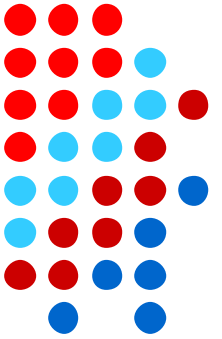
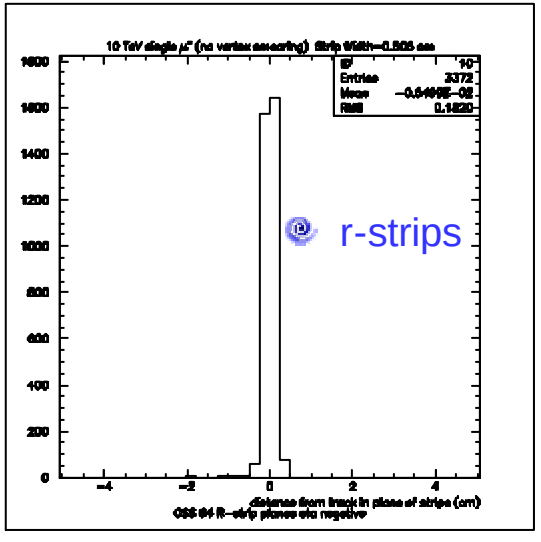
Moore/MUID validation with 7.0.1

The MOORE group

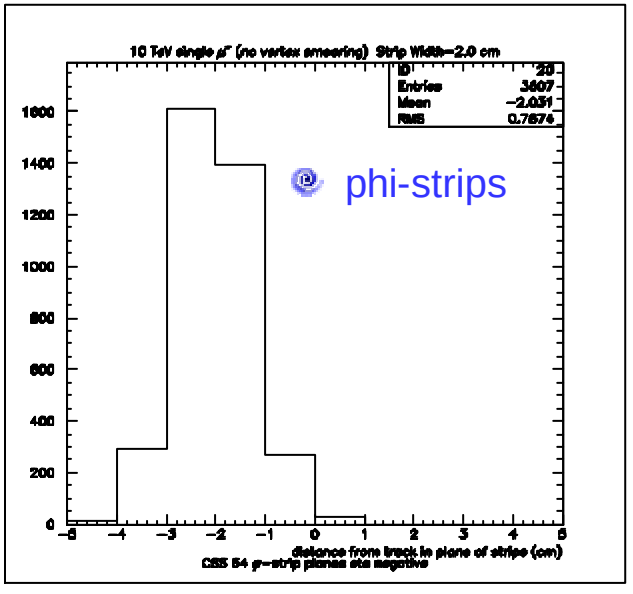


CSC digitization tests (checks with files produced with atlsim 7.0.0)

- Residuals between the MC muon truth direction at the entrance of the spectrometer and the position of the strip with highest charge deposit



10 TeV muons (dE/dx only)

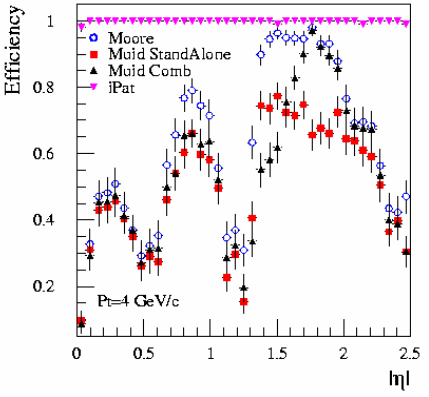


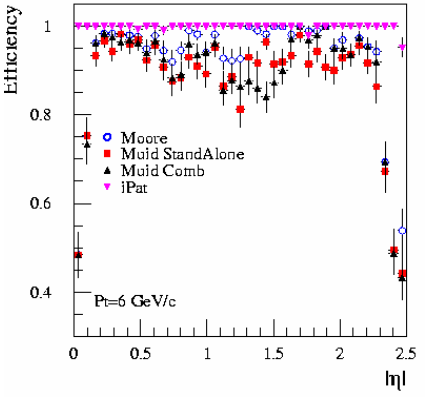
- Digitization is wrong in CSC phi strips.
- When this will be solved will we have to Re-digitize all the samples?

