Latest **PRELIMINARY** Results from Run 2 at DØ

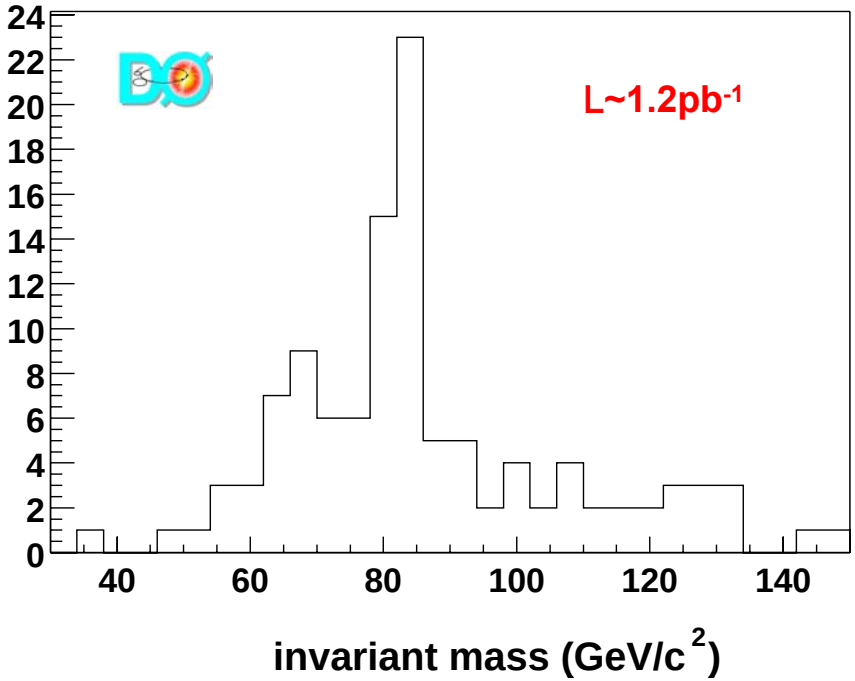
Last updated – Jan. 11, 2002

Boaz Klima

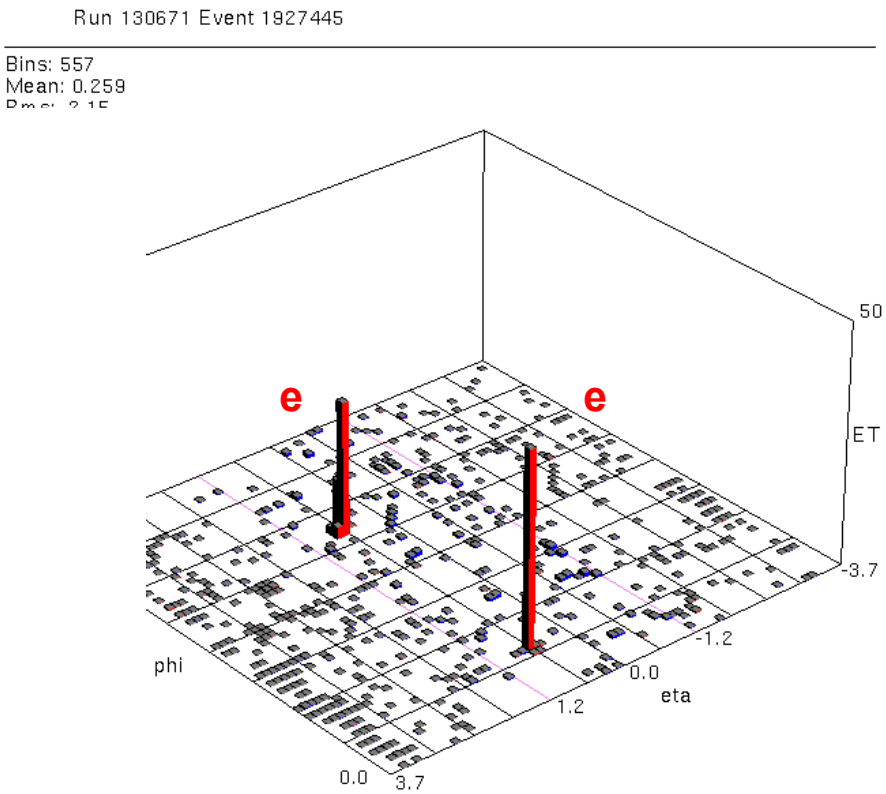
(klima@fnal.gov)

$Z \rightarrow e^+e^-$ Candidates

2 EM objects, E_T > 20 GeV, isolation and shower shape cuts

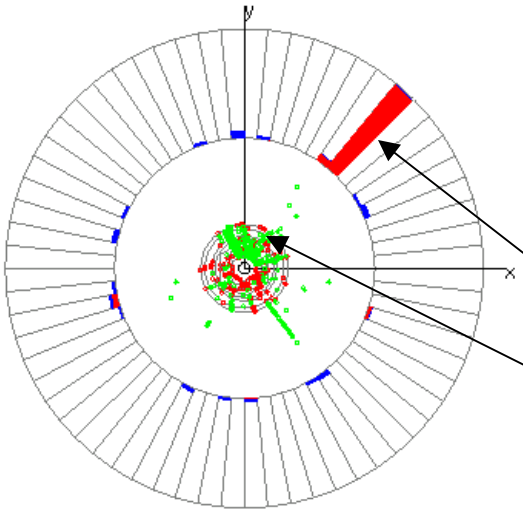


(uncalibrated energy scale)



