsStripHitProducer.cxx:270
#10 0x00007f2d2793eb30 in TTask::ExecuteTasks ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#11 0x00007f2d2793eb43 in TTask::ExecuteTasks ()
```

- Ha, the reason is that in PndGeoHandling there's a pointer to gGeoManager, added to PndGeoHandling.h

- `virtual InitStatus ReInit() {fGeoMan =0;fGeoMan=gGeoManager;return kSUCCESS}`

- And now was able to run MvdDigi and GEM hit finding together on proof and locally, and the results are 'the same':

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ ls -ltrh tracks_22Part_n20000*
-rw-r--r-- 1 karabowi had1 2.3M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.5.root
-rw-r--r-- 1 karabowi had1 2.3M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.2.root
-rw-r--r-- 1 karabowi had1 2.5M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.7.root
-rw-r--r-- 1 karabowi had1 2.5M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.4.root
-rw-r--r-- 1 karabowi had1 2.5M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.3.root
-rw-r--r-- 1 karabowi had1 2.3M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.1.root
-rw-r--r-- 1 karabowi had1 2.3M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.0.root
-rw-r--r-- 1 karabowi had1 2.5M 2012-02-28 15:17 tracks_22Part_n20000_worker_0.6.root
-rw-r----- 1 karabowi had1  19M 2012-02-28 15:28 tracks_22Part_n20000.root
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l
root [0] TChain* adg = new TChain("cbmsim","lancuch")
root [1] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [2] adg->Draw("GEMHit.fX","")
(Long64_t)150347
root [3] adg->Draw("MVDPixelDigis.fCharge","")
(Long64_t)544438
root [4] .q
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.ro
ot
root [0]
Attaching file tracks_22Part_n20000.root as _file0...
root [1] cbmsim->Draw("GEMHit.fX","")
(Long64_t)150347
root [2] cbmsim->Draw("MVDPixelDigis.fCharge","")
(Long64_t)545216
root [3] .q
```

```
PndMvdClusterTask* mvdmccls = new PndMvdClusterTask();
```

- OK, will try to add PndMvdClusterTask to FairRunAna in the macro without any changes:

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l -q
'tracks_BARREL_1000.
C("proof",20,"")'
root [0]
Processing tracks_BARREL_1000.C("proof",20,"")...
FairRootManager::OpenOutFile("tracks_22Part_n20000.root")
Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer
created, Paramete
rs will be taken from RTDB
Info in (PndGeoHandling::Instance): Making a new instance using the framework.
ADDING PndGeoHandling task to run
............
// skipped some lines
Error in <TClass::BuildRealData>: Cannot find any ShowMembers function for
PndSdsCalcStrip!
Error in <TClass::New>: cannot create object of class FairRuntimeDb
Warning in <TClass::TClass>: no dictionary for class BinaryFunctor is available
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: BinaryFunctor* has no streamer
or dictionary, data member fFunctor will not be saved
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: BinaryFunctor* has no streamer
or dictionary, data member fStartFunctor will not be saved
Warning in <TClass::TClass>: no dictionary for class PndSdsPixelBackMapping is available
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: PndSdsPixelBackMapping* has no
streamer or dictionary, data member fBackMapping will not be saved
Warning in <TClass::TClass>: no dictionary for class PndSdsFEAmpModelSimple is available
Error in <TStreamerInfo::Build:>: PndSdsFE: PndSdsFEAmpModelSimple* has no streamer or
dictionary, data member fFrontEndModel will not be saved
Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
Error in <TStreamerInfo::Build:>: PndSdsStripClusterTask: BinaryFunctor* has no streamer
```

```
Error in <TStreamerInfo::Build:>: PndSdsStripClusterTask: BinaryFunctor* has no streamer
or dictionary, data member fFunctor will not be saved
Error in <TClass::New>: cannot create object of class PndSdsChargeWeightingAlgorithms
Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer
created, Parameters will be taken from RTDB
Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer
created, Parameters will be taken from RTDB

 *** Break *** segmentation violation



==========================================================
There was a crash.
This is the entire stack trace of all threads:
==========================================================
#0  0x00007f4f2e9669e5 in waitpid () from /lib/libc.so.6
#1  0x00007f4f2e906e11 in do_system () from /lib/libc.so.6
#2  0x00007f4f3062da6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007f4f3062eacc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007f4f24123698 in delete_FairMCEventHeader (p=0x28cd590)
    at /misc/karabowi/pandaroot_proof/build_testjan12_Lenny64/base/FairDict.cxx:3976
#6  0x00007f4f305f5357 in TClass::Destructor ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#7  0x00007f4f2d1f6d7f in TBufferFile::ReadFastArray ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#8  0x00007f4f2d2b0034 in TStreamerInfo::ReadBuffer<char**> ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#9  0x00007f4f2d23ce7e in TStreamerInfoActions::GenericReadAction ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
#10 0x00007f4f2d1f118d in TBufferFile::ApplySequence ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libRIO.so
```

- Trivially, streaming of the tasks failed. Because:

```
PndMvdClusterTask::PndMvdClusterTask() :
PndBlackBoxTask("Mvd Hit Reconstruction BlackBox Task")
{
  fPersistance = kTRUE;
  this->Add(new PndMvdPixelClusterTask());
  this->Add(new PndMvdStripClusterTask());
  SetPersistance(fPersistance);
}
```

- Changed:
- PndMvdPixelClusterTask:
- initialize everything in constructors,
- introduced to SetParContainers:

```
if ( fGeoH == NULL ) {
  fGeoH = PndGeoHandling::Instance();
}
```

- changed output status from kERROR to kSUCCESS in ReInit:

```
InitStatus stat=kSUCCESS;
return stat;
```

- PndMvdStripClusterTask:
- initialize everything in constructors,
- introduced to SetParContainers:

```
if ( fGeoH == NULL ) {
  fGeoH = PndGeoHandling::Instance();
}
```

- Crashed again:

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l -q 'tracks_BARREL_1000.
C("proof",20,"")'
root [0]
Processing tracks_BARREL_1000.C("proof",20,"")...
FairRootManager::OpenOutFile("tracks_22Part_n20000.root")
Info in <PndSdsHybridHitProducer::PndSdsHybridHitProducer>: MVD Hybrid Hit Producer created, Parameters will be
taken from RTDB
..... skipped some lines....
Error in <TClass::BuildRealData>: Cannot find any ShowMembers function for PndSdsCalcStrip!
Warning in <TClass::TClass>: no dictionary for class BinaryFunctor is available
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: BinaryFunctor* has no streamer or dictionary, data
member fFunctor will not be saved
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: BinaryFunctor* has no streamer or dictionary, data
member fStartFunctor will not be saved
Warning in <TClass::TClass>: no dictionary for class PndSdsPixelBackMapping is available
Error in <TStreamerInfo::Build:>: PndSdsPixelClusterTask: PndSdsPixelBackMapping* has no streamer or dictionary,
data member fBackMapping will not be saved
Warning in <TClass::TClass>: no dictionary for class PndSdsFEAmpModelSimple is available
Error in <TStreamerInfo::Build:>: PndSdsFE: PndSdsFEAmpModelSimple* has no streamer or dictionary, data member
fFrontEndModel will not be saved
ADDING PndGeoHandling task to run
Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
Error in <Pair Emulation Building>: const char* is not yet supported in pair emulation
Error in <TStreamerInfo::Build:>: PndSdsStripClusterTask: BinaryFunctor* has no streamer or dictionary, data
member fFunctor will not be saved
Error in <TClass::New>: cannot create object of class PndSdsChargeWeightingAlgorithms

 *** Break *** segmentation violation



==========================================================
There was a crash.
This is the entire stack trace of all threads:
==========================================================
#0  0x00007fbf11c399e5 in waitpid () from /lib/libc.so.6
#1  0x00007fbf11bd9e11 in do_system () from /lib/libc.so.6
#2  0x00007fbf13900a6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007fbf13901acc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x00007fbf13ad590b in TInstrumentedIsAProxy<TObject>::operator() ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
```

- OK, did lot of //! in

- PndSdsPixelClusterTask:

```
PndSdsFE* fFEModel; //!

/** Input array of PndSdsDigis **/
TClonesArray* fDigiArray;
PndSdsPixelDigiPar* fDigiPar;
PndSdsChargeConversion* fChargeConverter;
PndGeoHandling* fGeoH; //!

TString fClustBranchName;
/** Output array of PndSdsHits **/
TClonesArray* fClusterArray;
TClonesArray* fHitArray;

  BinaryFunctor* fFunctor; //!
  BinaryFunctor* fStartFunctor; //!

  Int_t fClusterType;
  Int_t fEventNr;

  void Register();
  void Reset();
  void ProduceHits();

PndSdsPixelClusterFinder* fClusterFinder;
PndSdsPixelBackMapping* fBackMapping; //!
```

- OK, did lot of //! in

- and in PndSdsStripClusterTask:

```
std::map<const char*,PndSdsCalcStrip*> fStripCalcTop; //!
std::map<const char*,PndSdsCalcStrip*> fStripCalcBot; //!
std::map<const char*,PndSdsChargeConversion*> fChargeConverter; //!

PndSdsCalcStrip* fCurrentStripCalcTop;
PndSdsCalcStrip* fCurrentStripCalcBot;
PndSdsChargeWeightingAlgorithms* fChargeAlgos;
PndSdsChargeConversion* fCurrentChargeConverter;


PndGeoHandling* fGeoH;      //! Geometry name handling
PndSdsStripClusterer* fCurrentClusterfinder;
std::map<const char*,PndSdsStripClusterer*> fClusterFinderList; //!

BinaryFunctor* fFunctor; //!
```

- Now the reconstruction started, but broke on all workers after analyzing the first tree. Problem with reinitialization:

```
ReInitTask MVD Strip Digi Producer(PndMvdStripHitProducer) finished with 0
ReInitTask Charge Noise Producer finished with 0
ReInitTask Mvd Hit Reconstruction BlackBox Task finished with 0
ReInitTask MVD Clustertisation Task finished with 0
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: The container names li
st contains 10 entries
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDPixelDigiPar
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParRect
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTrap
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTD
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTS
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDPixelTotDigiPar
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParRect
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTrap
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTD
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTS
10:39:00 26944 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetCalculators>: mvd
10:39:00 26944 Wrk-0.0 | *** Break ***: segmentation violation


==========================================================
There was a crash.
This is the entire stack trace of all threads:
==========================================================
#0  0x00007fef9e28d9e5 in waitpid () from /lib/libc.so.6
#1  0x00007fef9e22de11 in do_system () from /lib/libc.so.6
#2  0x00007fef9fd1fa6e in TUnixSystem::StackTrace ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#3  0x00007fef9fd20acc in TUnixSystem::DispatchSignals ()
   from /misc/cbmsoft/Lenny64/test/jan12/lib/root/libCore.so.5.32
#4  <signal handler called>
#5  0x0000000000000000 in ?? ()
#6  0x00007fef8f35757e in PndSdsStripClusterTask::ClearCalculators (
    this=0x1931ed0)
    at /misc/karabowi/pandaroot_proof/proof/sds/SdsReco/PndSdsStripClusterTask.cxx:125
#7  0x00007fef8f35a2e9 in PndSdsStripClusterTask::SetCalculators (
    this=0x1931ed0)
    at /misc/karabowi/pandaroot_proof/proof/sds/SdsReco/PndSdsStripClusterTask.cxx:167
#8  0x00007fef8ed63908 in PndMvdStripClusterTask::SetCalculators (
    this=0x1931ed0)
    at /misc/karabowi/pandaroot_proof/proof/mvd/MvdReco/PndMvdStripClusterTask.cxx:81
#9  0x00007fef8f357776 in PndSdsStripClusterTask::ReInit (this=0x1931ed0)
    at /misc/karabowi/pandaroot_proof/proof/sds/SdsReco/PndSdsStripClusterTask.cxx:157
```

