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

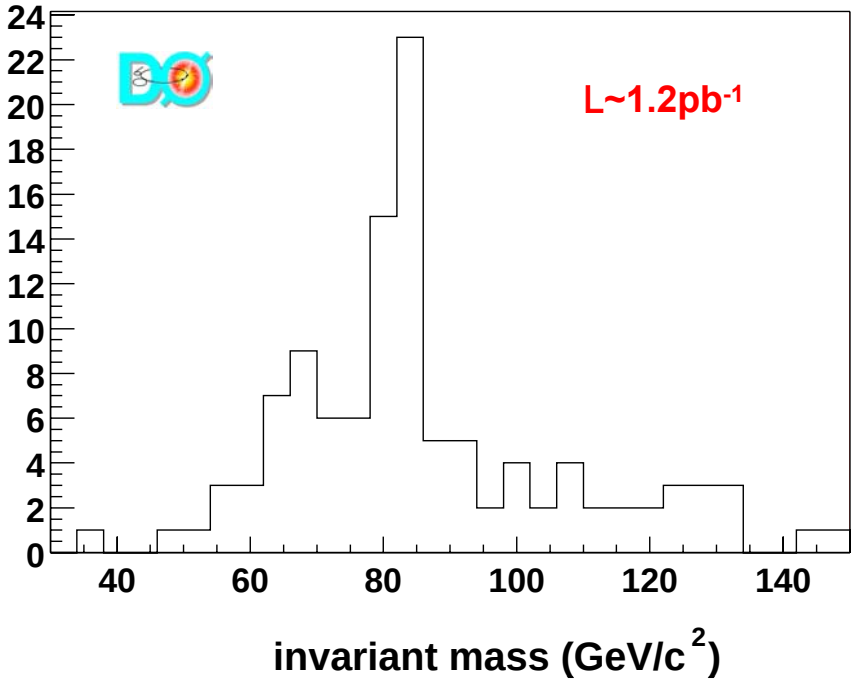
Last updated – Feb. 1, 2002

Boaz Klima

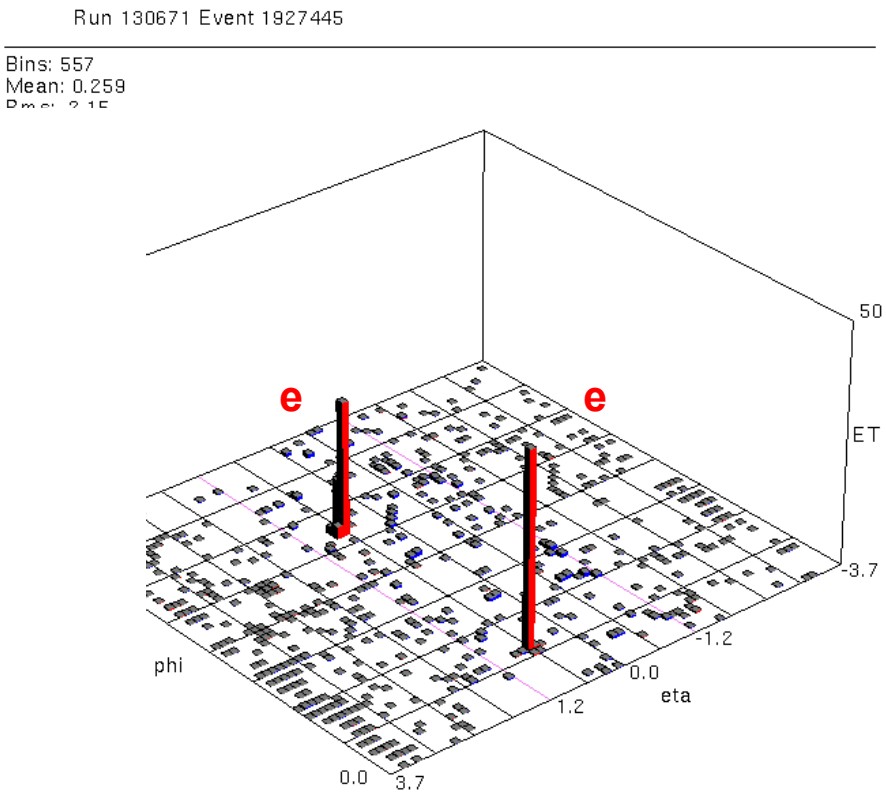
(klima@fnal.gov)

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

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

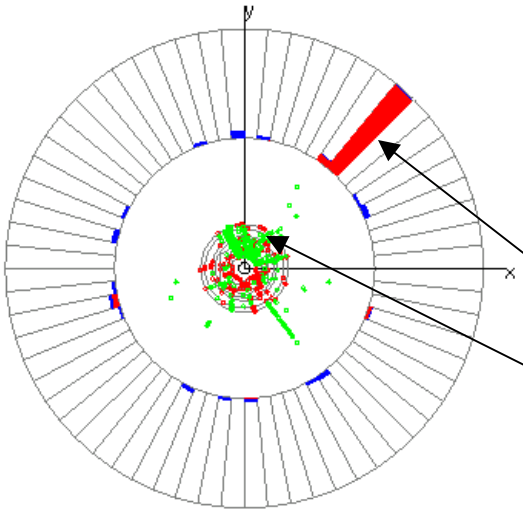


(uncalibrated energy scale)