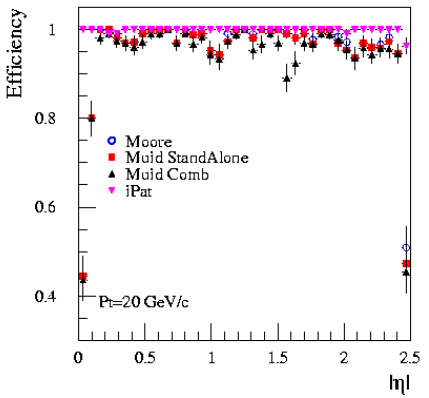
Reconstructed Samples

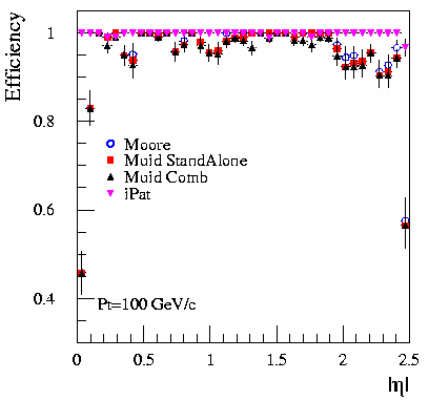
- Only MOORE/iPatRec/MUID
  - 30K of DC1 single μ
  - 11,2K of H→4 μ m_H=130 GeV/c
- Within RecEXCommon
  - 5K of full simulated SuSy events
  - 12K events of Z→2 μ
- NO CRASH occurred

Single m – efficiency vs h

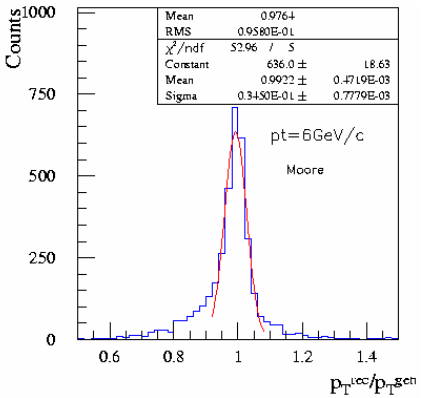


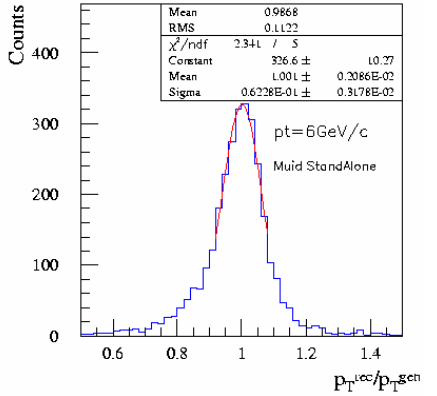


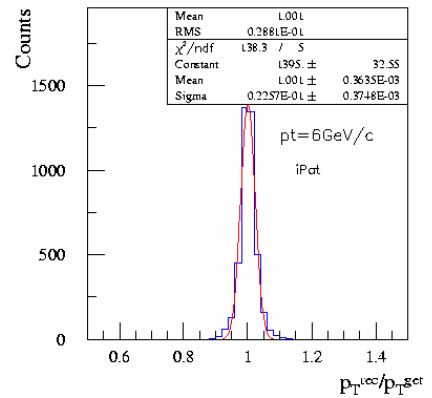


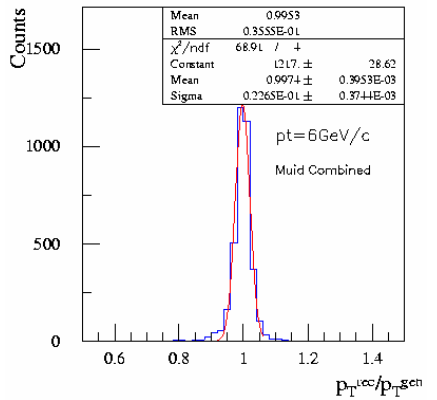


Single m - pT resolution (I)