- Somehow it was crashing on deleting fChargeAlgos in PndSdsStripClusterTask.
- This is pretty strange, as the line in ClearCalculators() looks like:

```
if(0 != fChargeAlgos) delete fChargeAlgos;
```

he thing is that this ClearCalculators() was called from ReInit() and from SetCalculators(). And it was crashing on second call, cause the address was still set???. So the delete does not delete the pointer, but object... probably?

```
ReInitTask MVD Clustertisation Task finished with 0
 deleting fChargeAlgos...
with address set to 0x58fcf50
so did it really crash here?
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: The container names li
st contains 10 entries
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDPixelDigiPar
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParRect
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTrap
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTD
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripDigiParTS
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDPixelTotDigiPar
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParRect
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTrap
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTD
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetParContainers()>: MVDStripTotDigiParTS
10:57:47 31427 Wrk-0.0 | Info in <PndMvdStripClusterTask::SetCalculators>: mvd
 deleting fChargeAlgos...
with address set to 0x58fcf50
10:57:47 31427 Wrk-0.0 | *** Break ***: segmentation violation
```

Commented it out in ReInit():

```
InitStatus PndSdsStripClusterTask::ReInit() {
  InitStatus stat=kERROR;
  //  ClearCalculators();
  SetParContainers();
  SetCalculators();
  stat=kSUCCESS;
  return stat;
}
```

- Now it works... But it spends a lot of time on initialization and reinitialization now as compared to the running without ClusterFinder...

But it is not giving the proper results. The shape of the distributions matches, but the numbers do not.
Seriously, in proof almost twice as many STRIP hits are created as when running locally. Pixels seems to be OK.

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.ro
ot                 if(0 != fChargeAlgos) delete fChargeAlgos;
root [0]
Attaching file tracks_22Part_n20000.root as _file0...
root [1] cbmsim->Draw("MVDHitsStrip.fX","")
(Long64_t)123842
root [2] TChain* adg = new TChain("cbmsim","lancuch")
root [3] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [4] adg->Draw("MVDHitsStrip.fX","")
(Long64_t)222876
root [5] cbmsim->Draw("MVDHitsStrip.fX","","same")
(Long64_t)123842
root [6] adg->Draw("MVDHitsPixel.fX","")
(Long64_t)292416
root [7] cbmsim->Draw("MVDHitsPixel.fX","","same")
(Long64_t)292576
```

WHY??? The STRIP hits are created in PndSdsStripClusterTask::Exec() in a while loop over sensors:
while (PndSdsStripDigiPar* digipar = (PndSdsStripDigiPar*)parsetiter())
Just checking and in the first tree it all looks normal, but in the second tree the hits are created twice, while in the third tree, they are created three times..., like:

- Now it works... But it spends a lot of time on initialization and reinitialization now as compared to the running without ClusterFinder...

But it is not giving the proper results. The shape of the distributions matches, but the numbers do not.
Seriously, in proof almost twice as many STRIP hits are created as when running locally. Pixels seems to be OK.

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.ro
ot                 if(0 != fChargeAlgos) delete fChargeAlgos;
root [0]
Attaching file tracks_22Part_n20000.root as _file0...
root [1] cbmsim->Draw("MVDHitsStrip.fX","")
(Long64_t)123842
root [2] TChain* adg = new TChain("cbmsim","lancuch")
root [3] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [4] adg->Draw("MVDHitsStrip.fX","")
(Long64_t)222876
root [5] cbmsim->Draw("MVDHitsStrip.fX","","same")
(Long64_t)123842
root [6] adg->Draw("MVDHitsPixel.fX","")
(Long64_t)292416
root [7] cbmsim->Draw("MVDHitsPixel.fX","","same")
(Long64_t)292576
```