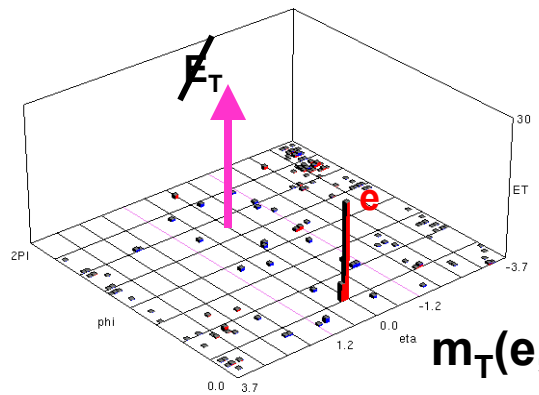
Leo Chan, Rochester

W→ eν Candidates

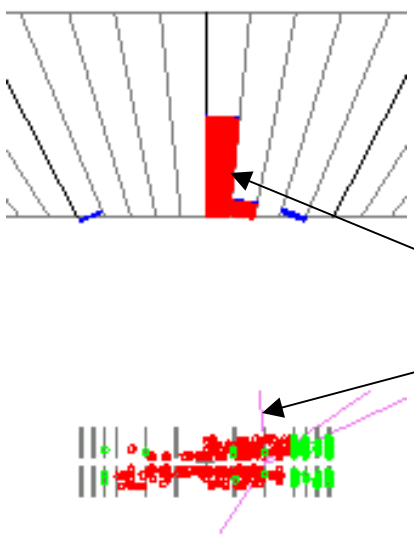


Vishnu Zutshi, NIU
Leo Chan, Rochester

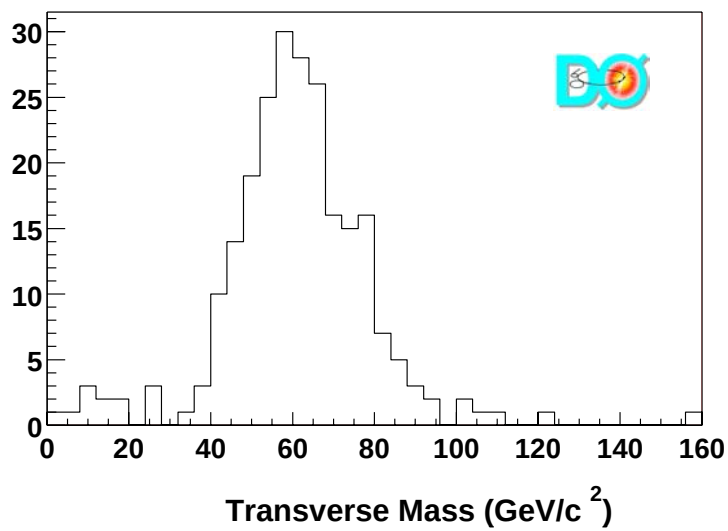
EM cluster with track



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

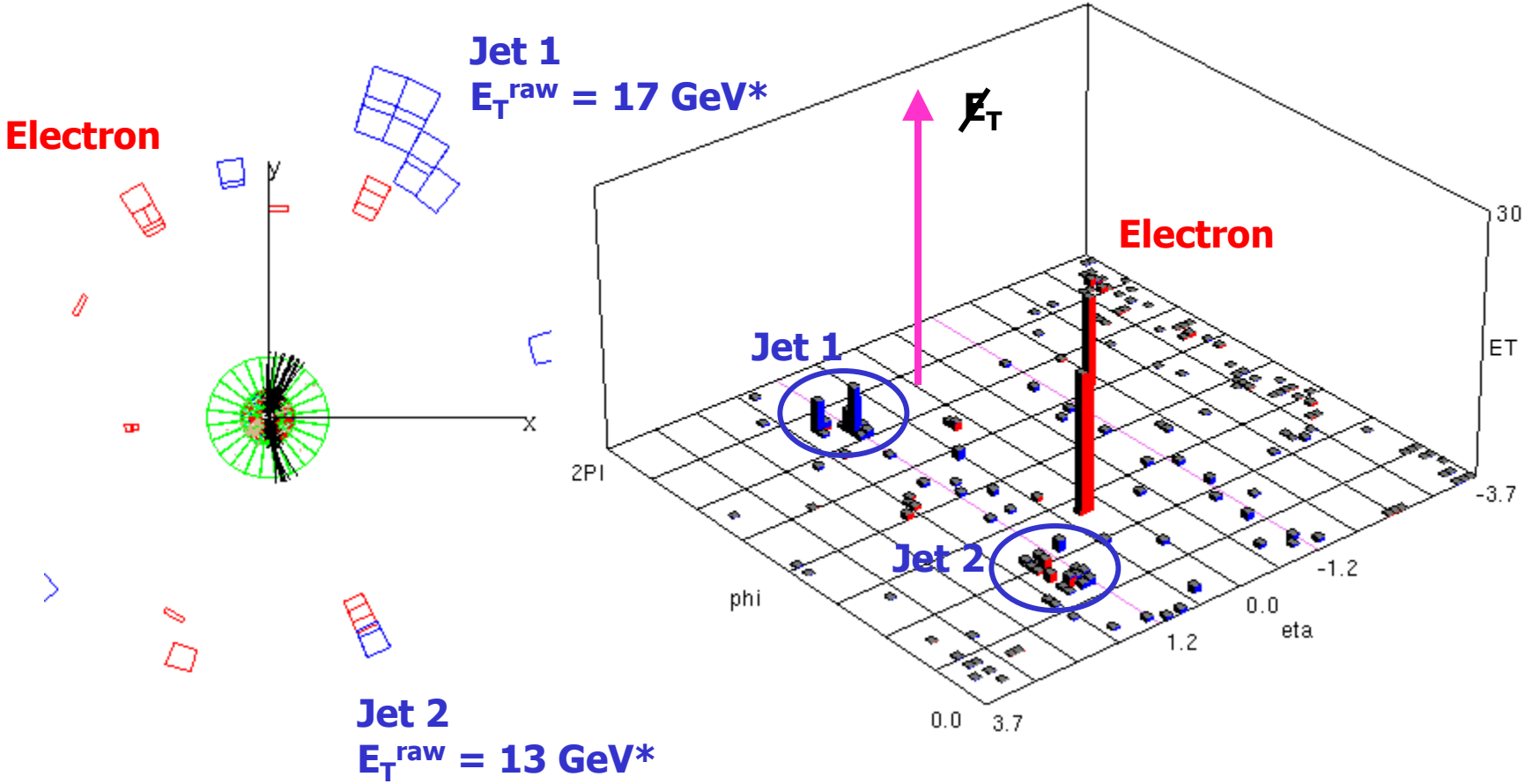


EM clust
with trac



Higgs Candidate (just kidding…)