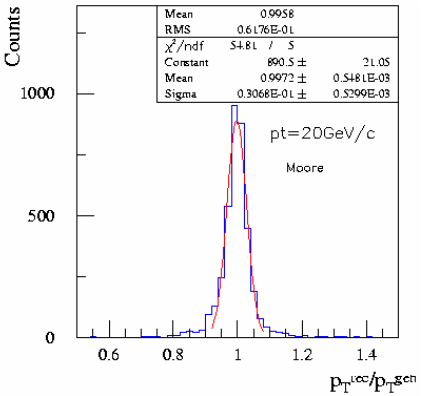


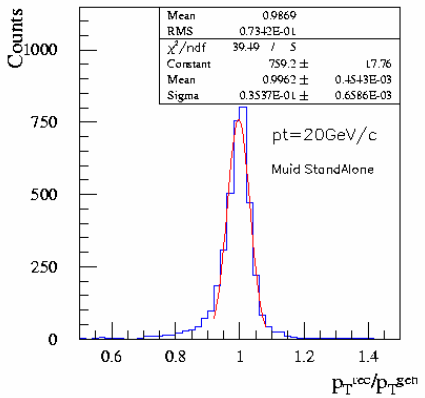


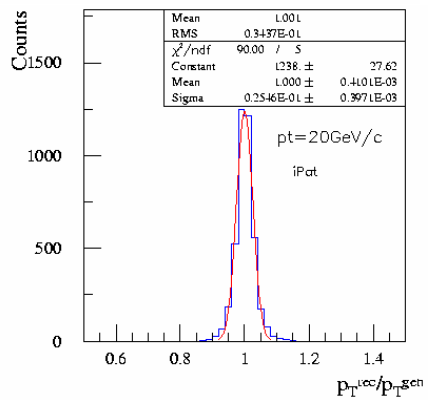


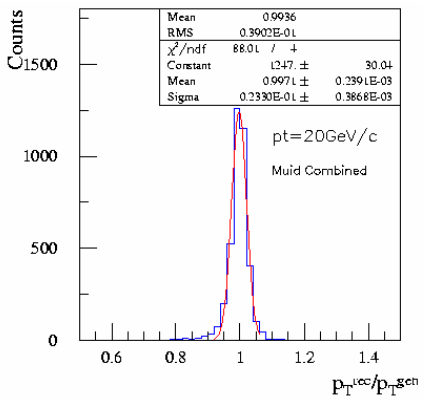


Single m - pT resolution (II)