WHY??? The STRIP hits are created in PndSdsStripClusterTask::Exec() in a while loop over sensors:
while (PndSdsStripDigiPar* digipar = (PndSdsStripDigiPar*)parsetiter())
Just checking and in the first tree it all looks normal, but in the second tree the hits are created twice, while in the third tree, they are created three times..., like:

```
PndSdsHit in 77 at (9.07538, 0.195091, -0.9495) cm  with 1.48244e+06 e at Time: 0 +/- 1 , Cluster No. 0 and
bottom 1, mc point id = 10
PndSdsHit in 131 at (12.6868, 0.0791815, -1.32961) cm  with 1.22008e+06 e at Time: 0 +/- 1 , Cluster No. 4
and bottom 5, mc point id = 11
PndSdsHit in 189 at (-6.9513, 5.71864, 1.7465) cm  with 1.73042e+06 e at Time: 0 +/- 1 , Cluster No. 6 and
bottom 7, mc point id = 14
PndPndSdsHit in 193 at (-7.45828, 6.13765, 1.8765) cm  with 1.61283e+06 e at Time: 0 +/- 1 , Cluster No. 8
and bottom 9, mc point id = 15
PndSdsHit in 250 at (-9.73466, 7.9959, 2.44728) cm  with 1.44852e+06 e at Time: 0 +/- 1 , Cluster No. 10
and bottom 11, mc point id = 16
PndSdsHit in 77 at (9.07538, 0.195091, -0.9495) cm  with 1.48244e+06 e at Time: 0 +/- 1 , Cluster No. 0 and
bottom 1, mc point id = 10
PndSdsHit in 131 at (12.6868, 0.0791815, -1.32961) cm  with 1.22008e+06 e at Time: 0 +/- 1 , Cluster No. 4
and bottom 5, mc point id = 11
PndSdsHit in 189 at (-6.9513, 5.71864, 1.7465) cm  with 1.73042e+06 e at Time: 0 +/- 1 , Cluster No. 6 and
bottom 7, mc point id = 14
PndPndSdsHit in 193 at (-7.45828, 6.13765, 1.8765) cm  with 1.61283e+06 e at Time: 0 +/- 1 , Cluster No. 8
and bottom 9, mc point id = 15
PndSdsHit in 250 at (-9.73466, 7.9959, 2.44728) cm  with 1.44852e+06 e at Time: 0 +/- 1 , Cluster No. 10
and bottom 11, mc point id = 16
PndSdsHit in 77 at (9.07538, 0.195091, -0.9495) cm  with 1.48244e+06 e at Time: 0 +/- 1 , Cluster No. 0 and
bottom 1, mc point id = 10
PndSdsHit in 131 at(12.6868, 0.0791815, -1.32961) cm  with 1.22008e+06 e at Time: 0 +/- 1 , Cluster No. 4
and bottom 5, mc point id = 11
PndSdsHit in 189 at(-6.9513, 5.71864, 1.7465) cm  with 1.73042e+06 e at Time: 0 +/- 1 , Cluster No. 6 and
bottom 7, mc point id = 14
PndPndSdsHit in 193 at (-7.45828, 6.13765, 1.8765) cm  with 1.61283e+06 e at Time: 0 +/- 1 , Cluster No. 8
and bottom 9, mc point id = 15
PndSdsHit in 250 at(-9.73466, 7.9959, 2.44728) cm  with 1.44852e+06 e at Time: 0 +/- 1 , Cluster No. 10 and
bottom 11, mc point id = 16
```

So after all this ClearCalculators() function is apparently important;). WELL NO.
Hm, to be honest it took me some time to figure things out. It is a bit annoying, but let me explain it all.
There is ReInit() function, which should be called each time new tree with another fRunId is analyzed.
However, when running locally with fRunAna->AddFile() many times, all the events in all the trees seem to have the same fRunId, even though they are different... But thanks to this FairRunAna bug I have found out the problem.

Added:

```
fDigiParameterList->Clear();
fChargeDigiParameterList->Clear();
```

to PndMvdStripClusterTask::SetParContainers()

And now it seems I get proper results...

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.ro
ot
root [0]
root [1] cbmsim->Draw("MVDHitsStrip.fCharge","")
(Long64_t)123842
root [2] TChain* adg = new TChain("cbmsim","lancuch")
root [3] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [4] adg->Draw("MVDHitsStrip.fCharge","")
(Long64_t)123841
```

So PROOF proved to be useful after all, found a potentially serious bug that could change the results. Mohammad fixed it already:

```
194  195     fEvtHeader = (FairEventHeader*)fRootManager->GetObject("EventHeader.");
195          FairMCEventHeader* fMCHeader = (FairMCEventHeader*)fRootManager->GetObject("MCEventHeader.");
     196     fMCHeader = (FairMCEventHeader*)fRootManager->GetObject("MCEventHeader.");
196  197     if(fEvtHeader ==0) {
197  198       fEvtHeader=GetEventHeader();
...  ...
222  223
223  224
224          FairMCEventHeader* fMCHeader = (FairMCEventHeader*)fRootManager->GetObject("MCEventHeader.");
     225     fMCHeader = (FairMCEventHeader*)fRootManager->GetObject("MCEventHeader.");
225  226     if(fEvtHeader ==0) {
226  227       fEvtHeader=GetEventHeader();
...  ...
363  364     fRunInfo.Reset();
364  365
     366
365  367     for (int i=Ev_start; i< Ev_end; i++) {
366  368       fRootManager->ReadEvent(i);
367          tmpId = fEvtHeader->GetRunId();
     369       /**
     370        * if we have simulation files then they have MC Event Header and the Run Id is in it, any way it
     371        * would be better to make FairMCEventHeader a subclass of FairEvtHeader.
     372        */
     373       if(fRootManager->IsEvtHeaderNew()) {
     374         tmpId = fMCHeader->GetRunID();
     375       } else {
     376         tmpId = fEvtHeader->GetRunId();
     377       }
```

```
PndSttHitProducerIdeal* sttHitProducer = new PndSttHitProducerIdeal();
```

- Now on to STT ideal hit producer...

- Wow, nice. It works without any single change to the code... At least it is not crashing...

```
              GEM                     GEM+MVDDigi             GEM+MVDDigi+MVDCluster   GEM+MVD+STT
local         Real time 34.3664 s     Real time 74.4978 s     Real time 176.855 s      Real time 223.477 s
proof         Real time 17.4425 s     Real time 33.919 s      Real time 43.4 s         Real time 49.578 s

karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.root
root [0]
Attaching file tracks_22Part_n20000.root as _file0...
root [1] cbmsim->Draw("STTHit.fX","")
(Long64_t)1776519
root [2] TChain* adg = new TChain("cbmsim","lancuch")
root [3] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [4] adg->SetLineColor(2)
root [5] adg->Draw("STTHit.fX","","same")
(Long64_t)1776519
root [6]
```

- Works ideally, and even better with one change, the damn verbosity on print out...