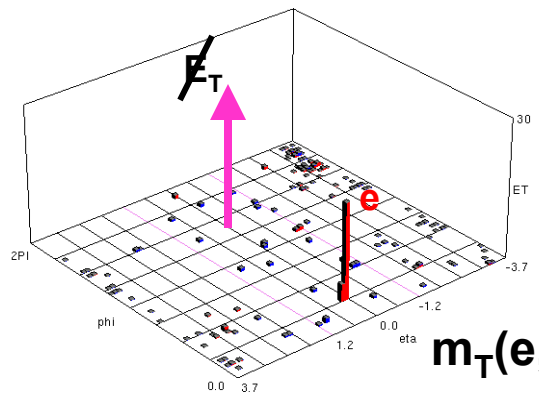
Leo Chan, Rochester

W→ eν Candidates

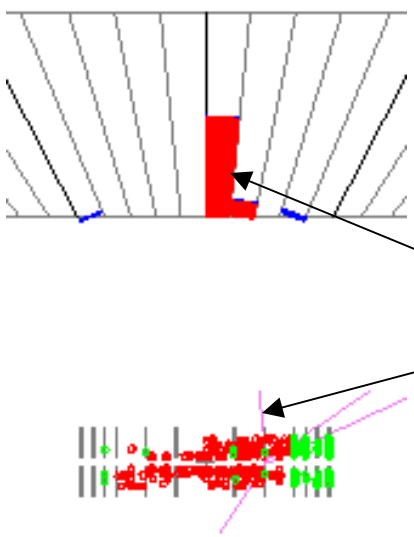


Vishnu Zutshi, NIU
Leo Chan, Rochester

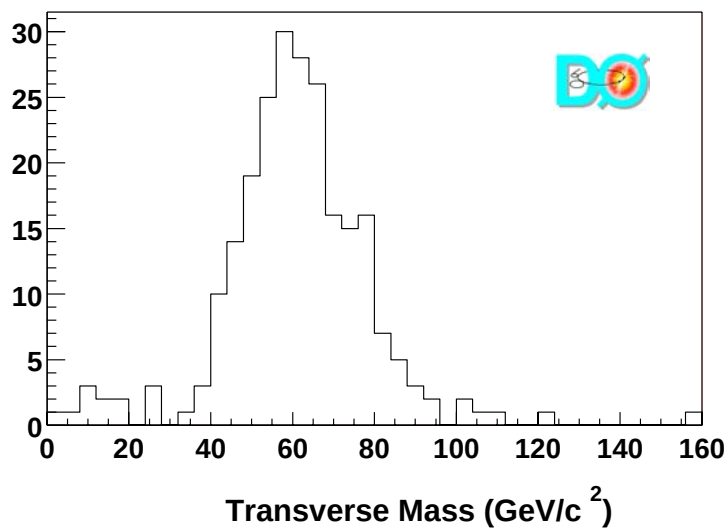
EM cluster with track



$m_T(e,\nu)$ L~0.7pb^{-1}

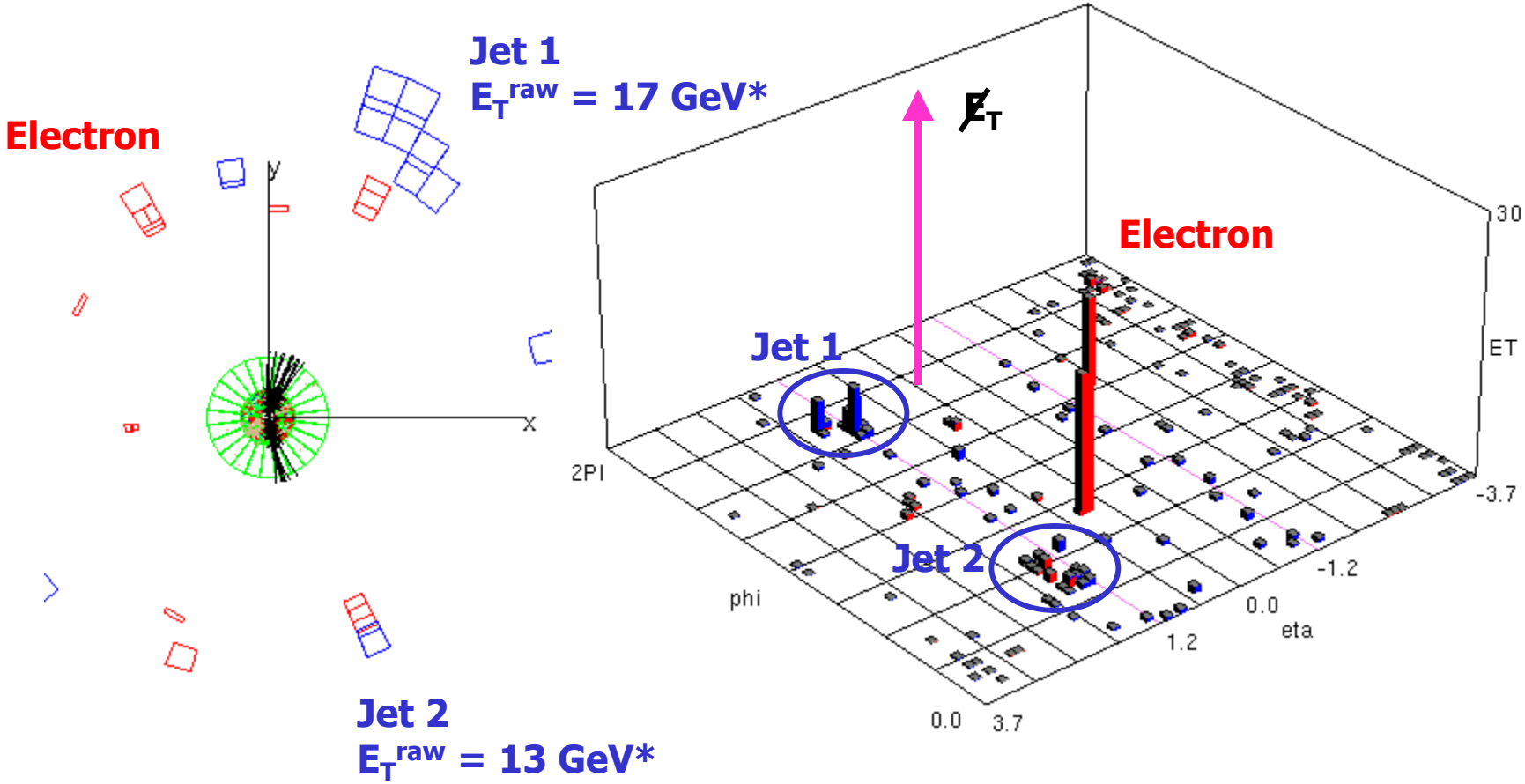


EM clust
with trac



Higgs Candidate (just kidding…)

