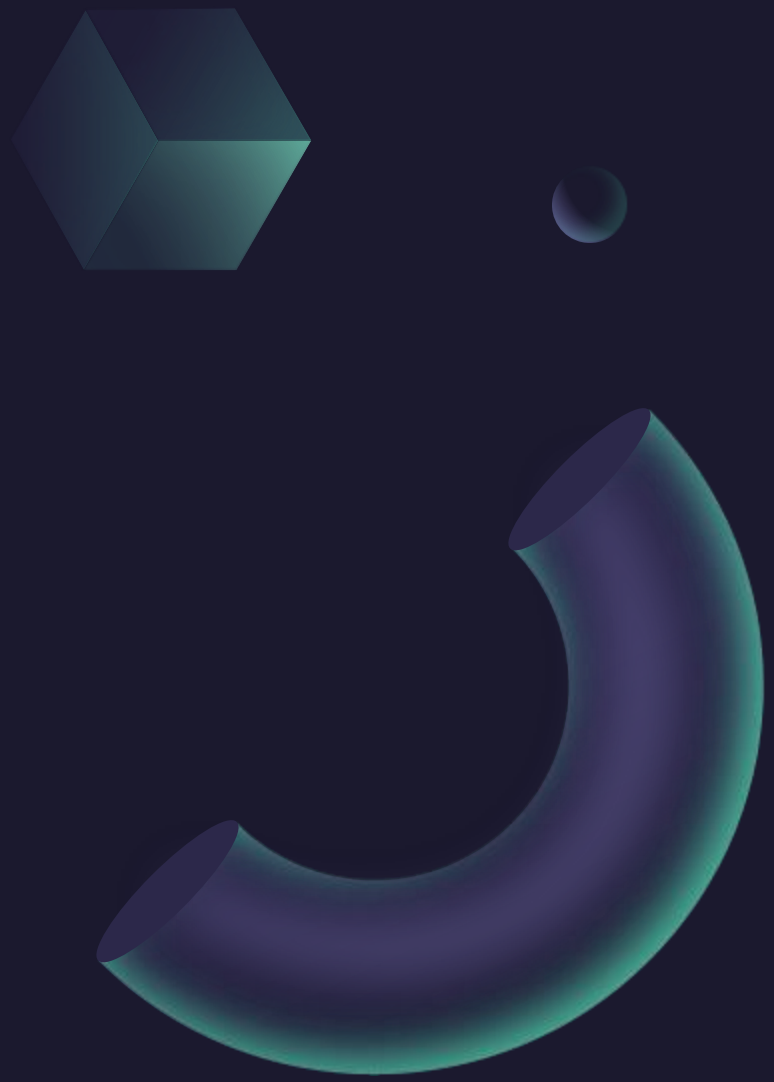

First steps to run my own train

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Running in the Offline Cluster

We have a lot of information, so I chose to divided on many lists and run to the cluster.

each list have 1111 lines with 500 events

```
-rw-r--r-- 1 jcmarqzra nica  18K jul 10 11:48 lista198.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 13:59 listareq28_2.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 13:59 listareq28_3.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:00 listareq28_4.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:00 listareq28_5.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:00 listareq28_6.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:00 listareq28_7.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:01 listareq28_8.txt
-rw-r--r-- 1 jcmarqzra nica 179K jul 10 14:01 listareq28_9.txt
-rw-r--r-- 1 jcmarqzra nica  162 jul 10 14:01 listareq28_0.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:02 listareq28_11.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:07 listareq28_12.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:12 listareq28_13.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:12 listareq28_14.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:12 listareq28_15.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:12 listareq28_16.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:19 listareq28_17.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:19 listareq28_18.txt
-rw-r--r-- 1 jcmarqzra nica 180K jul 10 14:26 listareq28_19.txt
-rw-r--r-- 1 jcmarqzra nica  18K jul 10 16:13 lista199.txt
```

- This file generated many files to run each list.

```
#!/bin/sh

for ((INDEX = 0; INDEX < 19; INDEX++))
do
cp NucleiAna.json NucleiAna${INDEX}.json

sed -e "s/RunAnalyses/RunAnalyses${INDEX}/;   s/list/listareq28_${INDEX}/;   s/pCentry/
pCentry${INDEX}/;     s/taskNucleiy/taskNucleiy${INDEX}/;    s/NucleiAna.json/NucleiAna
${INDEX}.json/" RunAnalyses.C > RunAnalyses${INDEX}.C
done

~
```

- This file run the train over the lists

```
#!/bin/sh
#SBATCH --ntasks-per-node=1
#SBATCH --mem-per-cpu=8192M  # that much memory for simulation and reconstruction jobs
only
#SBATCH --time=14-00:00:0
#SBATCH -p nica
#SBATCH --array=0-19


source /cvmfs/nica.jinr.ru/sw/os/login.sh
module add mpddev
export MPDROOT=/scratch2/lhep/users/jcmarqzra/mpd
source $MPDROOT/config/env.sh


root -l -b -q "RunAnalyses$SLURM_ARRAY_TASK_ID.C"
~
~
```

My own train

From INTEREST Program

Form my job on the INTEREST Program a take this files and star to edit to find new things:

MpdPtMCAnalysisTask.h

MpdPtMCAnalysisTask.cxx

jcmarqzra@ncx102:~/mpdroot-dev/physics/simplePt

```
#ifndef MPDPTMCANALYSISTASK_H
#define MPDPTMCANALYSISTASK_H

#include "MpdAnalysisTask.h"
//#include "MpdMCTrack.h"

#include "TH1.h"
#include "TH2.h"

//#define BOOST_BIND_GLOBAL_PLACEHOLDERS
//#include <boost/foreach.hpp>
//#include <boost/property_tree/ptree.hpp>
//#include <boost/property_tree/json_parser.hpp>


class MpdPtMCAnalysisTask : public MpdAnalysisTask {

public:
   MpdPtMCAnalysisTask() {}
   MpdPtMCAnalysisTask(const char *name, const char *outputName = "taskName");
   ~MpdPtMCAnalysisTask() {}

   void UserInit();
   void ProcessEvent(MpdAnalysisEvent &event);
   void Finish();

   //Double_t ptmc;
   //Double_t pt;

   void setOutFile(std::string filename = "histos.root") { mOutFile = filename; }

private:

   std::string mOutFile = "histos.root" ;

//  std::string mParamConfig;
//  const char* settings_file;



   MpdEvent *fTDstEvent;
   TClonesArray *fTMCTracks;
   TClonesArray  *fTMpdGlobalTracks = nullptr;
   //Histograms
   TH1F *fhistPtMC;
   TH1F *fhistetaMC;
   TH1F *fhistEnposMC;
   //histrograms for particles
   TH1F *fhistEnposkMC;
   TH1F *fhistEnpospiMC;
   TH1F *fhistEnposproMC;
   //HReconstruidos
   TH1F *fhistPt;
```

MpdPtMCAnalysisTask.h 1,1 Comienzo

```
    Double_t Enpos=MCtrack->GetEnergy();
    fhistEnposMC->Fill(Enpos);

     //  }
  }//fin del loop de los tracks montecarlo
*/
//Reconstructed tracks

fTDstEvent = event.fMPDEvent;
fTMpdGlobalTracks = event.fMPDEvent->GetGlobalTracks();
Int_t ntracks=fTMpdGlobalTracks->GetEntriesFast();

/*for (Int_t i = 0; i < ntracks; i++)
{
    MpdTrack *track = (MpdTrack*) fTMpdGlobalTracks->UncheckedAt(i);
    Int_t idtrack = track->GetID();
    MpdMCTrack *mcTr = (MpdMCTrack*)fTMCTracks->UncheckedAt(idtrack);
    Int_t pdg = TMath::Abs(mcTr->GetPdgCode());
    TVector3 P(track->GetPx(),track->GetPy(),track->GetPz());

    Double_t ptmc = mcTr->GetPt();

            if(pdg == 321)
            {
                    Double_t massK =0.493;
                    Double_t Enposk=TMath::Sqrt(massK*massK+P.Mag2());
                    fhistEnposk->Fill(Enposk);
            }else if(pdg == 211)
            {
                    Double_t massPi = 0.139;
                    Double_t Enpospi=TMath::Sqrt(massPi*massPi+P.Mag2());
                    fhistEnpospi->Fill(Enpospi);
            }else if(pdg == 2212)
            {
                    Double_t massPro = 0.938;
                    Double_t Enpospro=TMath::Sqrt(massPro*massPro+P.Mag2());
                    fhistEnpospro->Fill(Enpospro);
            }


    Double_t pt = track->GetPt();

    Double_t etamc = track->GetEta();
    fhisteta->Fill(etamc);

    Double_t Enpos=mcTr->GetEnergy();
    fhistEnpos->Fill(Enpos);

    Double_t PT= (pt - (ptmc)) / (ptmc);
    fhistPtY->Fill(mcTr->GetRapidity(), PT);
*/
   /* float dEdx = track->GetdEdXTPC();
    mhdEdx->Fill(TMath::Abs(ptmc)*TMath::CosH(etamc), dEdx);
```

MpdPtMCAnalysisTask.cxx 172,1 86%

Not work

When I train to run "cmake .." & "make -j16 install". I get several errors, but the next error remains.

I asked Dr. Ivonne for help, but we couldn't find the problem. Then we decided to rewrite the entire train.

```
[100%] Linking CXX shared library ../../lib/libMpdexample.so
/cvmfs/nica.jinr.ru/sw/202309/slc7_x86-64/GCC-ToolChain/v13.2.0-1/bin/../lib/gcc/x86_64
-unknown-linux-gnu/13.2.0/../../../../x86_64-unknown-linux-gnu/bin/ld: cannot find -lpy
thia8: No existe el fichero o el directorio
collect2: error: ld returned 1 exit status
make[2]: *** [lib/libMpdexample.so.18.6.10] Error 1
make[1]: *** [physics/simplePt/CMakeFiles/Mpdexample.dir/all] Error 2
make: *** [all] Error 2
[icmaroza@ncx102 build]$ rm -rf *
```

The Next Steps

```
Double_t pt = track->GetPt();    // Tranverse moment

Double_t ptmc = mcTr->GetPt(); // Monte Carlo Tranverse Momemt

Double_t PT= (pt - (ptmc)) / (ptmc);
fhistPtY->Fill(mcTr->GetRapidity(), PT);
```

I'm going to rewrite the whole train, checking that everything is working well before I start implementing things.

Once the train works perfectly, we will get the histogram of "Pt vs Rapidity".