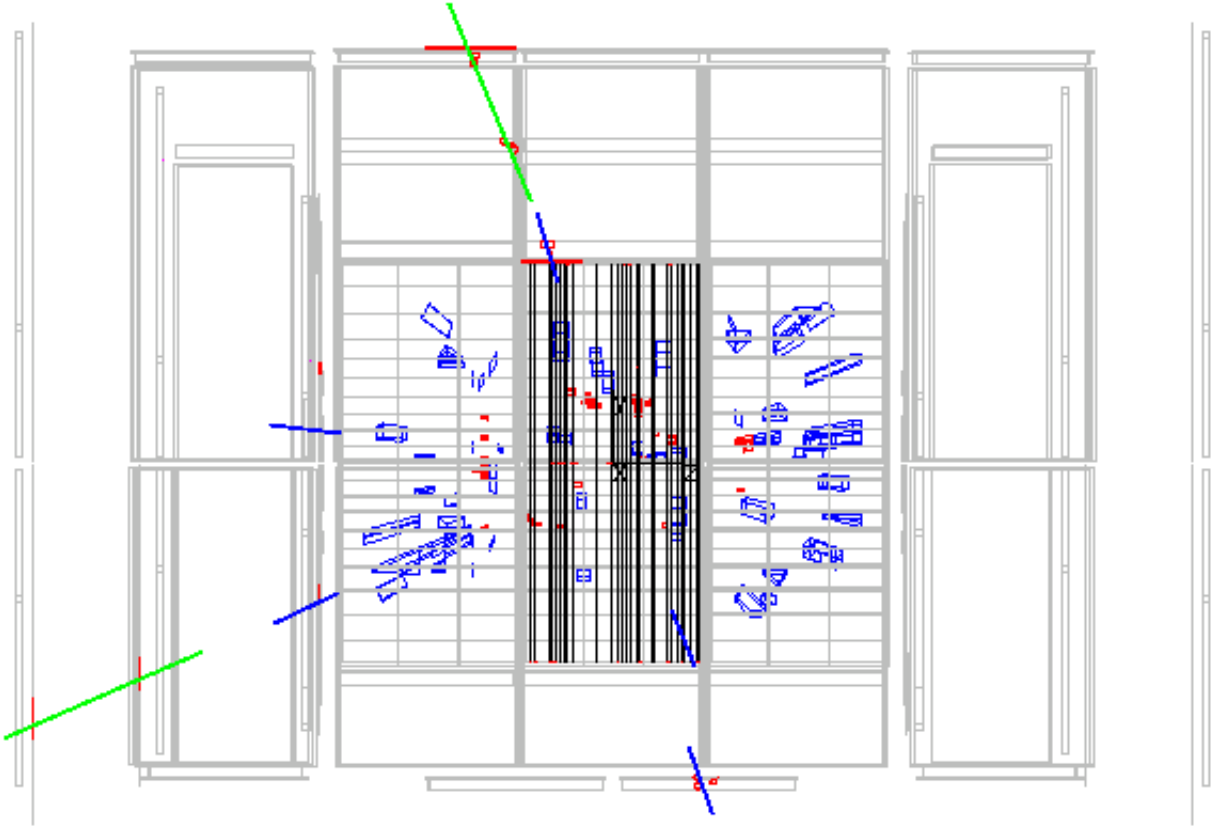
DØ W + 2 jet candidate



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

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

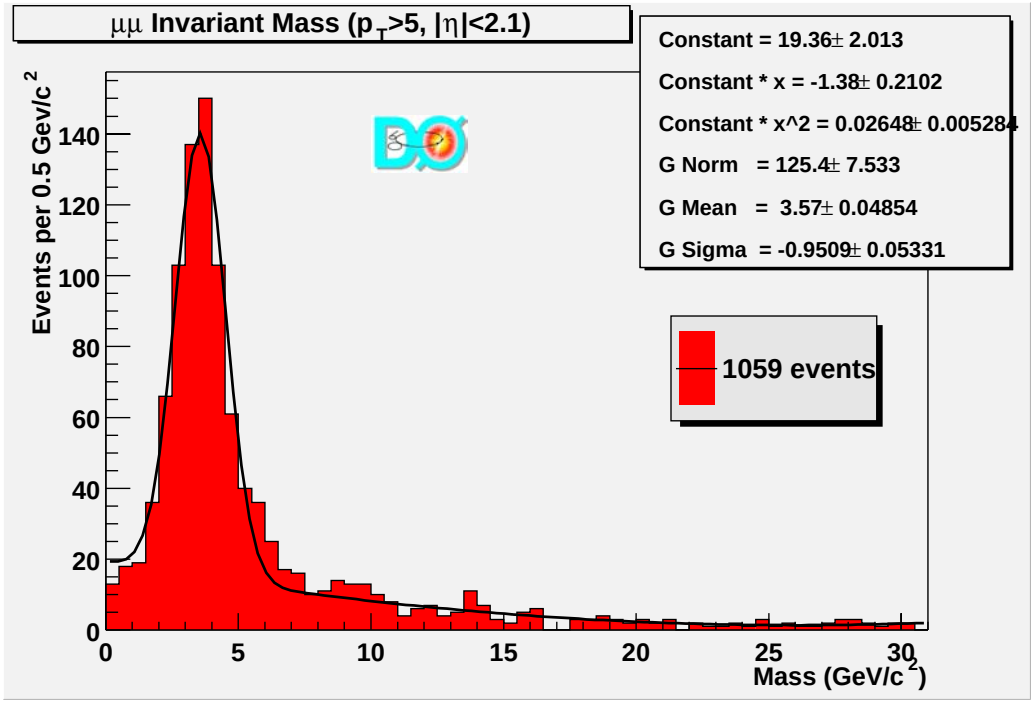
- Two muons recoiling against a jet
- Dimuon invariant mass ~ 55 GeV (with large uncertainty)