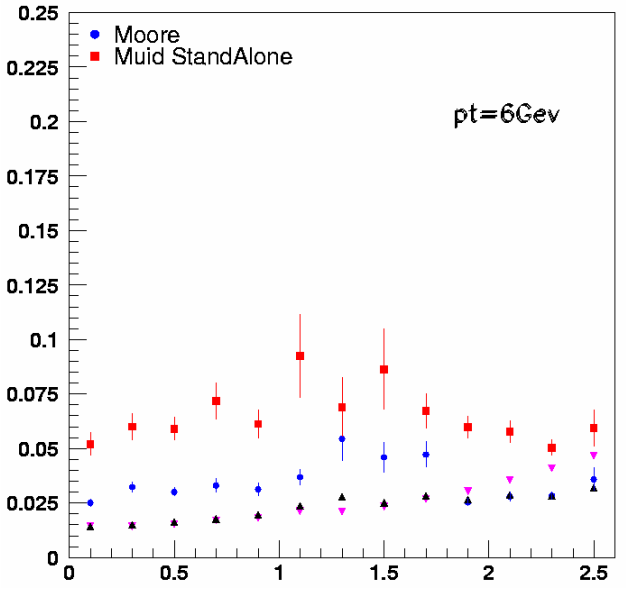


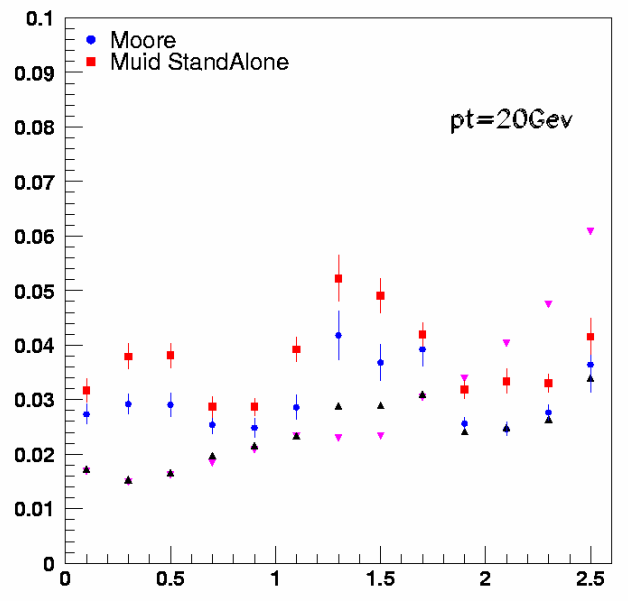






Single m: pT resolution vs h

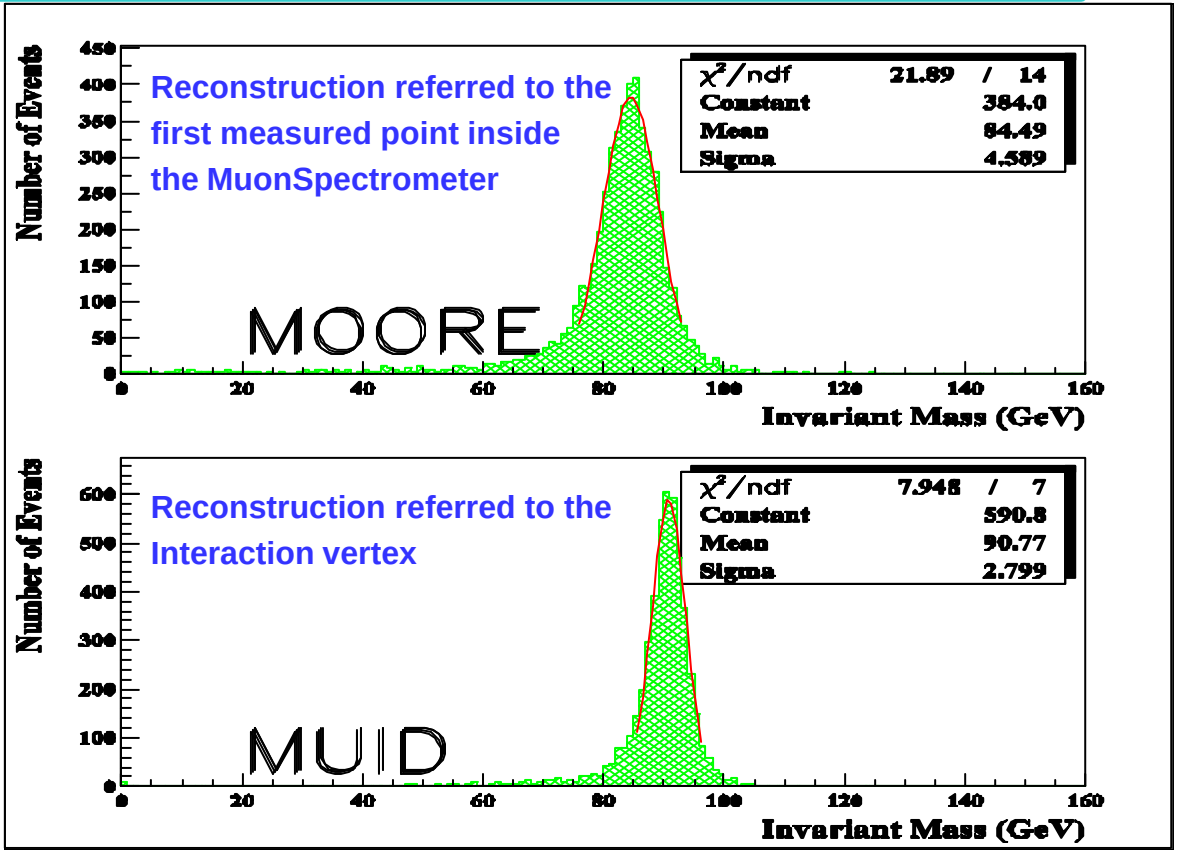




Single μ - Summary

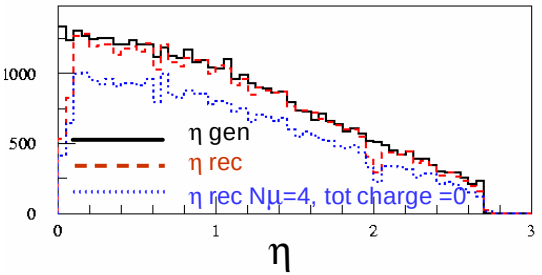
pT(GeV/c)	MOORE ε (%)/ pT res (GeV/c)	MUID StandAlone ε(%) / pT res (GeV/c)	MUID Combined ε(%) / pT res (GeV/c)
3	35/4.3	22/7. 9	28/2.9
4	62/4.0	50/7.5	54/2.6
6	92/3.5	88/6.2	89/2.3
20	95/3.1	95/3.5	94/2.3
