

Instructions to run KFParticle code for D^+ reco.

Location of the code

- Macro to copy:
 - /star/data02/pwg/bouchet/HFT/DPLUS/code/MuKpiFTuple.C
 - /star/data02/pwg/bouchet/HFT/DPLUS/code/
array.h (contains the variables filled in the NTuple)
constant.h (contains some constants like mass pion,kaon ,etc)
cuts.h (constains the list of cuts used in the code)
histoBook.h (contains the list of histograms filled in the code)
- Directory to copy :
 - /star/data02/pwg/bouchet/HFT/DPLUS/code/StRoot
 - Once you have copied StRoot, you have to compile it with the following command (cons +StRoot) in starver SL10i

Location of the files

- Files are :
 - /star/data02/pwg/bouchet/HFT/FILES/
- Actually there is 500 events in 100 files (so each file has 5 events)
- The name convention is :
 - mix_[0..9]_[0,5,10,15,20,25,30,35,40,45].MuDst.root
- So the macro MuKpiFTuple.C has the global path /star/data02/pwg/bouchet/HFT/FILES/ and takes a number from 0 to 9 as input
- Example: if one is running the macro with **0** as input (under a root session, just type MuKpiFTuple(**0**)), all the files starting with mix_**0***.MuDst.root will be used

Location of script

- The scripts are used to sent a job.

- The location is :

`/star/data02/pwg/bouchet/HFT/DPLUS/script/
run.sh`

`runReco.job`

- You will have to change the path of the locations of the files accordingly with your directory

Script run.sh

```
#!/bin/sh
#usage : run.sh(int day)
mkdir norefit-part-$1 (1)
cd norefit-part-$1
#copy the code, StRoot directory and shared libs. (code should be compiled)
cp /star/data02/pwg/bouchet/HFT/DPLUS/code/*.C ./
cp /star/data02/pwg/bouchet/HFT/DPLUS/code/*.h ./
cp -r /star/data02/pwg/bouchet/HFT/DPLUS/code/StRoot/ ./
cp -r /star/data02/pwg/bouchet/HFT/DPLUS/code/.sl53_gcc432 ./
#SL10i is the starnew lib.
starver SL10i
echo part processed is $1
root4star -b <<EOF
.x Load.C
.x MuKpiFTuple.C+
.x MuKpiFTuple.C+
MuKpiFTuple($1)
.q
EOF
```

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- The first instruction (1) creates a subdirectory where job id will run
- The rest of the lines are to copy the files in this directory and run within it
- If you want to have your own macro, just do as explained in previous slides, otherwise this script has a link to my code, so you can just copy this script ⁵

runReco.job

- This code is used to submit jobs
- You have to change initialDir and the directories for the location of the output, Error and log

- There is instruction lines :

```
run.sh 0
```

which calls the other script

```
run.sh and give it an
```

```
argument 0
```

- So to run over all the files, just copy and paste the block :

```
Arguments = run.sh 1
```

```
Queue
```

```
...
```