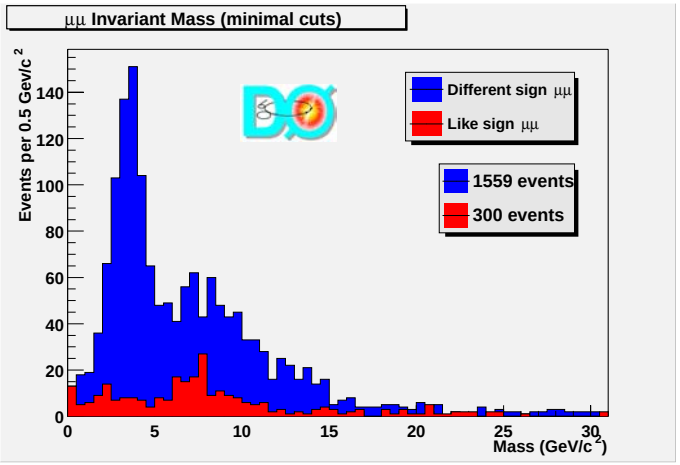


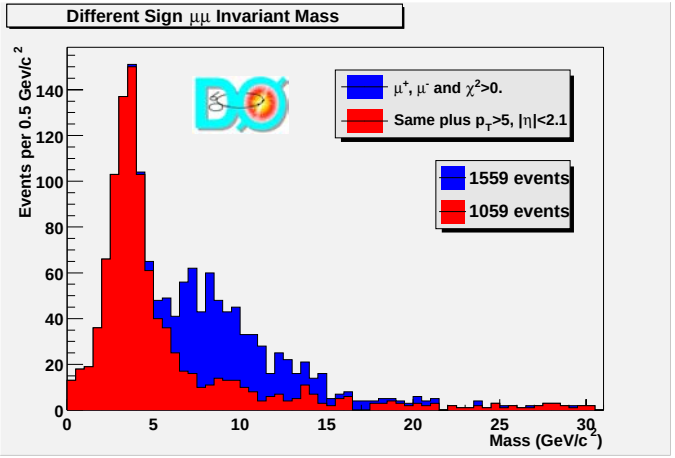
Onne Peters
NIKHEF

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

Di-muons reconstructed in the forward region





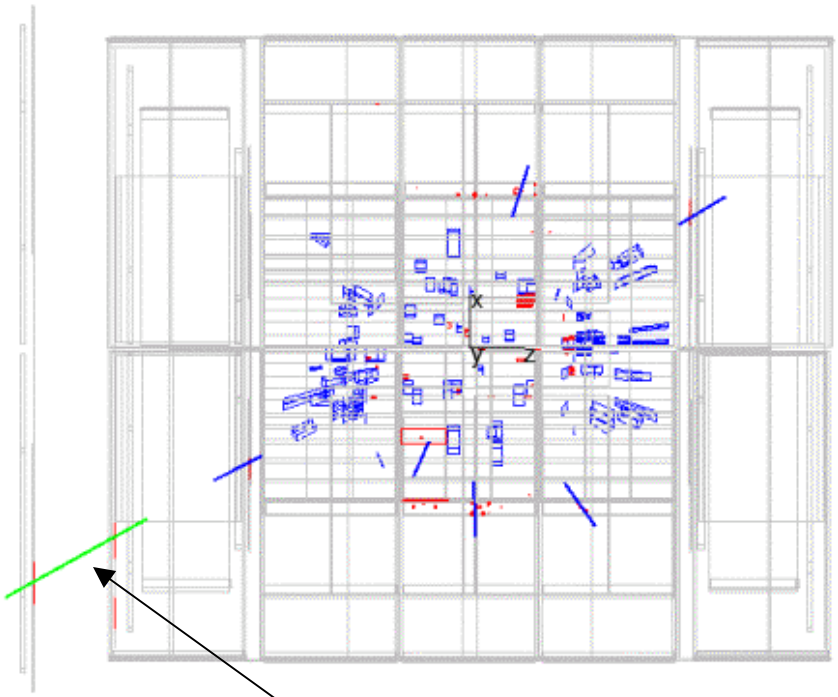


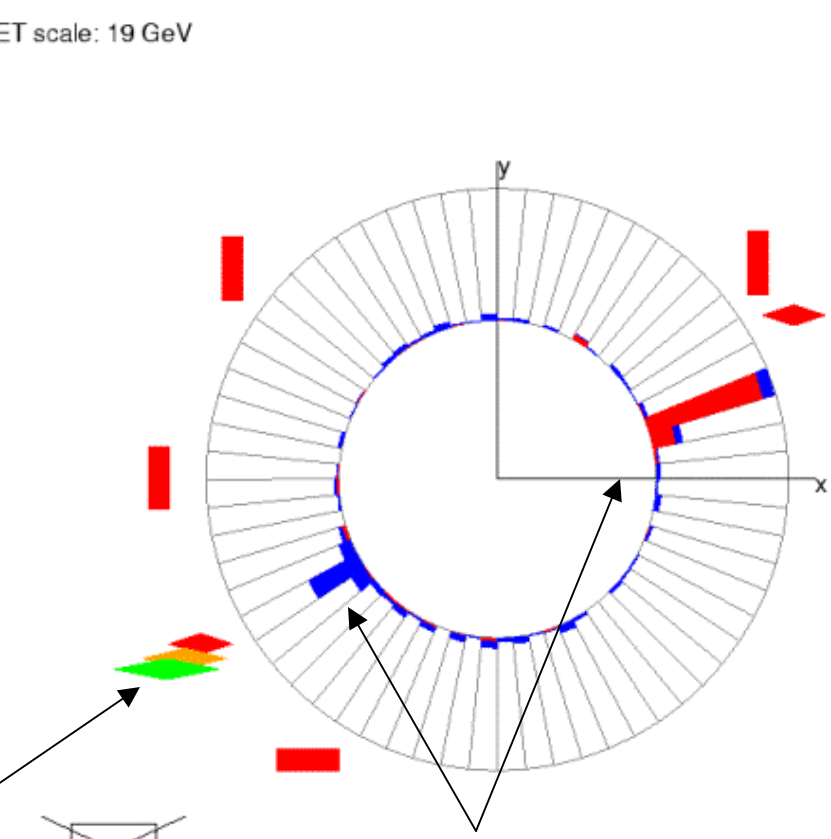
Pre-shutdown data

Roger Moore and
Adam Yurkewicz, MSU

Muons in Jets

Onne Peters, NIKHEF





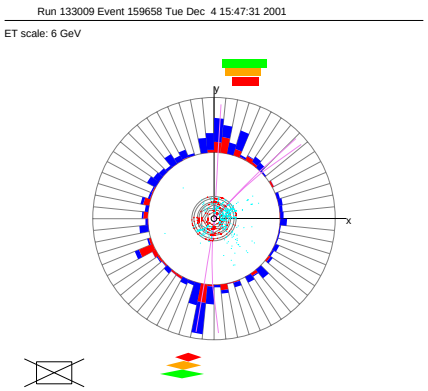
Muon in jet (b candidate?)
Hits in A,B,C layers

Back to back
calorimeter jets

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

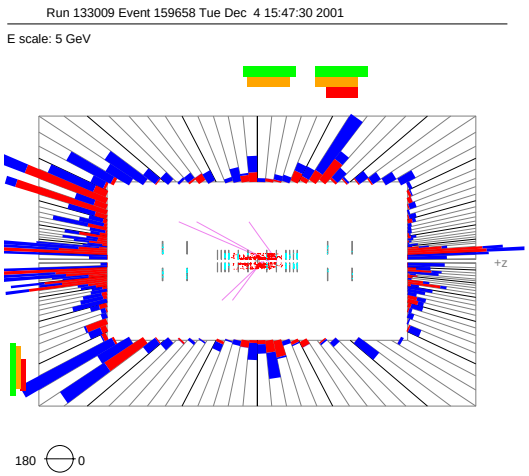
Two jets tagged with muons

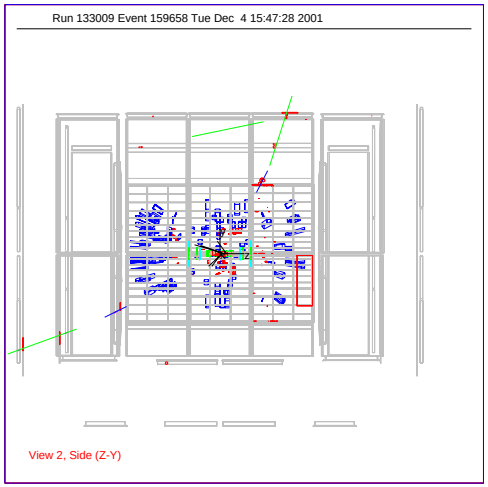
- Jet 1: E_T ~ 18 GeV, p_T^{μ} ~ 7.4 GeV, p_T^{rel} ~ .30 GeV
- Jet 2: E_T ~ 13 GeV, p_T^{μ} ~ 5.4 GeV, p_T^{rel} ~ .24 GeV
- …and in case you wonder, $M_{\mu\mu}$ ~ 12 GeV and M_{jj} ~ 29 GeV



X-Y view

R-Z view





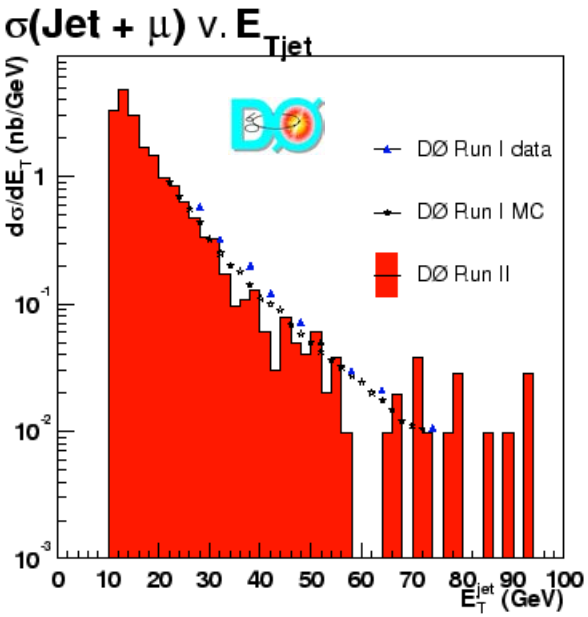
3-D view

Muons and Jets

Onne Peters, NIKHEF

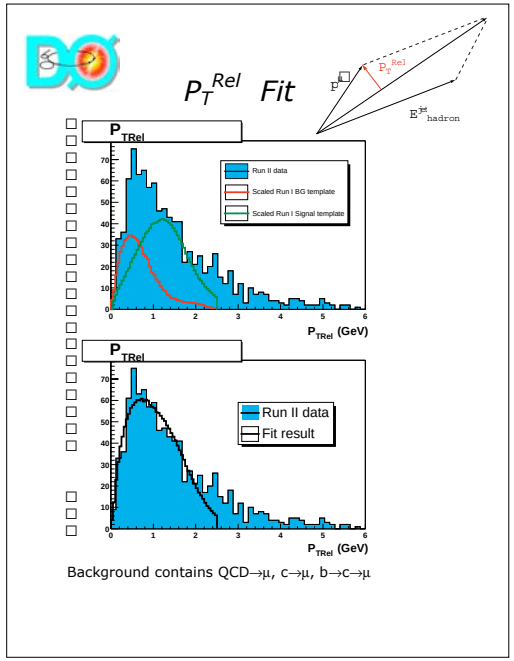
Muon + Jet cross section

(partially corrected)