100	95/3.2	95/3.5	94/3.0
300	95/3.6	95/3.8	94/3.5

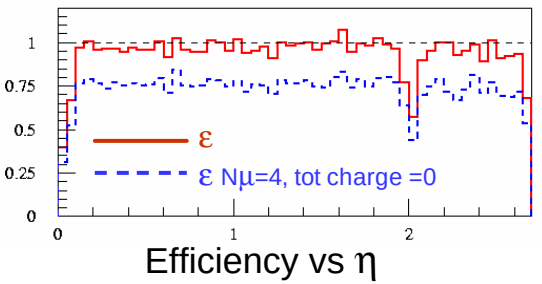
Z → 2 m (12K events processed (RecExCommon))



H→4 m - Moore

(Efficiency * acceptance)



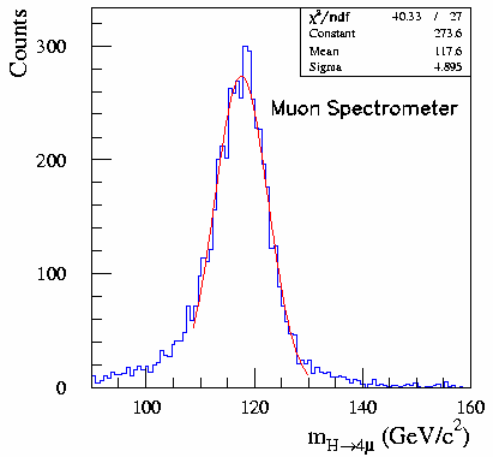


Efficiency vs η

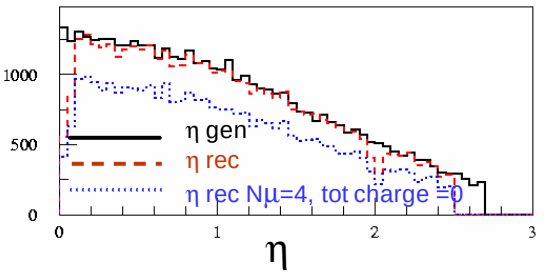
Moore	efficiency	cut acceptance
Nμ =4, |η|<2.5 Total charge = 0	74%	68%

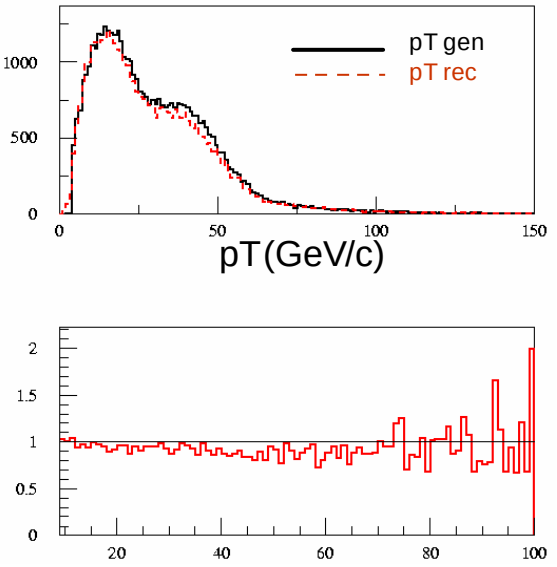
- η = 0 crack region
- CSC effects
- h = 2 ??