```
// Event summary
if ( fVerbose > 1)
 cout << "-I- PndSttHitProducerIdeal: " << nPoints << " SttPoints, "
      << nPoints << " Hits created." << endl;
```

```
PndBarrelTrackFinder* barrelTF = new PndBarrelTrackFinder();
```

- Will attach PndBarrelTrackFinder. Already cleaned before;)

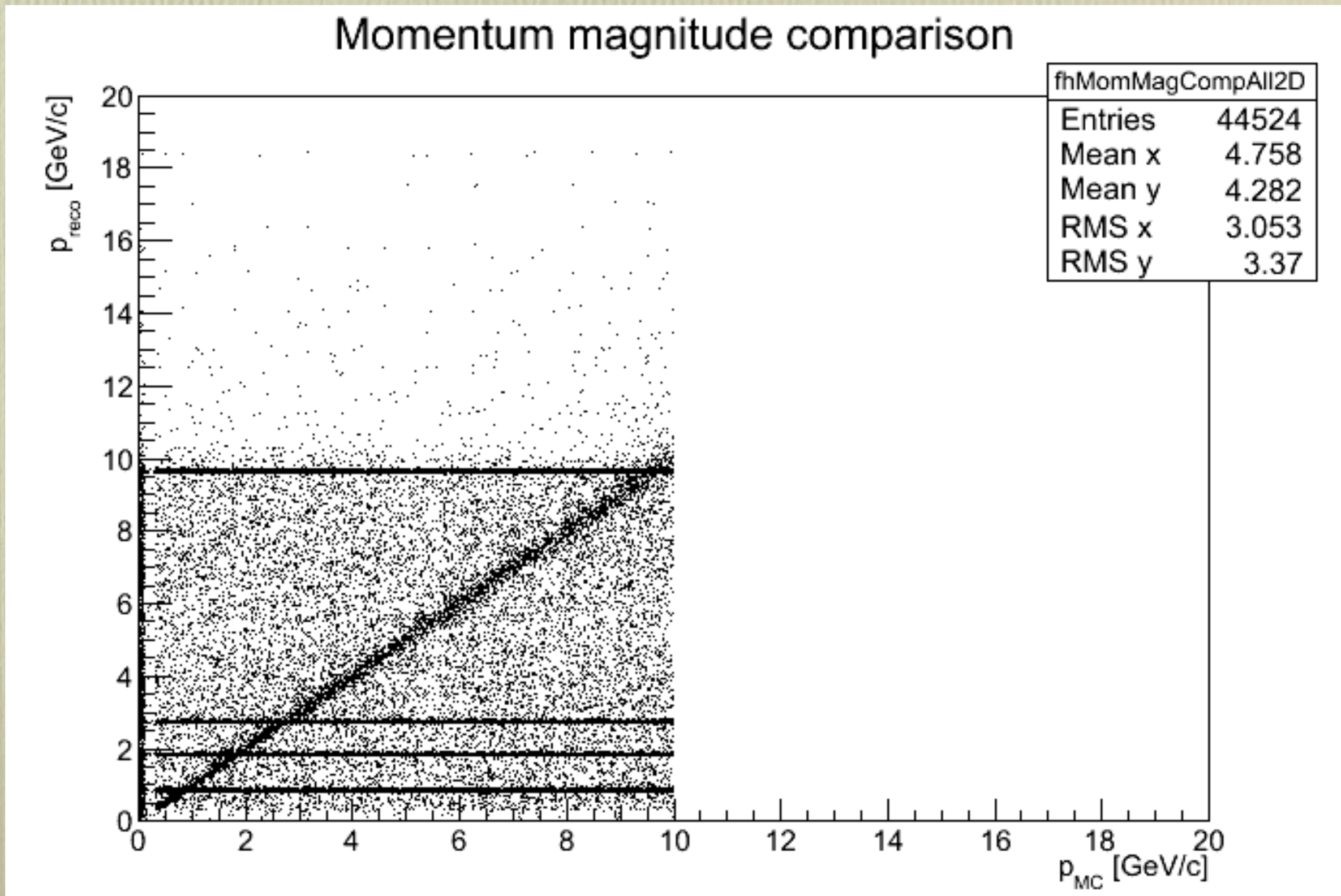
	GEM	GEM+MVDDigi	GEM+MVDDigi+MVDCluster	GEM+MVD+STT	GEM+MVD+STT+BTF
local	Real time 34.3664 s	Real time 74.4978 s	Real time 176.855 s	Real time 223.477 s	Real time 316.819 s
proof	Real time 17.4425 s	Real time 33.919 s	Real time 43.4 s	Real time 49.578 s	Real time 59.1887 s

- Nice. No changes and success, the results are also satisfactory:

```
karabowi@lxi047:pandaroot_proof:~/pandaroot_proof/proof/macro/global$ root -l tracks_22Part_n20000.root
root [0]
Attaching file tracks_22Part_n20000.root as _file0...
root [1] cbmsim->Draw("BarrelTrack.fTrackParamFirst.fPx","")
(Long64_t)83765
root [2] TChain* adg = new TChain("cbmsim","lancuch")
root [3] for(Int_t i=0;i<8;i++)adg->Add(Form("tracks_22Part_n20000_worker_0.%d.root",i))
root [4] adg->SetLineColor(2)
root [5] adg->Draw("BarrelTrack.fTrackParamFirst.fPx","","same")
(Long64_t)84946
root [6]
```

```
PndBarrelTrackFinderQA* barrelQA = new PndBarrelTrackFinderQA();
```

- Seems to run OK, but then the output histogram:



- Added PndGlobalTrackFinderQA, does not produce any crash. The problem is that in all of the events in 2nd, 3rd and later tress in all events there are BarrelTracks from the last event of the first tree.