P_T^{Rel} Distribution

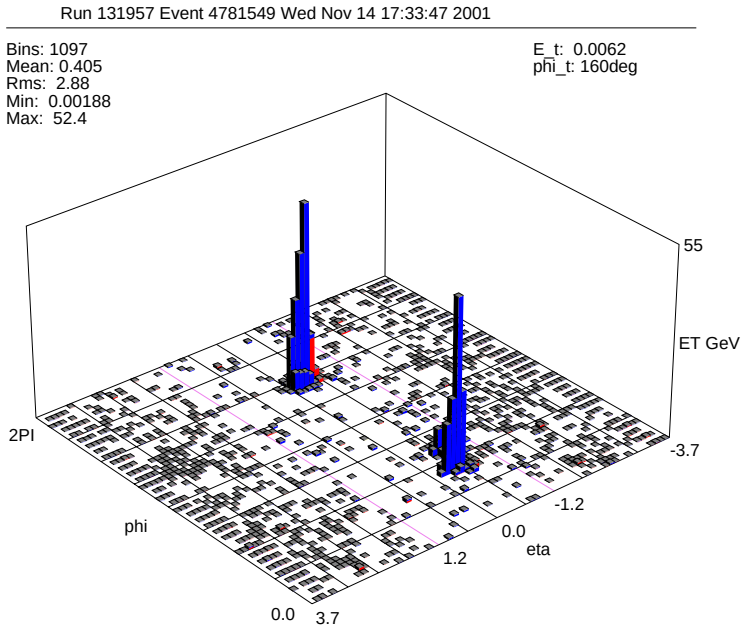
(using Run 1 templates)



Jetty Events

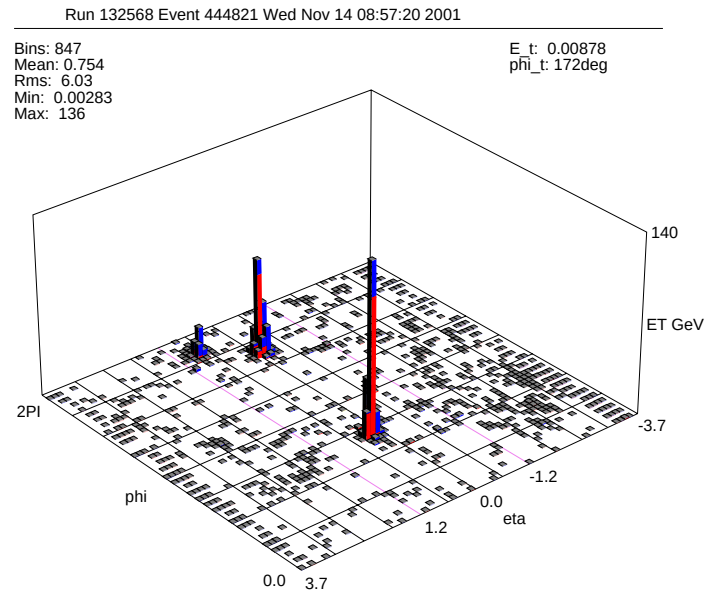
Using R=0.7 Cone Algorithm with Run 1 corrections

Alexander Kupco, Prague



3-jet event

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



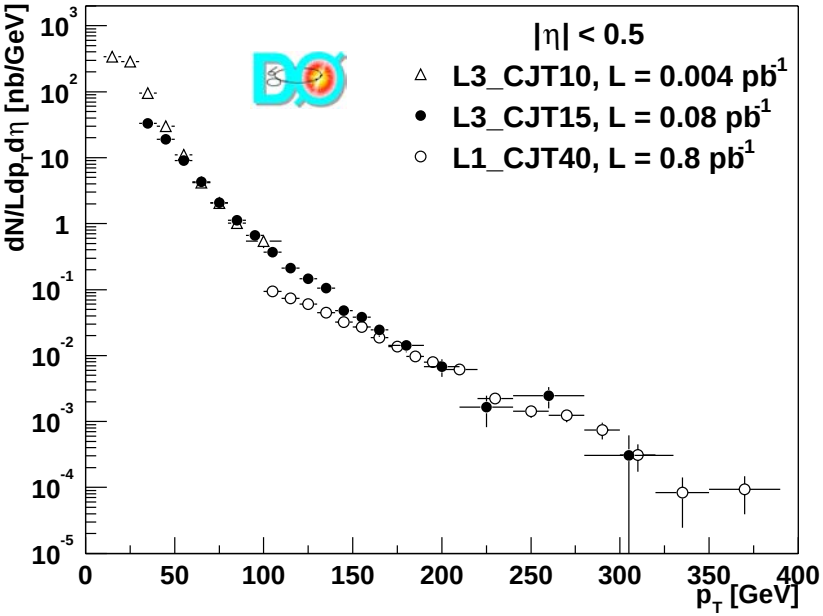
2-jet event

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

Jet Distributions

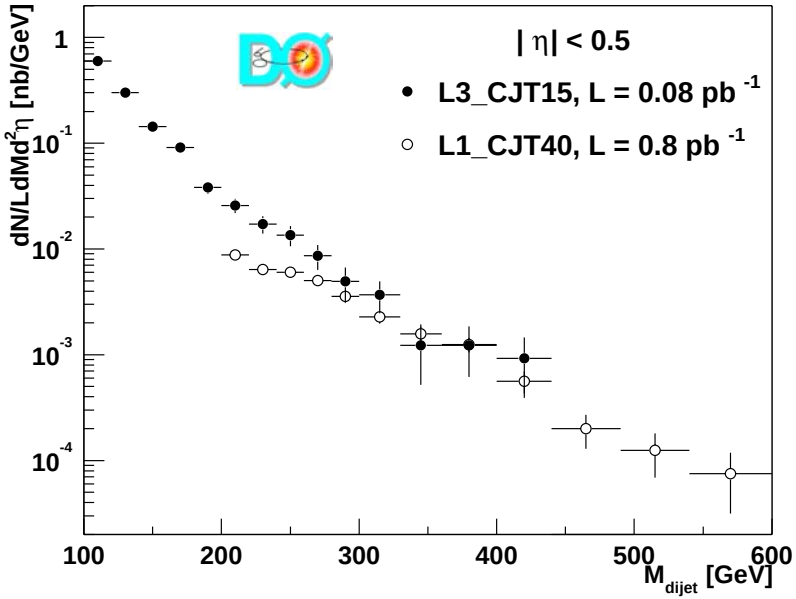
Using R=0.7 Cone Algorithm (energies partially corrected)