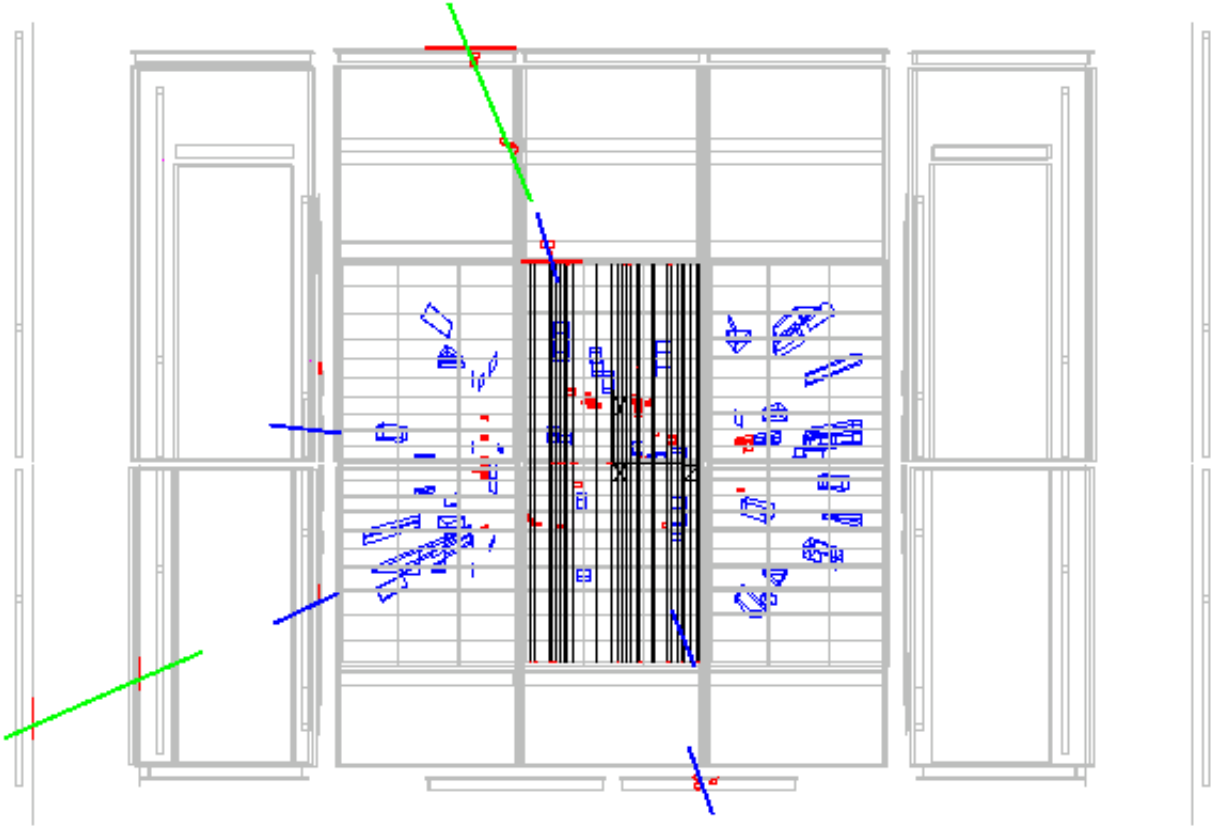
DØ W + 2 jet candidate



*** Jet E_T corrections will be relatively large**

$Z \rightarrow \mu^+\mu^-$ Candidate

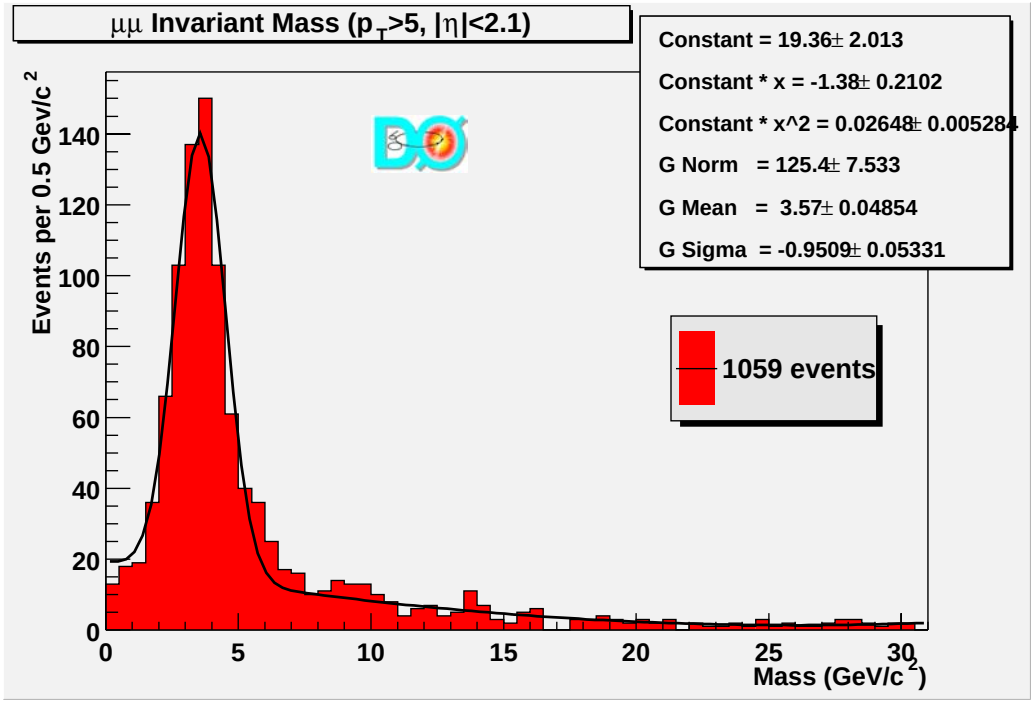
- Two muons recoiling against a jet
- Dimuon invariant mass ~ 55 GeV (with large uncertainty)