Higgs mass with only Muon Spectrometer measurements



H→4m – Muid Standalone

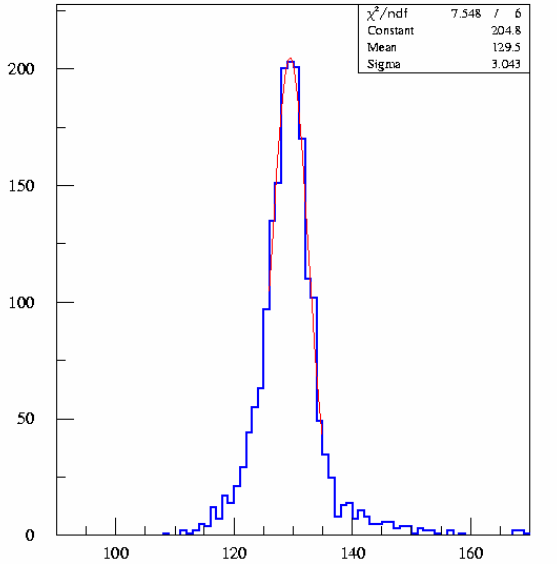




- η = 0 crack region
- CSC effects
- h **= 2 ??**

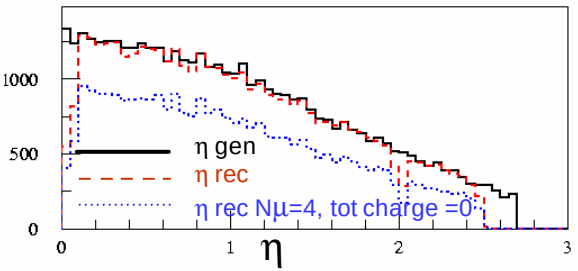
H→ 4 m – Muid StandAlone

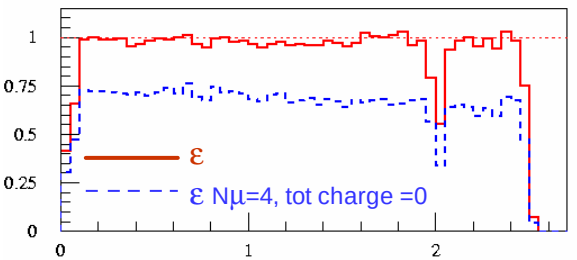
Muid StandAlone	efficiency	cut acceptance
Nμ =4, |η|<2.5 Total charge = 0	73%	66%
2μ pT > 7 GeV/c 2μ pT > 20 Gev/c	65%	26%
m12 ? (mz ±15GeV/c) m34 > 20 GeV/c		16%



Reconstructed m_H (Gev/c^2)

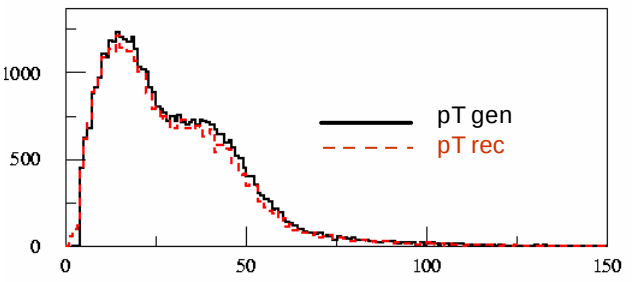
H→4m – Muid Combined



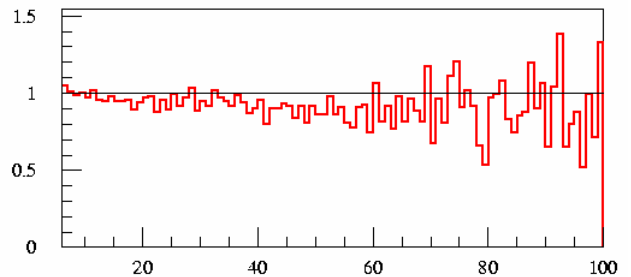


Efficiency vs η

- η = 0 crack region
- CSC effects
- h = 2 ??