Alexander Kupco, Prague



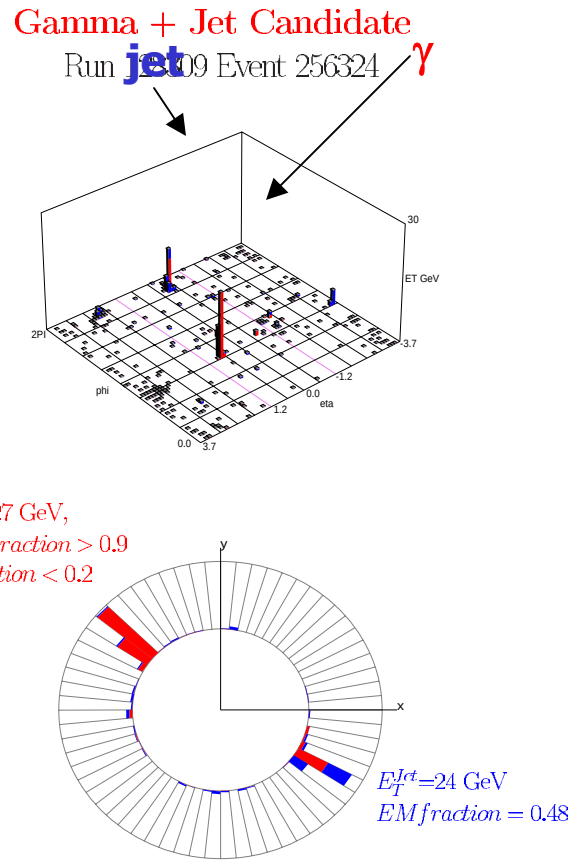
Single Jet P_T

Dijet Invariant Mass



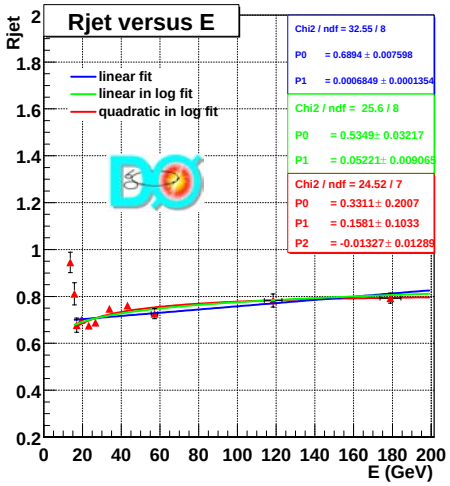
Jet Energy Calibration

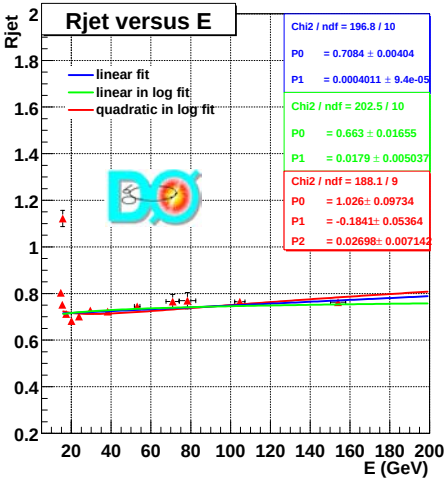
Ia Iashvili, Riverside



Calorimeter Response in CC+EC

Pre-shutdown Data



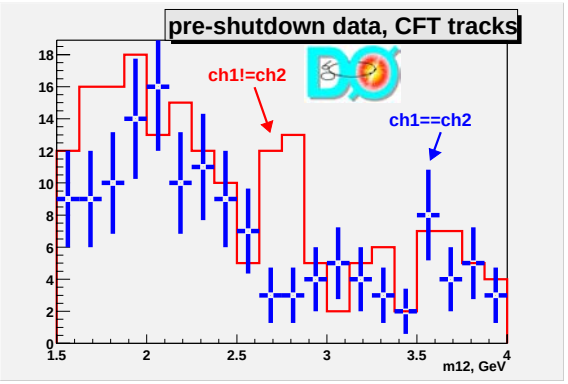


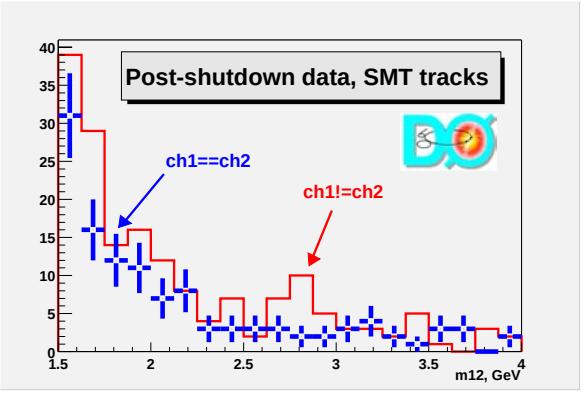
Post-shutdown Data

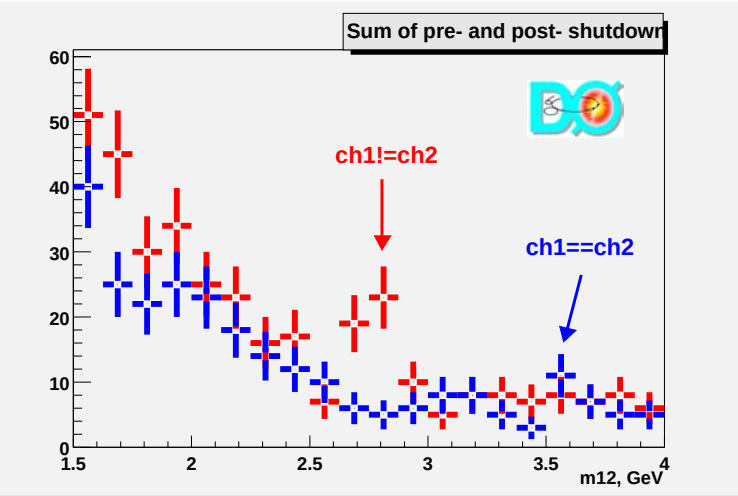
$$E' = E_T^{\gamma} \times \cosh(\eta^{jet})$$

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

Di-electrons reconstructed in CFT and SMT





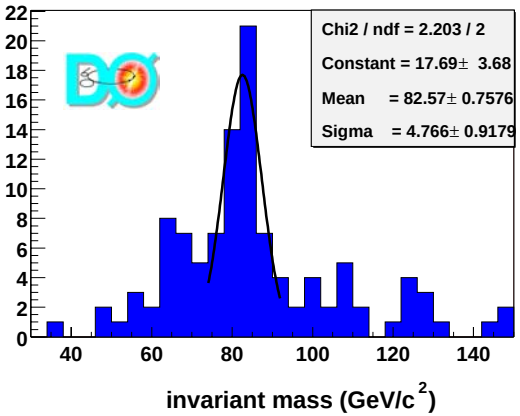


Sergey Burdin, LAL

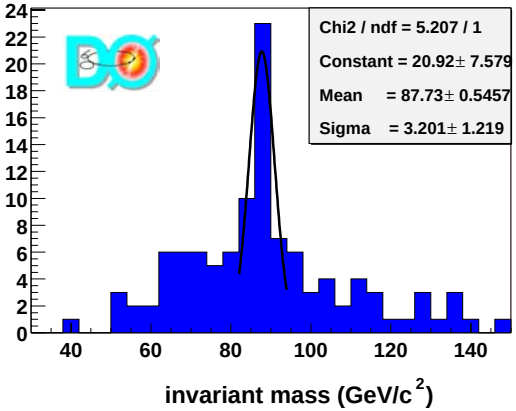
(uncalibrated EM energy scale)