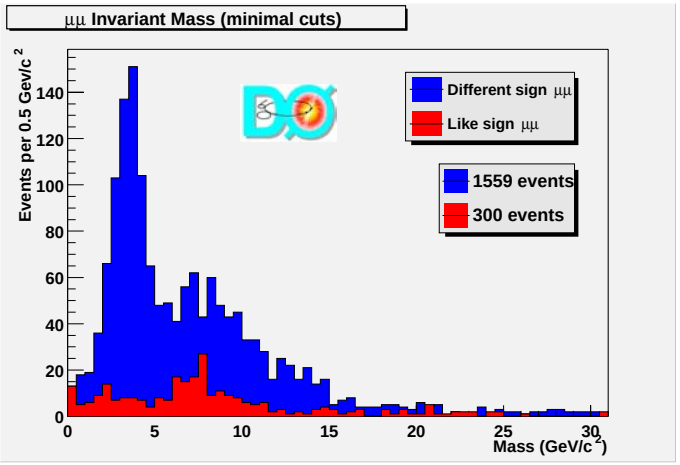


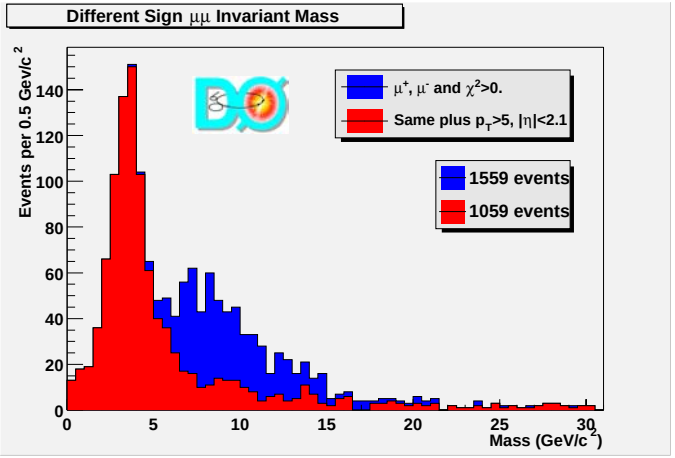
Onne Peters
NIKHEF

$J/\psi \rightarrow \mu^+\mu^-$

Di-muons reconstructed in the forward region



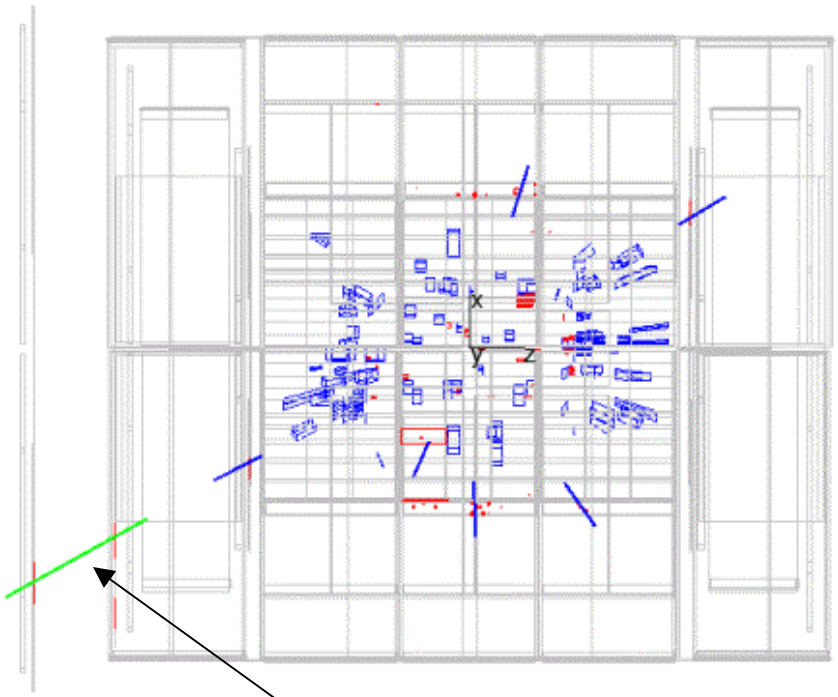


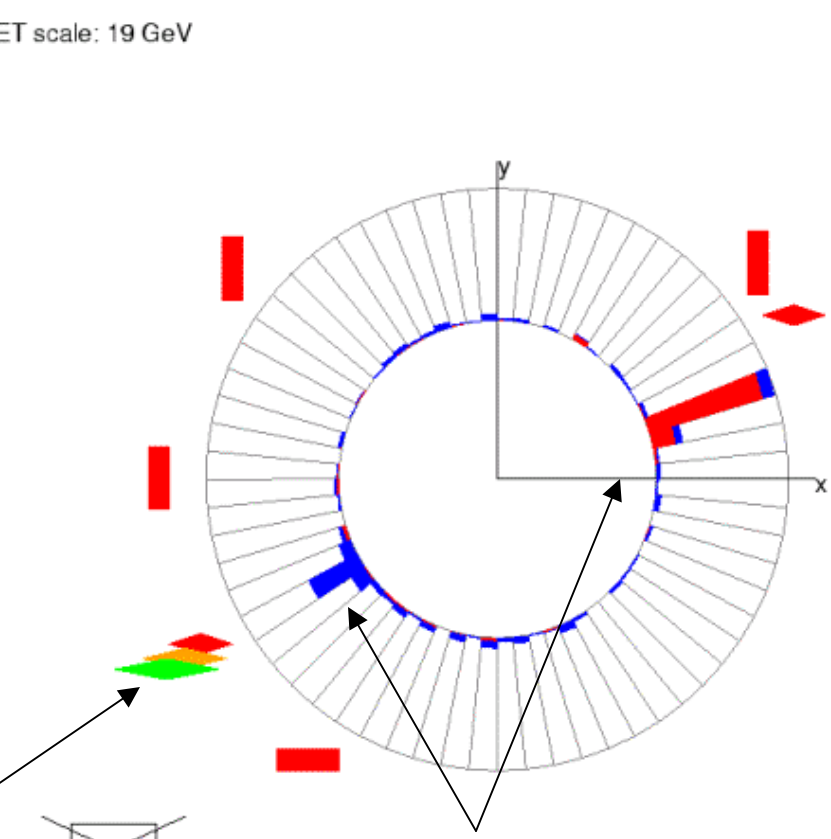


Roger Moore and
Adam Yurkewicz, MSU

Muons in Jets

Onne Peters, NIKHEF





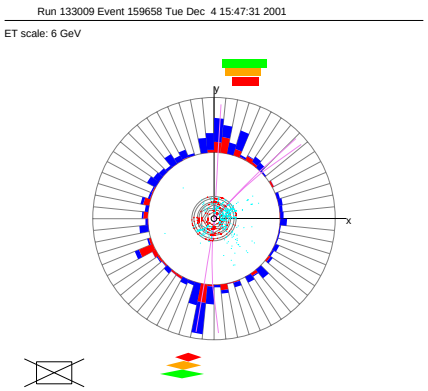
Muon in jet (b candidate?)
Hits in A,B,C layers

Back to back
calorimeter jets

$b\bar{b}$ ($b \rightarrow \mu$) Candidate

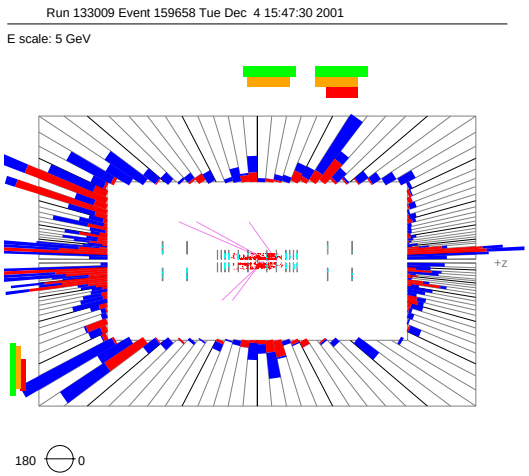
Two jets tagged with muons

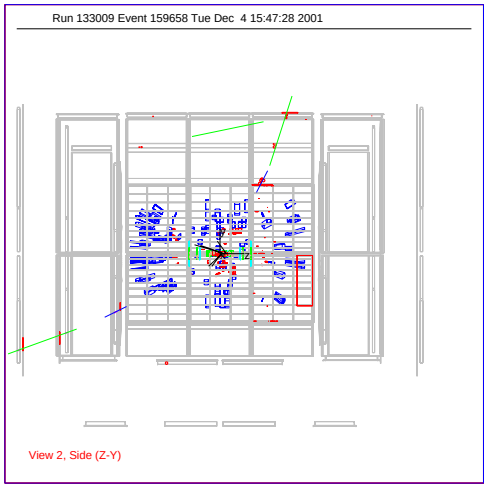
- Jet 1: E_T ~ 18 GeV, p_T^{μ} ~ 7.4 GeV, p_T^{rel} ~ .30 GeV
- Jet 2: E_T ~ 13 GeV, p_T^{μ} ~ 5.4 GeV, p_T^{rel} ~ .24 GeV
- …and in case you wonder, $M_{\mu\mu}$ ~ 12 GeV and M_{jj} ~ 29 GeV



X-Y view

R-Z view





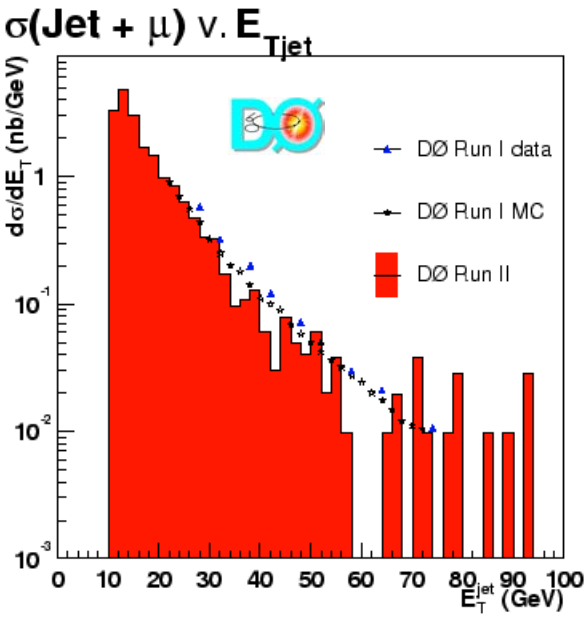
3-D view

Muons and Jets

Onne Peters, NIKHEF

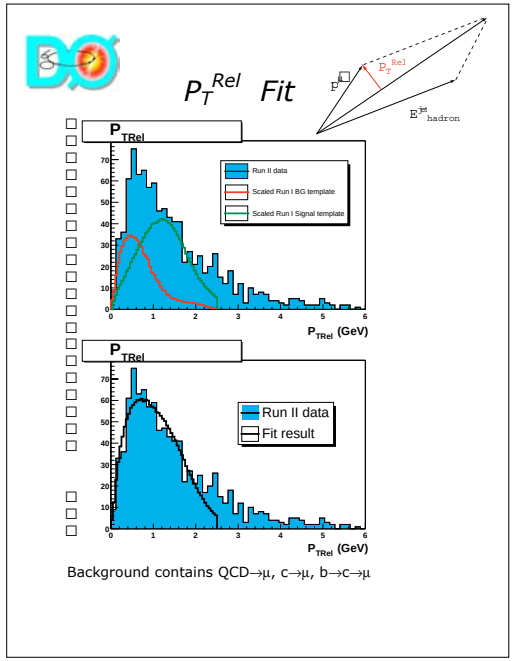
Muon + Jet cross section

(partially corrected)