```
=============== EVENT 998 =================
fMCTrackArray = 0x362b6b0 vs fBarrelTrackArray 0xb78b300
p = 4.32345 -158.582 89.0755
p = 7.96869 -56.296 27.4541
p = 2.09321 6.52105 88.5881
p = 0.752645 -156.912 89.0846
p = 6.06969 -162.984 46.8256
MC0 p = 6.00708 and d = 0
MC1 p = 4.2541 and d = 0
MC2 p = 2.02257 and d = 0
MC3 p = 8.19373 and d = 0
FairRootManager::ReadEvent(999): fCbmroot=0x36328d0 .
FairRootManager::ReadEvent(999): FROM THE TREE 0x3496310
=============== EVENT 999 =================
fMCTrackArray = 0x362b6b0 vs fBarrelTrackArray 0xb78b300
p = 0.806635 80.0604 56.1206
p = 9.67432 -179.929 88.4643
p = 2.7413 -15.4351 76.4053
p = 1.87539 -169.549 37.5788
MC0 p = 8.89499 and d = 0
MC1 p = 1.8465 and d = 0
MC2 p = 2.83019 and d = 0
MC3 p = 0.830242 and d = 0
.....................................
.....................................
.....................................
.....................................
.....................................
.....................................
=============== EVENT 1000 =================
fMCTrackArray = 0x362b6b0 vs fBarrelTrackArray 0xb78b300
p = 0.806635 80.0604 56.1206
p = 9.67432 -179.929 88.4643
p = 2.7413 -15.4351 76.4053
p = 1.87539 -169.549 37.5788
MC0 p = 0.878771 and d = 0
MC1 p = 1.03652 and d = 0
MC2 p = 8.78383 and d = 0
MC3 p = 3.41784 and d = 0
FairRootManager::ReadEvent(1): fCbmroot=0x102030d0 .
FairRootManager::ReadEvent(1): FROM THE TREE 0x10211e60
[INFO   ] The number of entries in the tree is 1000
FairRootManager::ReadEvent(1): The tree has 1000 entries
=============== EVENT 1001 =================
fMCTrackArray = 0x362b6b0 vs fBarrelTrackArray 0xb78b300
p = 0.806635 80.0604 56.1206
p = 9.67432 -179.929 88.4643
p = 2.7413 -15.4351 76.4053
p = 1.87539 -169.549 37.5788
MC0 p = 8.03529 and d = 0
MC1 p = 0.74013 and d = 0
MC2 p = 0.491452 and d = 0
MC3 p = 2.78948 and d = 0
MC4 p = 0.00199914 and d = 42.9799
FairRootManager::ReadEvent(2): fCbmroot=0x102030d0 .
FairRootManager::ReadEvent(2): FROM THE TREE 0x10211e60
```

- hahahaha, so it PndBarrelTrackFinder that is failing in ReInit:

```
REINIT OF MVD Strip Clusterisation Task finished with 0
REINIT OF Ideal STT Hit Producer finished with 0
REINIT OF GEM Digitizer finished with 0
REINIT OF GEM Hit Finder finished with 0
REINIT OF Barrel Track Finder finished with 1
REINIT OF QA task for Barrel Track Finder finished with 0
REINIT OF PndGeoHandling finished with 0
```

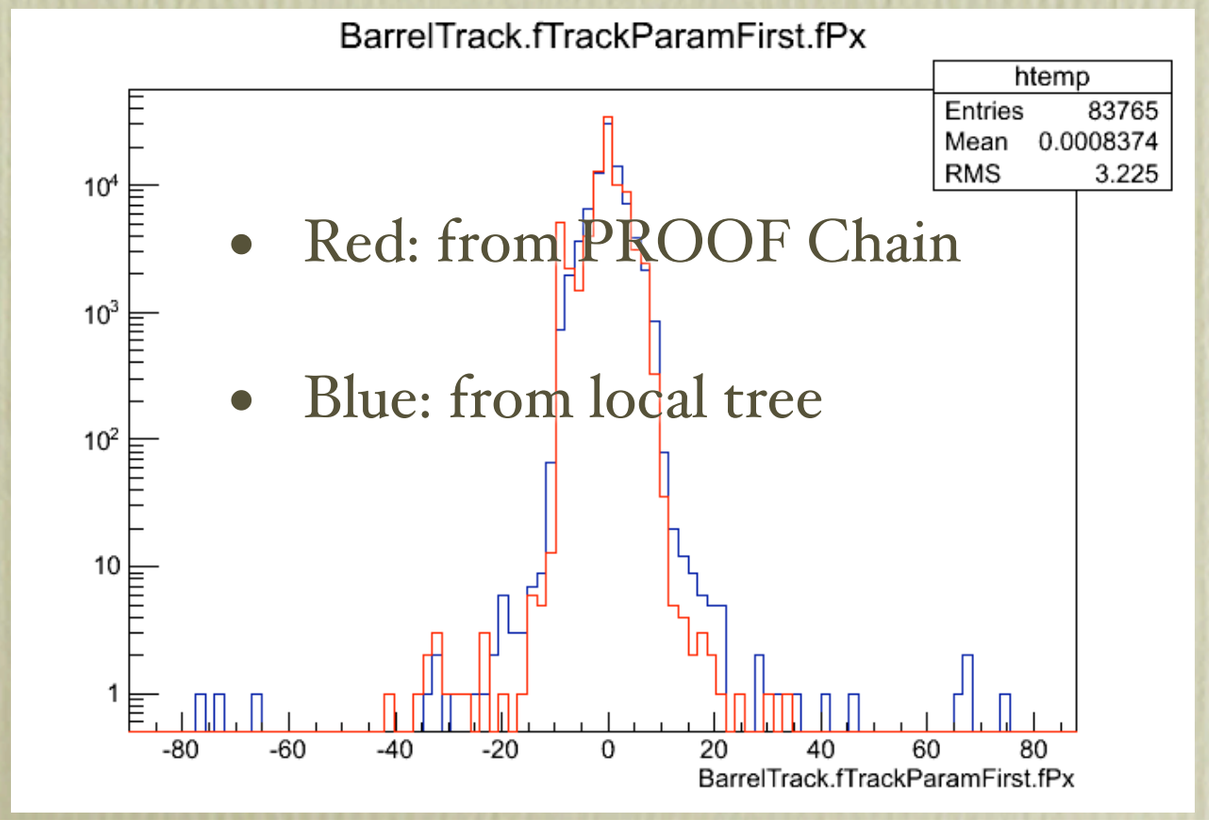
- Silly me:

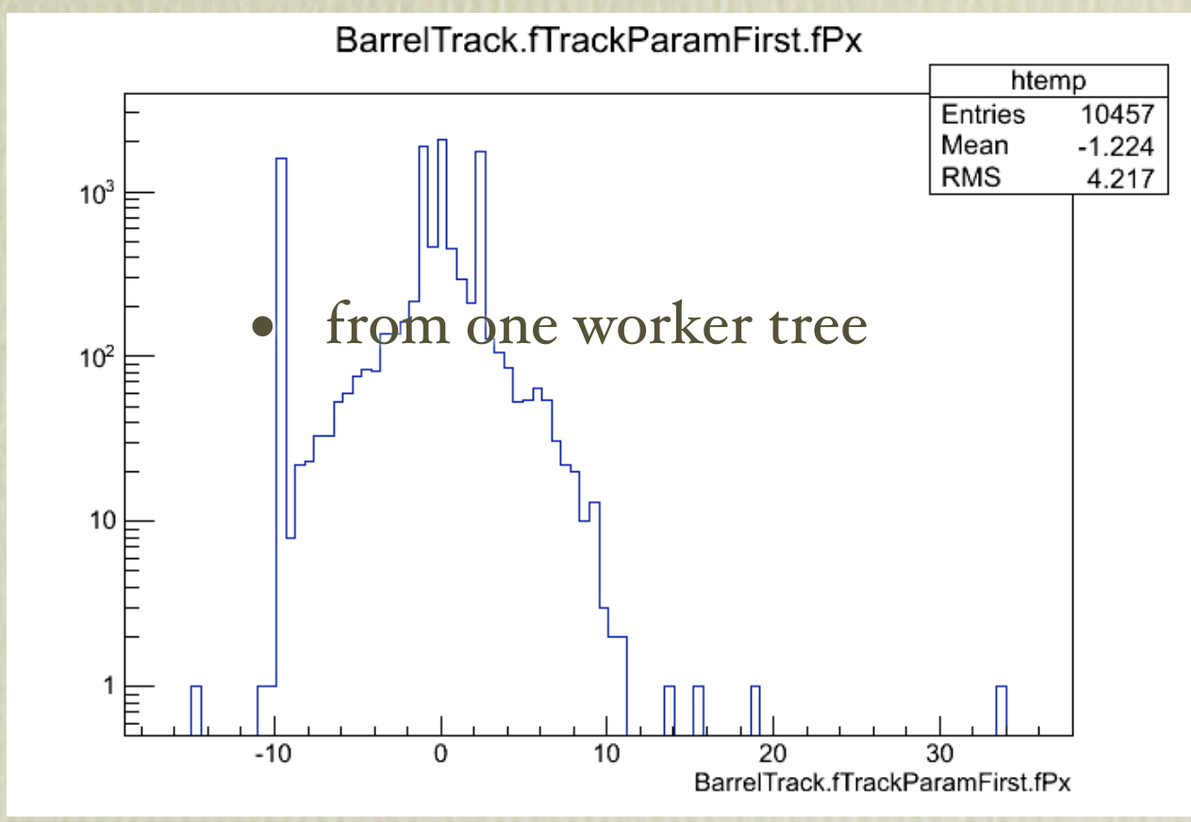
```
// -----   Private method ReInit   ----------------------------------------
InitStatus PndBarrelTrackFinder::ReInit() {

  return kERROR;

}
// ------------------------------------------------------------------------
```

- Could have actually seen it already after creating BarrelTracks





Debugging on MAC, May 2012

- on mac reconstruction was crashing, when added PndSttHitProducerIdeal:
- First obvious try:

```
   FairTask("Ideal STT Hit Producer")
  {
   fPersistence = kTRUE;
+
+  fPointArray    = NULL;
+  fHitArray      = NULL;
+  fHitInfoArray  = NULL;
+  fTubeArray     = NULL;
+
+  fSttParameters = 0;
  }
```

- was not enough