EM Energy Calibration

Marie-Claude Cousinou, Marseille



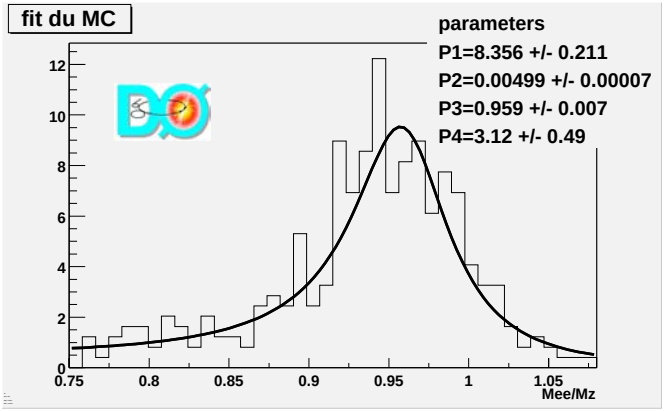
Data - before Correction



Data - after Correction

Monte Carlo

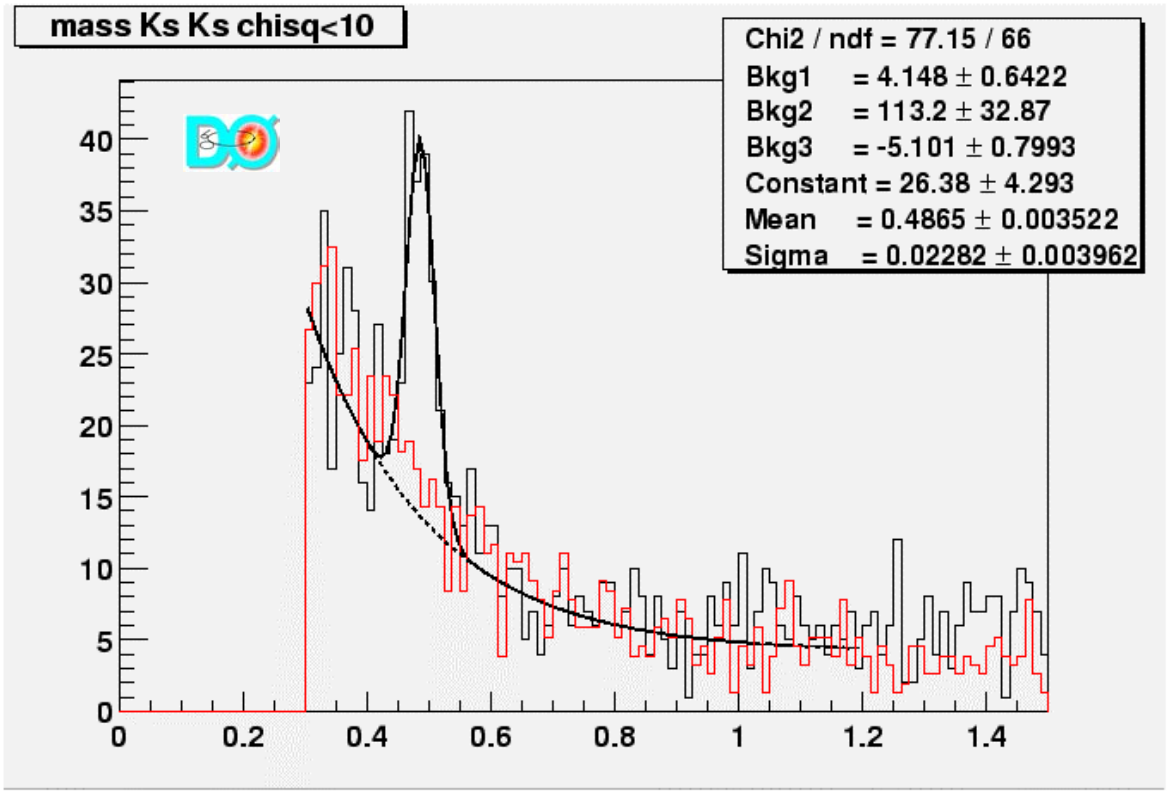
P3=0.959 corresponds to a mass of 87.5 GeV