P_T^{Rel} Distribution

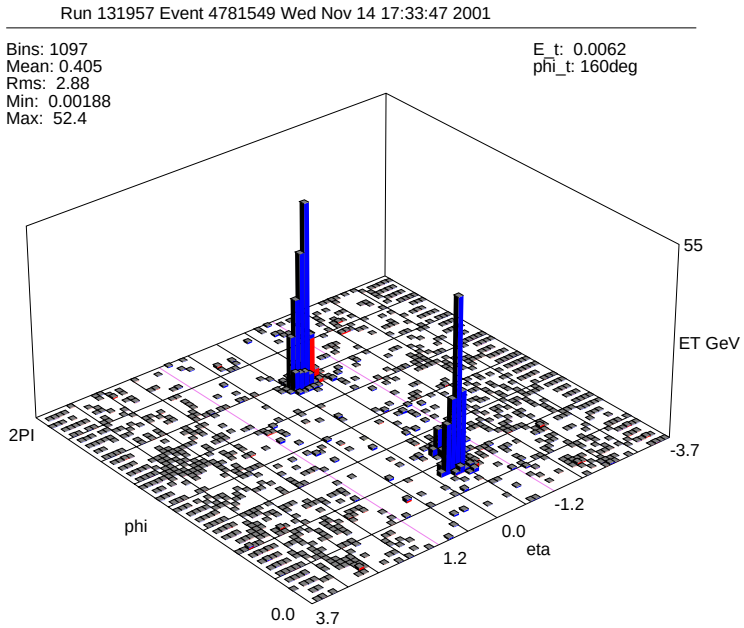
(using Run 1 templates)



Jetty Events

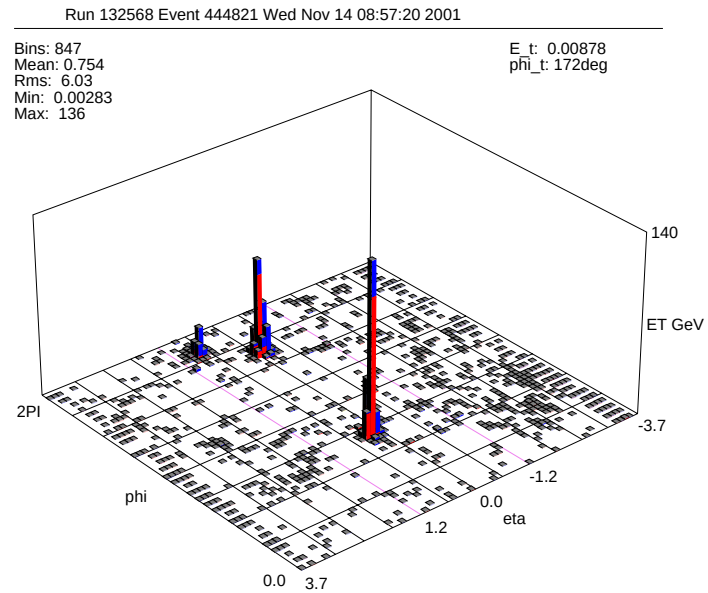
Using R=0.7 Cone Algorithm with Run 1 corrections

Alexander Kupco, Prague



3-jet event

- E_T^{jet1}~310GeV
- E_T^{jet2}~240GeV
- E_T^{jet3}~110GeV
- $\not{E}_T$~8GeV



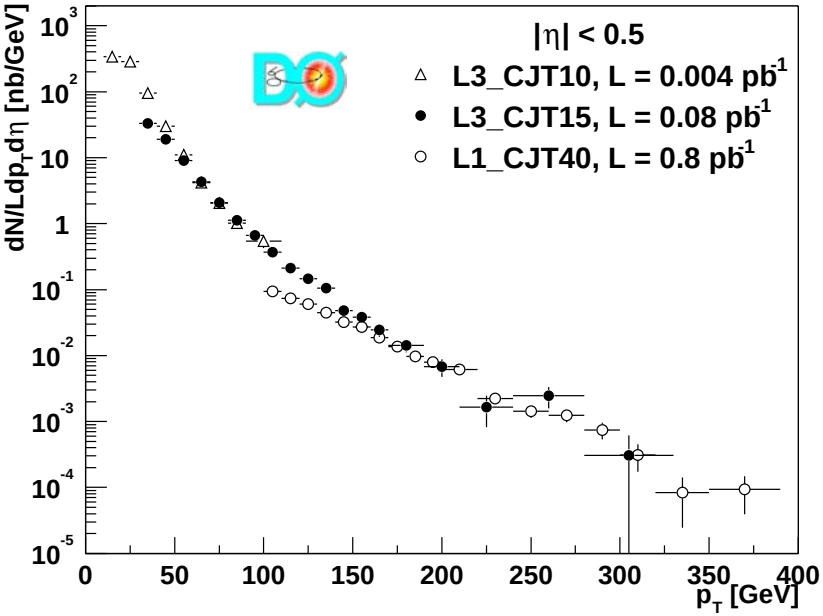
2-jet event

- E_T^{jet1}~230GeV
- E_T^{jet2}~190GeV

Jet Distributions

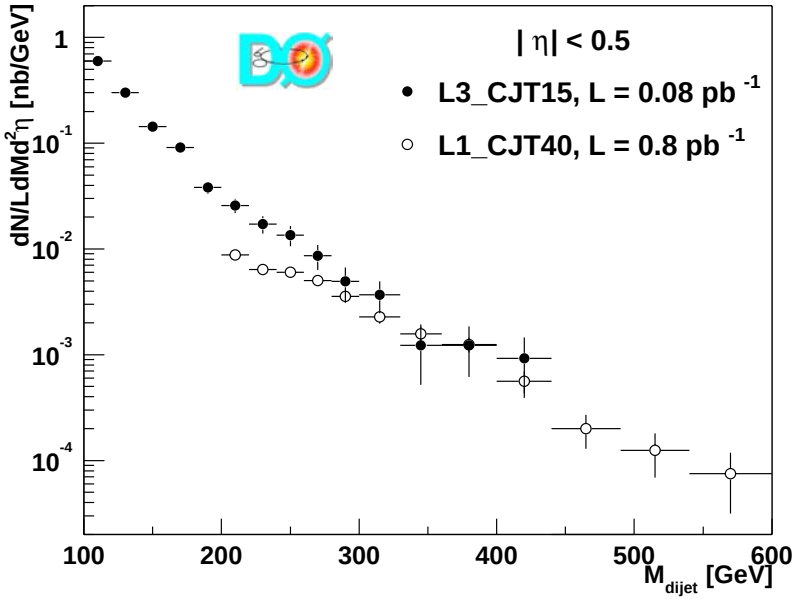
Using R=0.7 Cone Algorithm (energies partially corrected)