```
   // CHECK added
-  PndSttMapCreator *mapper = new PndSttMapCreator
(fSttParameters);
-  fTubeArray = mapper->FillTubeArray();
+//   PndSttMapCreator *mapper = new PndSttMapCreator
(fSttParameters);
+//   fTubeArray = mapper->FillTubeArray();
 void PndSttHitProducerIdeal::Exec(Option_t* opt)
 {
+  if ( fTubeArray == NULL ) {
+    PndSttMapCreator *mapper = new PndSttMapCreator
(fSttParameters);
+    fTubeArray = mapper->FillTubeArray();
+  }
+
```

- but this two succeeded.

- ok, now i have a problem, when i left only mvd digitization, it crashes in the "local" reconstruction. PndGeoHandling has no sensorNames, even though:

```
&&&&&&&&&& PndSdsStripHitProducer::SetParContainers()
&&&&&&&&&& PndMvdNoiseProducer::SetParContainers()
```

- and the crash itself:

```
[WARNING] Branch MVDStripDigis is already registered in WriteoutBufferMap
[WARNING] Branch MVDPixelDigis is already registered in WriteoutBufferMap
 in PndMvdNoiseProducer::FillSensorLists() fGeoH = "0x116c54b90"
 and sensorNames = "0"

 *** Break *** segmentation violation


Thread 1 (process 29463):
#0  0x00007fff83c86b28 in wait4 ()
#1  0x00007fff83c9b0e6 in system ()
#2  0x0000000010012175c in TUnixSystem::StackTrace ()
#3  0x0000000010011e931 in TUnixSystem::DispatchSignals ()
#4  <signal handler called>
#5  0x0000000109205bdb in PndMvdNoiseProducer::FillSensorLists (this=0x111fdaf50) at /Users/konglaide/
panda/pandaroot_15287/trunk/mvd/MvdDigi/PndMvdNoiseProducer.cxx:165
#6  0x0000000109205ed3 in PndMvdNoiseProducer::Init (this=0x111fdaf50) at /Users/konglaide/panda/
pandaroot_15287/trunk/mvd/MvdDigi/PndMvdNoiseProducer.cxx:97
#7  0x000000010705cdfb in FairTask::InitTask (this=0x111fdaf50) at /Users/konglaide/panda/pandaroot_15287/
trunk/base/FairTask.cxx:48
#8  0x000000010705cea8 in FairTask::InitTasks (this=<value temporarily unavailable, due to optimizations>)
at /Users/konglaide/panda/pandaroot_15287/trunk/base/FairTask.cxx:120
#9  0x000000010705cea8 in FairTask::InitTasks (this=<value temporarily unavailable, due to optimizations>)
at /Users/konglaide/panda/pandaroot_15287/trunk/base/FairTask.cxx:120
#10 0x0000000107059079 in FairRunAna::Init (this=0x10ad49150) at /Users/konglaide/panda/pandaroot_15287/
trunk/base/FairRunAna.cxx:381
#11
```

- OK, had similar problem before. It lays in the fTask member of FairRun. In the FairRunAna::Init() we call: fTask->SetParTask(); which executes SetParContainers in all the tasks.

- However, if some task A attaches another task B to fTask, will the SetParContainers be called for task B?
- Well, it looks like NOT ALWAYS.
- It is called when NoiseProducer attaches PndGeoHandling:

```
1***fTask->ls()***
FairTaskList   FairTask
 MVD Digitization BlacBox Task     FairTask
  MVD Hybrid Hit Producer     FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer) FairTask
  Charge Noise Producer  FairTask
 GEM Digitizer FairTask
 GEM Hit Finder     FairTask
*****************
Info in (PndGeoHandling::Instance): Making a new instance using the framework.
Info in <PndMvdStripHitProducer::SetParContainers()>: The container names list contains 10 entries
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelDigiPar
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParRect
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTrap
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTD
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTS
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelTotDigiPar
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParRect
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTrap
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTD
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTS
&&&&&&&&&& PndSdsStripHitProducer::SetParContainers()
&&&&&&&&&& PndMvdNoiseProducer::SetParContainers()
()()()()()()()()()()()()()
PndGeoHandling::SetParContainers()
()()()()()()()()()()()()()
1***fTask->ls()***
FairTaskList   FairTask
 MVD Digitization BlacBox Task     FairTask
  MVD Hybrid Hit Producer     FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer) FairTask
  Charge Noise Producer  FairTask
 GEM Digitizer FairTask
 GEM Hit Finder     FairTask
 PndGeoHandling     FairTask
*****************
```

- But not here:

```
1***fTask->ls()***
FairTaskList   FairTask
 MVD Digitization BlacBox Task     FairTask
  MVD Hybrid Hit Producer     FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer) FairTask
  Charge Noise Producer  FairTask
******************
Info in (PndGeoHandling::Instance): Making a new instance using the framework.
Info in <PndMvdStripHitProducer::SetParContainers()>: The container names list contains 10 entries
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelDigiPar
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParRect
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTrap
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTD
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripDigiParTS
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDPixelTotDigiPar
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParRect
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTrap
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTD
Info in <PndMvdStripHitProducer::SetParContainers()>: MVDStripTotDigiParTS
&&&&&&&&&& PndSdsStripHitProducer::SetParContainers()
&&&&&&&&&& PndMvdNoiseProducer::SetParContainers()
1***fTask->ls()***
FairTaskList   FairTask
 MVD Digitization BlacBox Task     FairTask
  MVD Hybrid Hit Producer     FairTask
  MVD Strip Digi Producer(PndMvdStripHitProducer) FairTask
  Charge Noise Producer  FairTask
 PndGeoHandling     FairTask
******************
```

The difference is only GEM tasks, or rather anything in the top-most level of the fTask hierarchy...