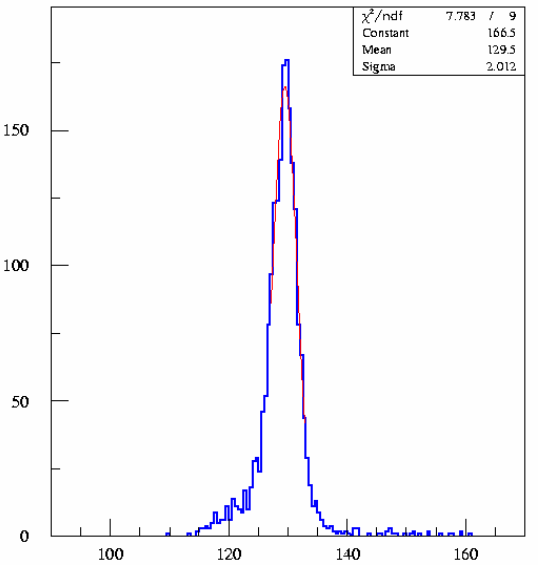
pT(GeV/c)



Efficiency vs pT(GeV/c)

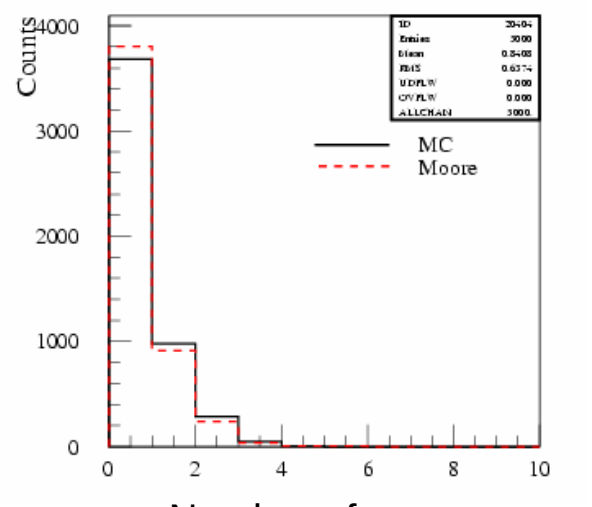
H→ 4 m – Muid Combined

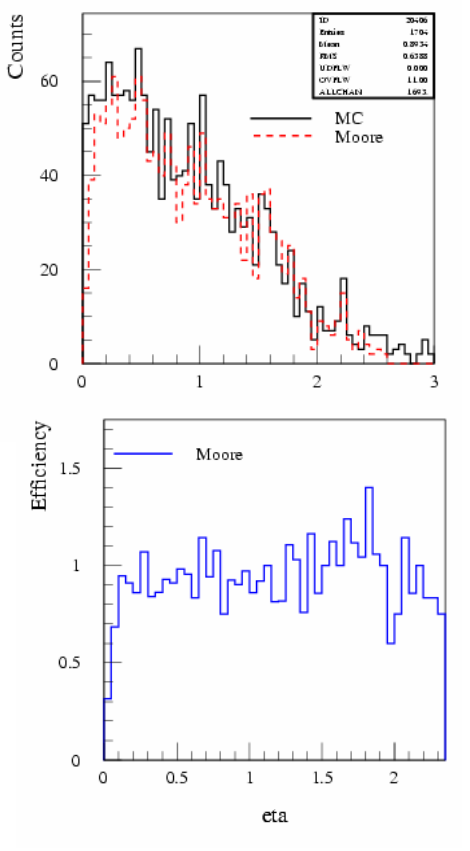
Muid Combined	efficiency	cut acceptance
Nμ =4, |η|<2.5 Total charge = 0	72%	66%
2μ pT > 7 GeV/c 2μ pT > 20 Gev/c	67%	27%
m12 ? (mz ±15GeV/c) m34 > 20 GeV/c		18%



Reconstructed m_H (Gev/c^2)