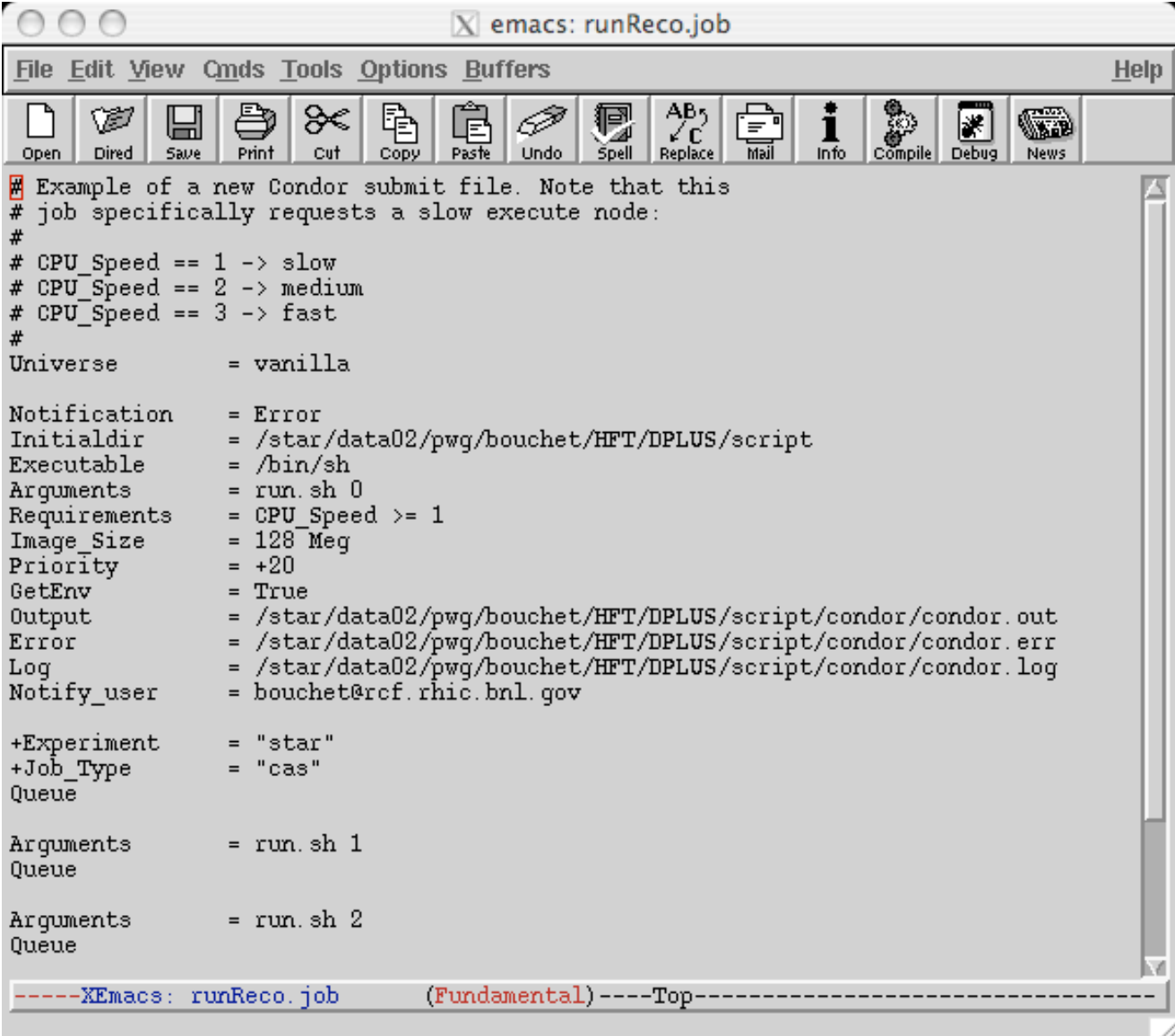
```
Arguments = run.sh 9
```

```
Queue
```

- You have to create a directory log/ and condor/ within the directory where you will send the jobs

- To send the jobs :

```
condor_submit runReco.job
```



```
# Example of a new Condor submit file. Note that this
# job specifically requests a slow execute node:
#
# CPU_Speed == 1 -> slow
# CPU_Speed == 2 -> medium
# CPU_Speed == 3 -> fast
#
Universe           = vanilla

Notification       = Error
Initialdir         = /star/data02/pwg/bouchet/HFT/DPLUS/script
Executable         = /bin/sh
Arguments          = run.sh 0
Requirements       = CPU_Speed >= 1
Image_Size         = 128 Meg
Priority           = +20
GetEnv             = True
Output             = /star/data02/pwg/bouchet/HFT/DPLUS/script/condor/condor.out
Error              = /star/data02/pwg/bouchet/HFT/DPLUS/script/condor/condor.err
Log                = /star/data02/pwg/bouchet/HFT/DPLUS/script/condor/condor.log
Notify_user        = bouchet@rcf.rhic.bnl.gov

+Experiment        = "star"
+Job_Type          = "cas"
Queue

Arguments          = run.sh 1
Queue

Arguments          = run.sh 2
Queue
```

Cuts.h

- This file contains the cuts applied in the macro.
- One has to change them (for example the pT of daughters, number of TPC hits, etc ...)
- there's no need to recompile the code

```
static const Double_t pTCut           = 1.2; // transverse momentum cut
static const Double_t mKpipiMin       = 1.2; // min mass of (Kpipi) association
static const Double_t mKpipiMax       = 2.4; // max mass of (Kpipi) association
static const Double_t DcaCut          = 0.1; // single track DCA to PV
static const Int_t    TpcCut          = 20;  // TPC hits fitted
static const Double_t TrackLengthCut  = 40;  // min value for dEdxTrackLength
static const Int_t    SiCut           = 4;   // (PIX+IST+SSD) hits fitted
static const Float_t  SigmaPionCut    = 3;   // ndEdx for pion
static const Float_t  SigmaKaonCut    = 3;   // ndEdx for kaon
static const Double_t EtaMin          = -1.0; // min track pseudorapidity
static const Double_t EtaMax          = 1.0;  // max track pseudorapidity
static const Double_t zcut            = 5;   // zvertex cut
static const Double_t PrimZResCut     = 0.02; // sigmazvertex cut
static const Double_t sigmaTCut      = 2.0; // ratio single track dca/sigmaDca
static const Double_t ProbKFCut      = 0.01; // probability of fit
static const Int_t    writeHisto     = 1;   // flag to write histos
static const Int_t    refit          = 0;   // flag to refit daughters
```

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To summarize

- In your work directory, you should have:

workdir/run.sh

workdir/runReco.job

workdir/condor/

workdir/log/

workdir/StRoot