Alexander Kupco, Prague



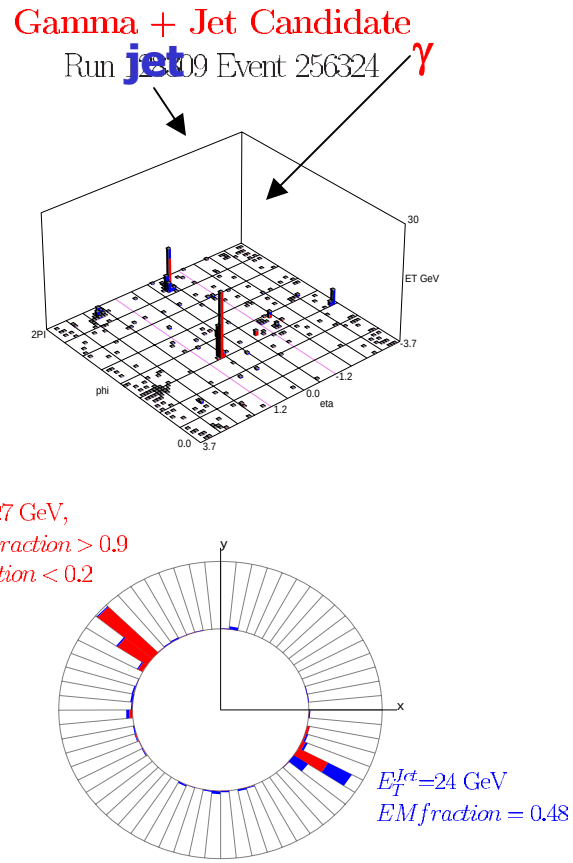
Single Jet P_T

Dijet Invariant Mass



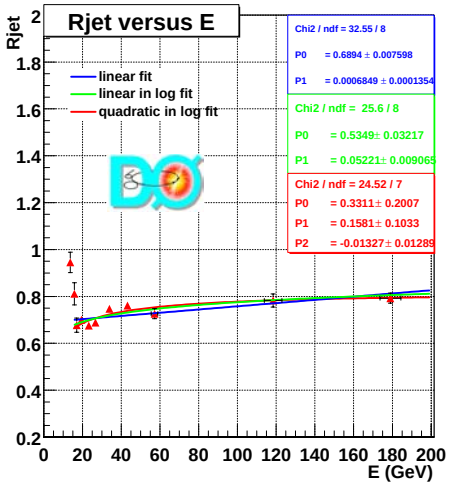
Jet Energy Calibration

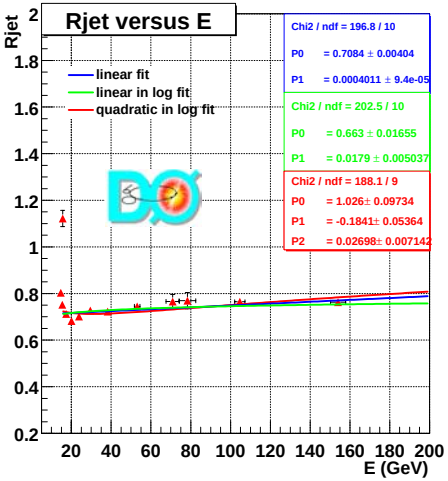
Ia Iashvili, Riverside



Calorimeter Response in CC+EC

Pre-shutdown Data



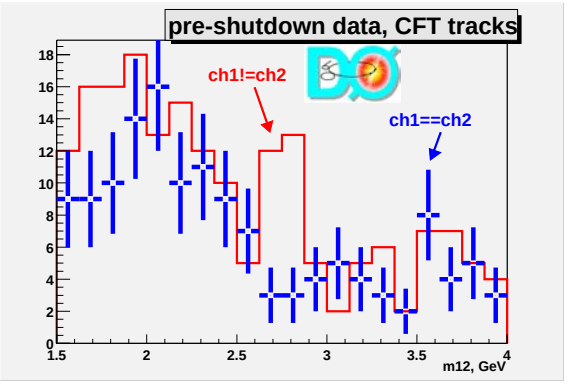


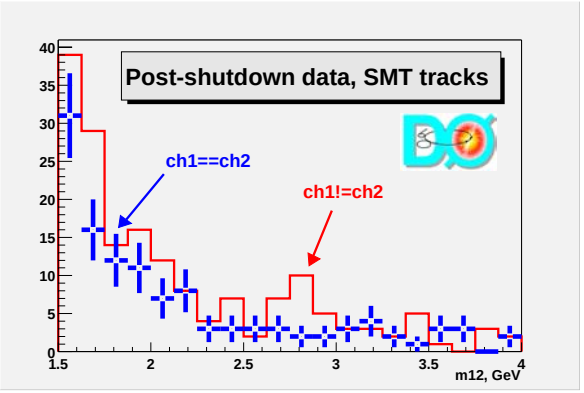
Post-shutdown Data

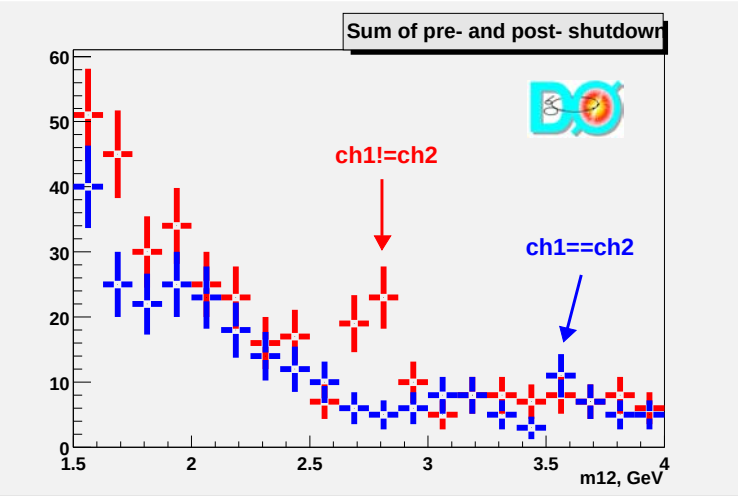
$$E' = E_T^{\gamma} \times \cosh(\eta^{jet})$$

$J/\psi \rightarrow e^+e^-$

Di-electrons reconstructed in CFT and SMT





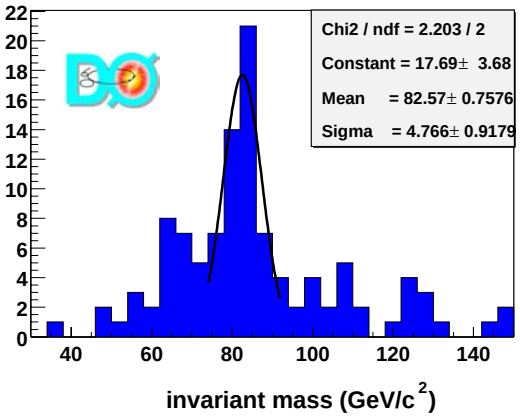


Sergey Burdin, LAL

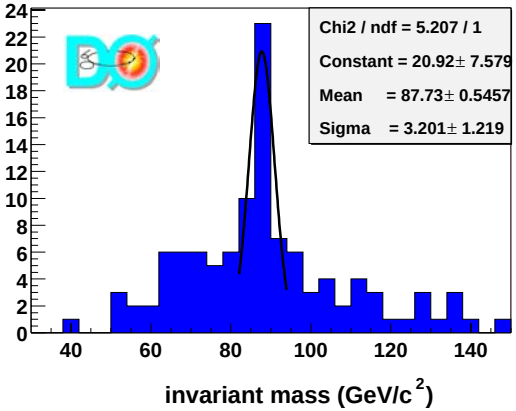
(uncalibrated EM energy scale)