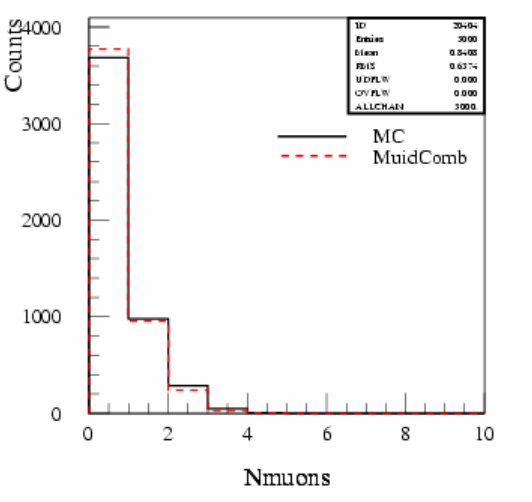
SuSy - Moore

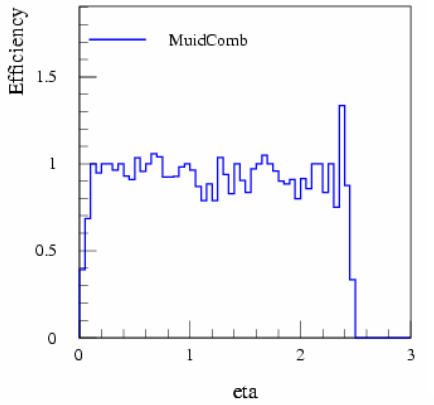


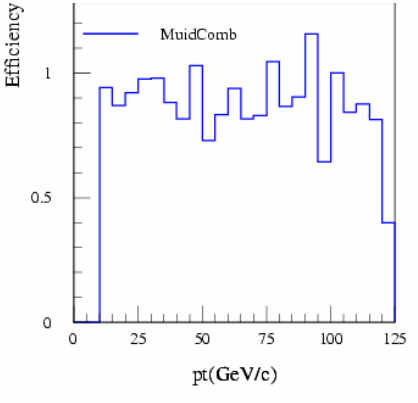


- η = 0 crack region
- CSC effects
- h **= 2 ??**

SuSy – Muid Combined

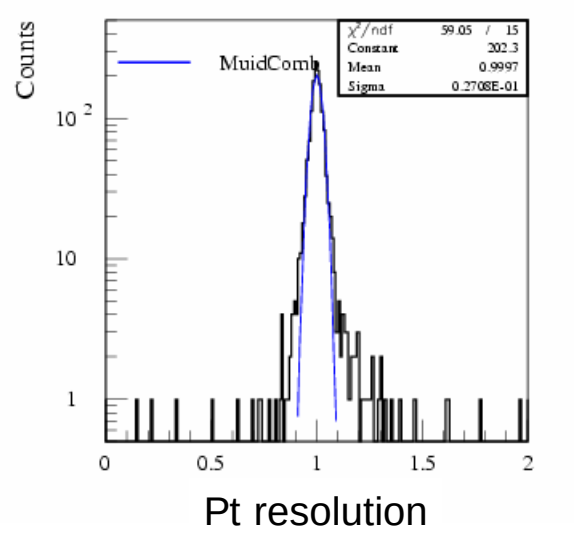




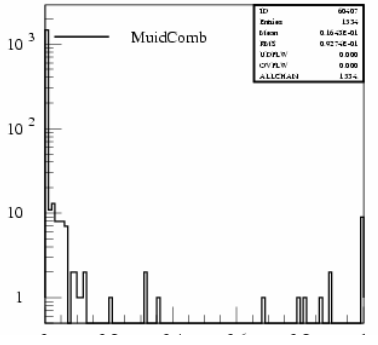


Problem: fake muons with high events with hi density of track in the inner detector
→Fortran function to select muons in :
/afs/cern.ch/user/b/bigliett/public/selcomb.f

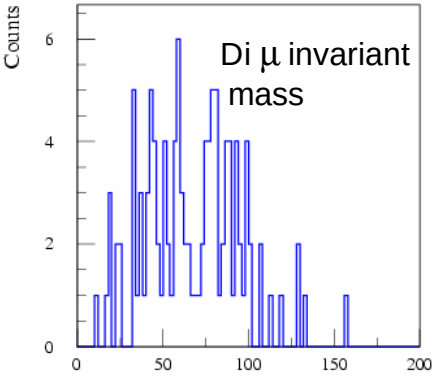
SuSy – Muid Combined



Pt resolution



Distance cone truth/rec



In 7.0.1

We have been able to process a sub-sample of events, unfortunately we did not have access to all the results given an afs problem.

On single muon files the results shown in Athens have been reproduced. Those results were obtained with 6.0.3 version, plus some private fixes.

A few fixes are in the release allowing a more user-friendly setup (e.g. if the correction for dead material are not inserted correctly the job will scream also from the RecExCommon execution).

In the future

- We are working on track persistency.
- We did not succeed in the persistence of a pointer to a vector of pointers needed for our track class. There are no problem with the persistence of a vector of pointers.
- Once the CSC digitization is solved, what about data-files? All the data produced up to now do not have a properly digitized CSC information on the phi-strips hits.