EM Energy Calibration

Marie-Claude Cousinou, Marseille



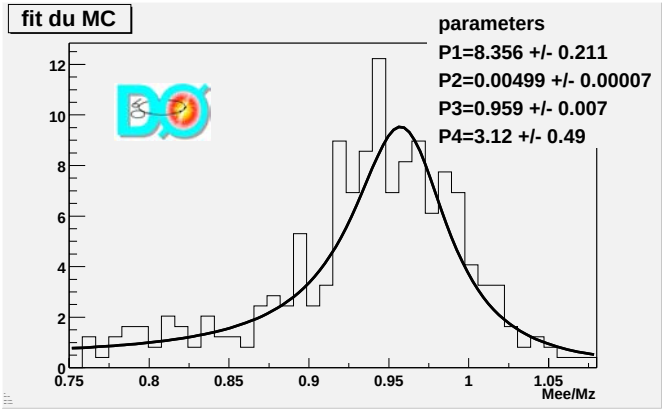
Data - before Correction



Data - after Correction

Monte Carlo

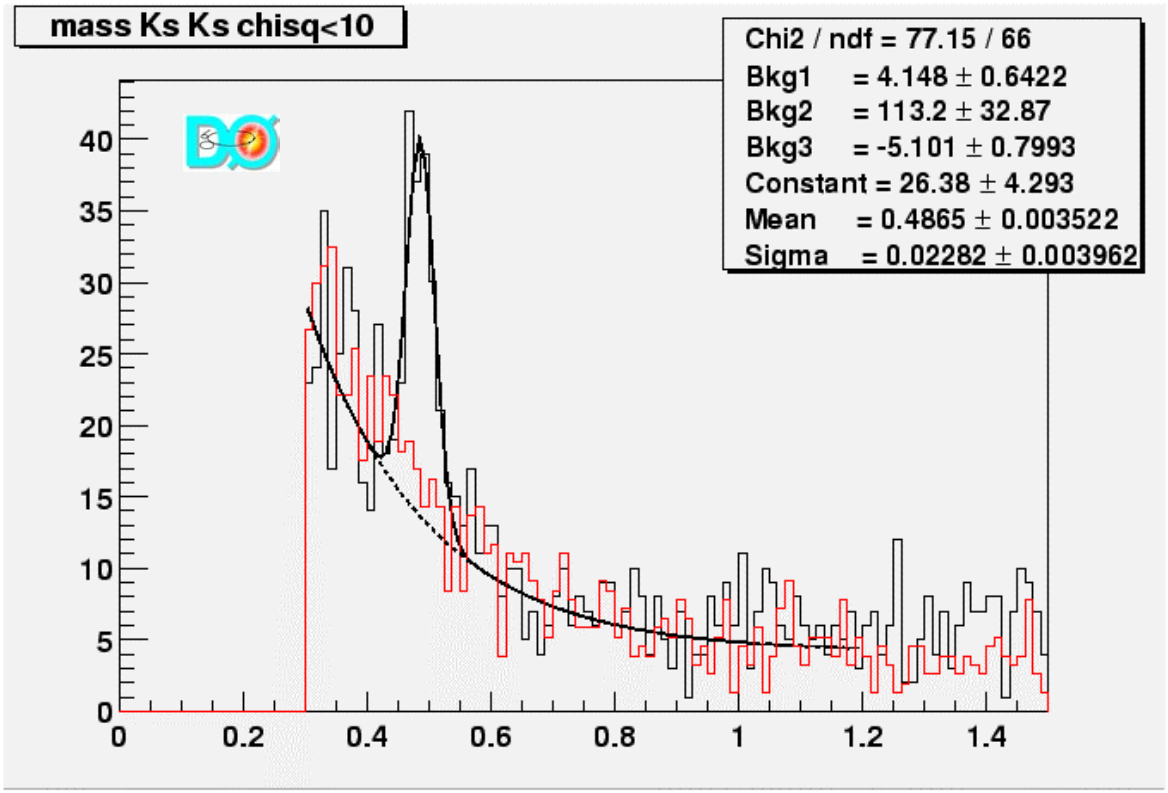
P3=0.959 corresponds to a mass of 87.5 GeV



$K_s \rightarrow \pi^+\pi^-$

Tracks reconstructed in the SMT detector

Brad Abbott, Oklahoma



Black histogram – opposite-sign tracks

Red histogram – same-sign tracks

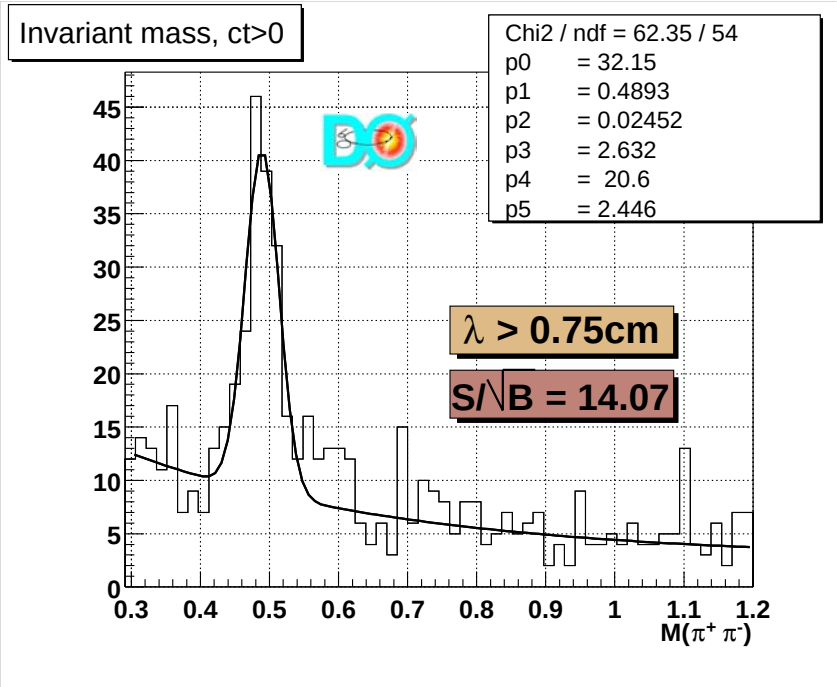
Dotted curve – fit to background

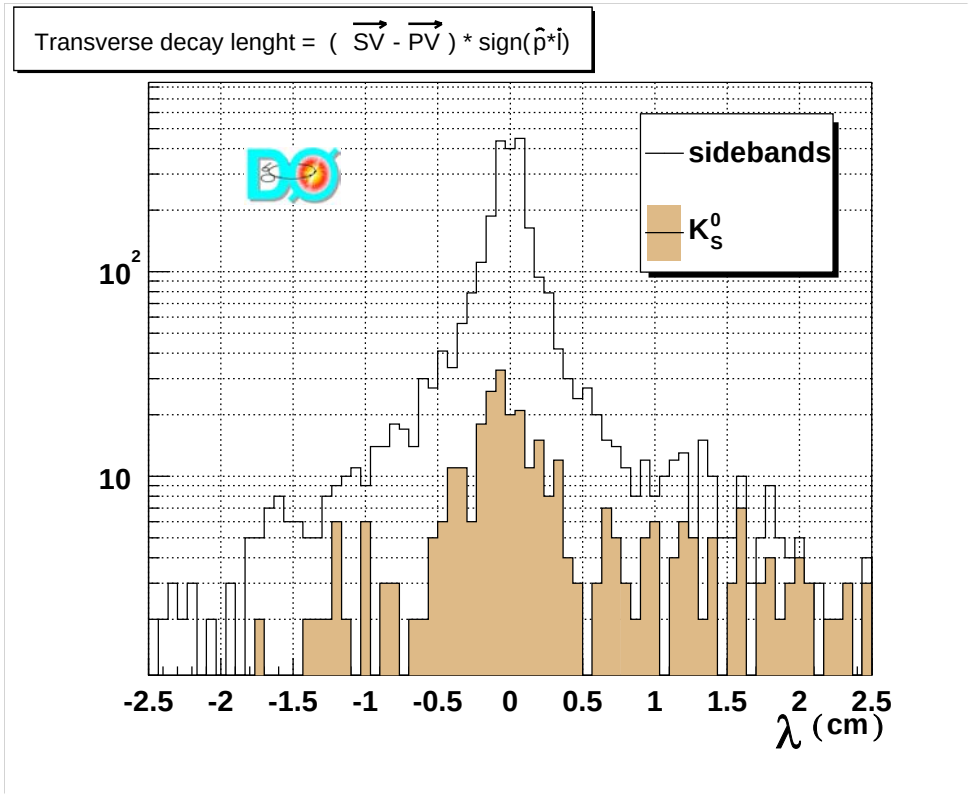
Full curve – fit to signal + background

K_s ($\rightarrow\pi^+\pi^-$) Lifetime

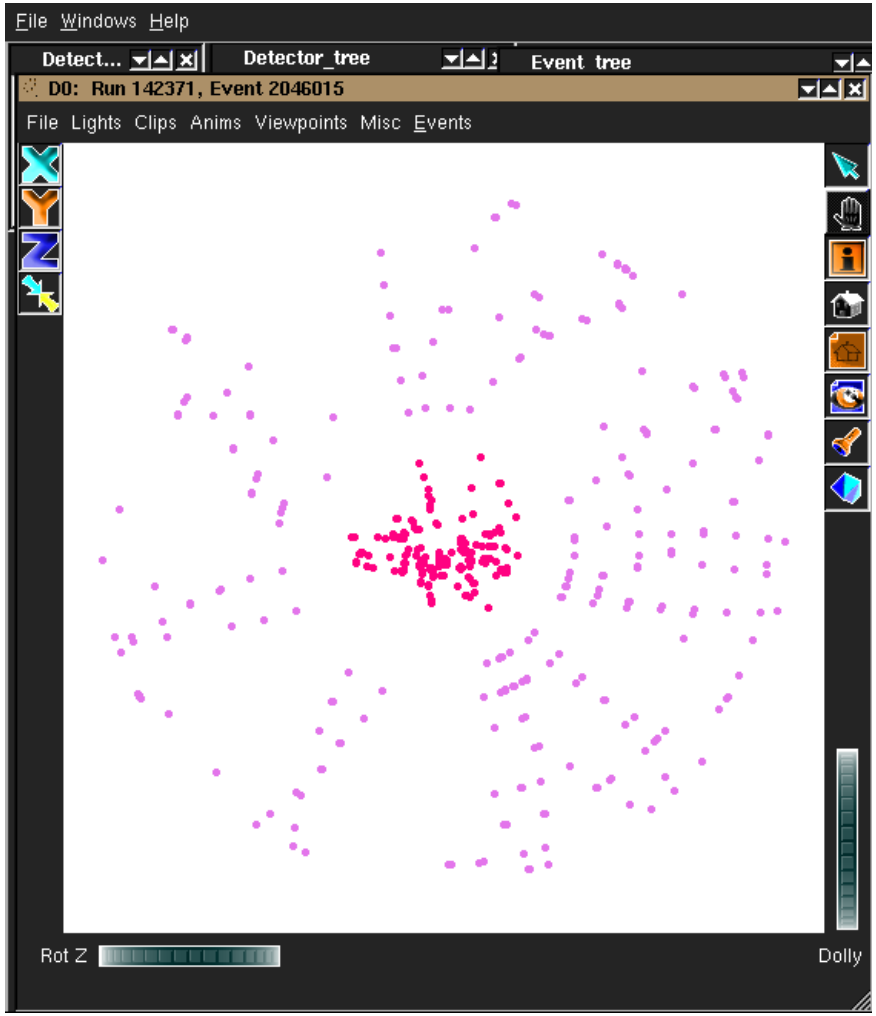
Tracks reconstructed in the SMT detector

Ariel Schwartzman, Buenos Aires

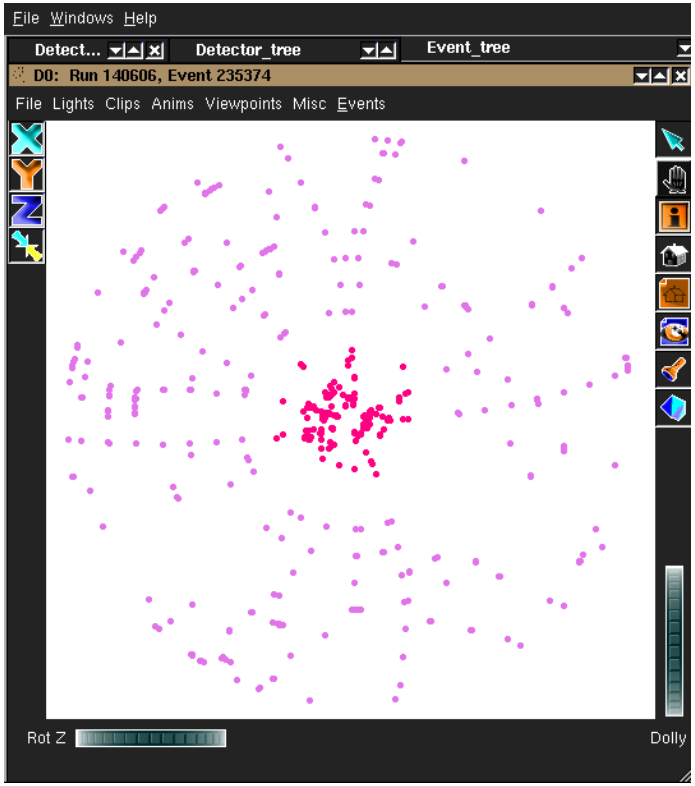




Hits in SMT and CFT



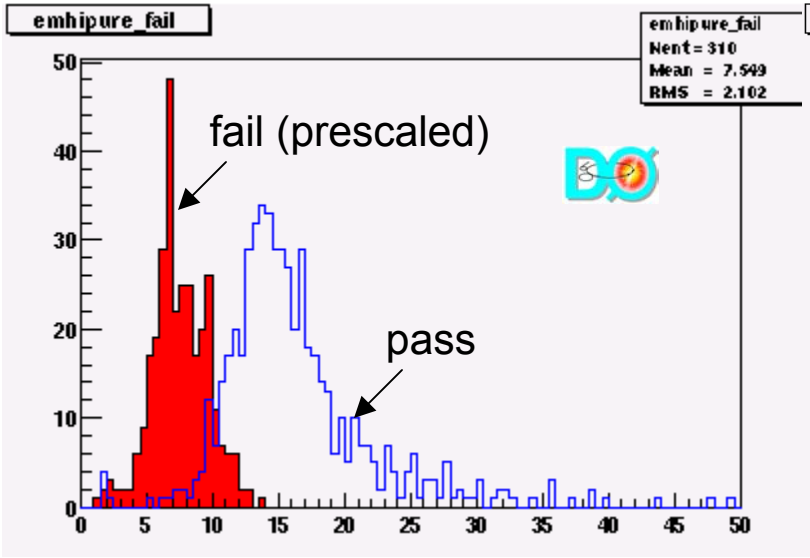
Avto Kharchilava, Notre Dame

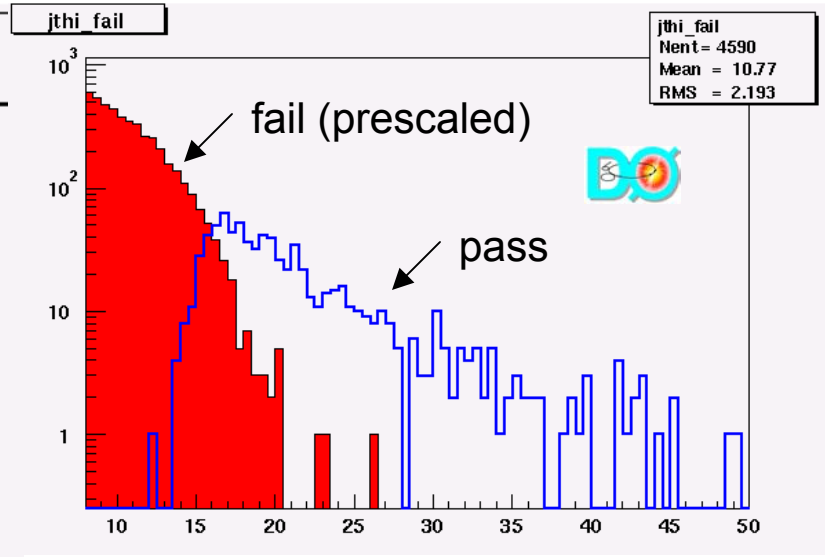


Level 3 Calorimeter Trigger

EM clusters, p_T > 10 GeV
Isolated, EM fraction > 0.9
$|\eta|$ < 1.1

Jets, p_T > 15 GeV
R = 0.7 cone
$|\eta|$ < 1.1





Volker Buescher, Mainz