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

Tracks reconstructed in the SMT detector

Brad Abbott, Oklahoma



Black histogram – opposite-sign tracks

Red histogram – same-sign tracks

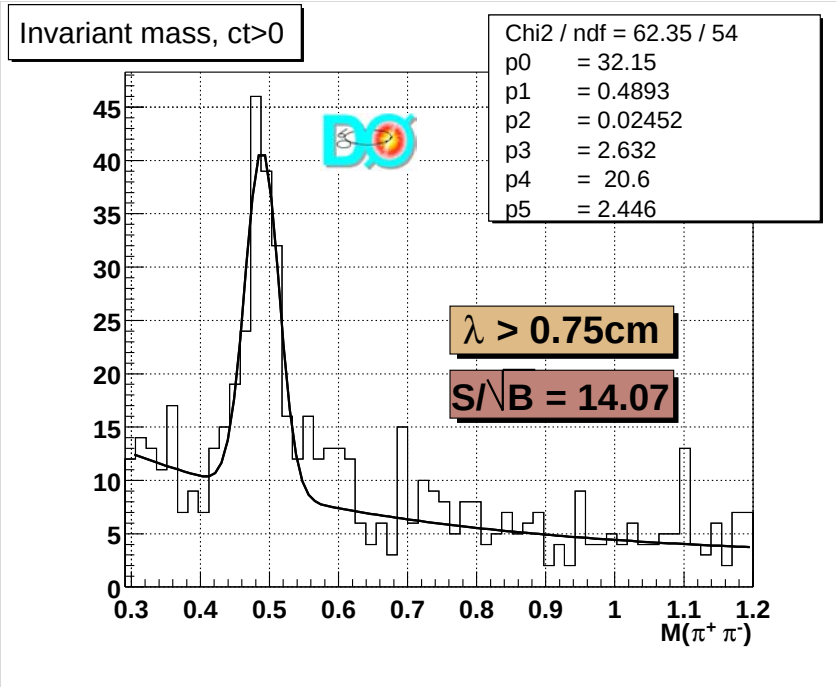
Dotted curve – fit to background

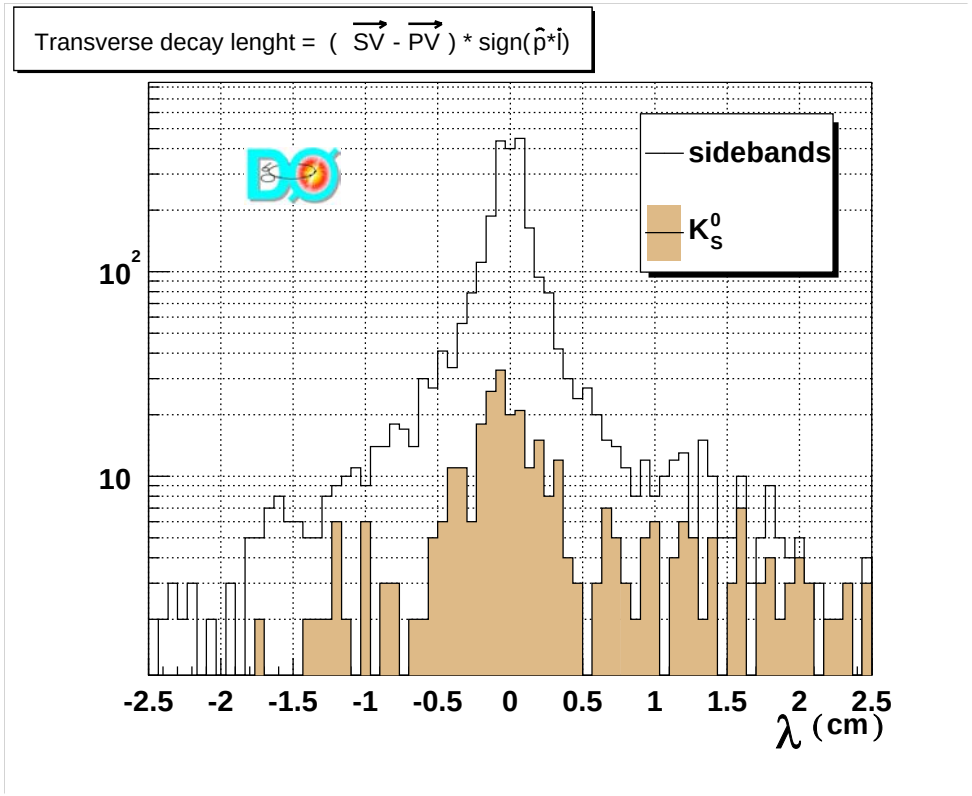
Full curve – fit to signal + background

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

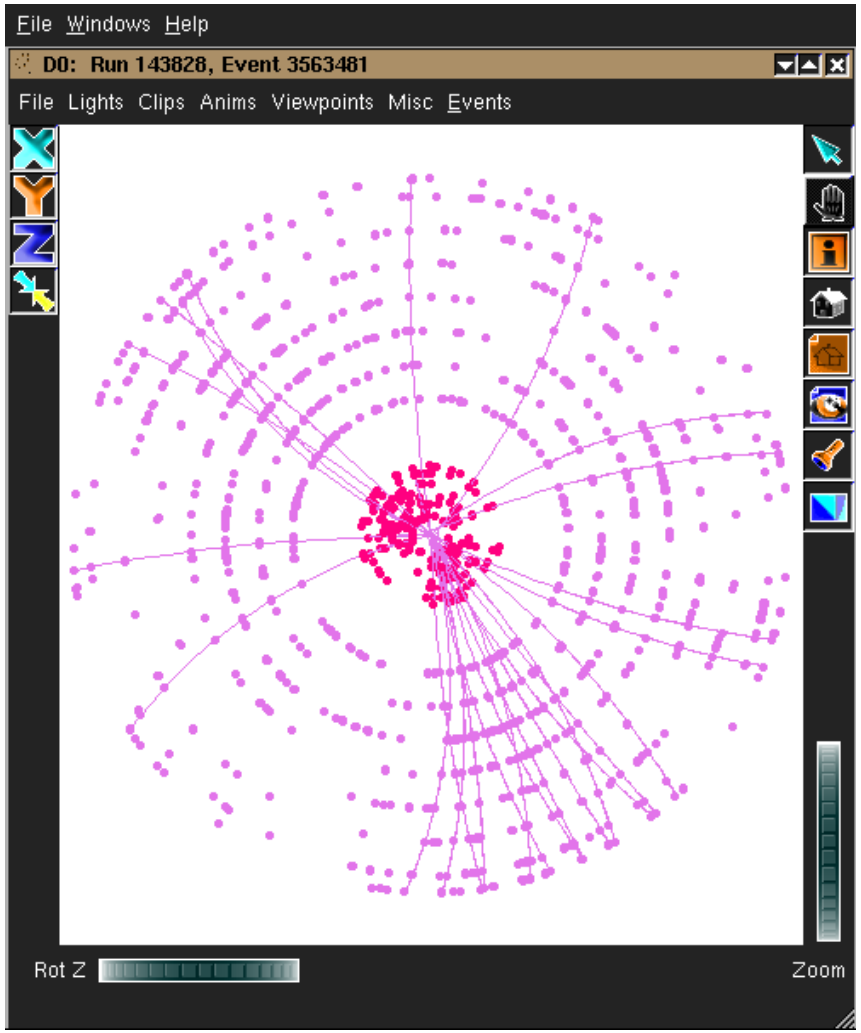
Tracks reconstructed in the SMT detector

Ariel Schwartzman, Buenos Aires

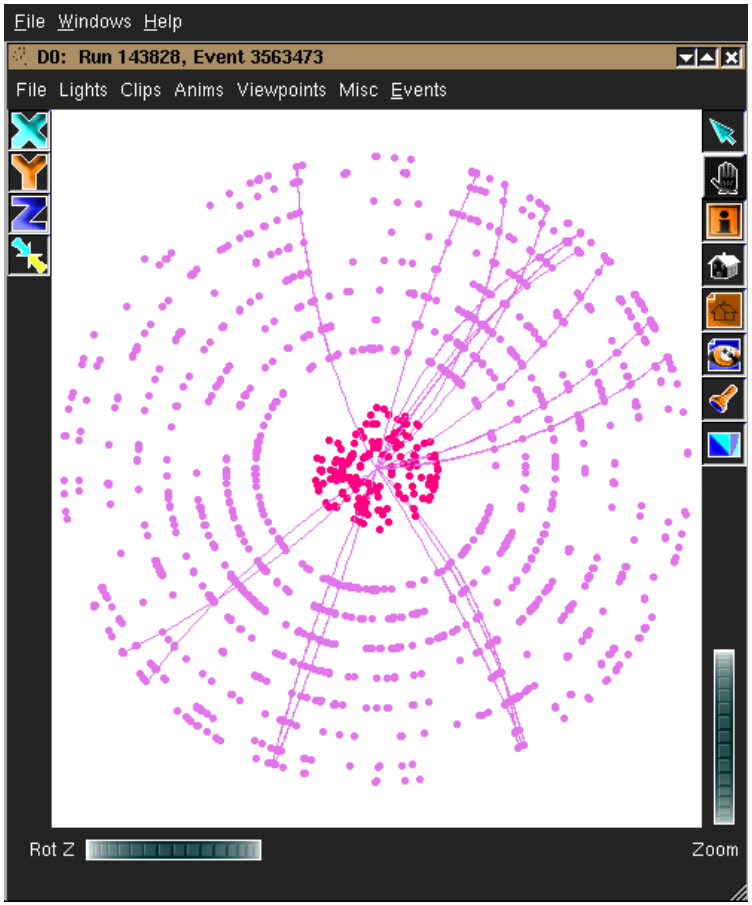




Tracks in SMT and CFT



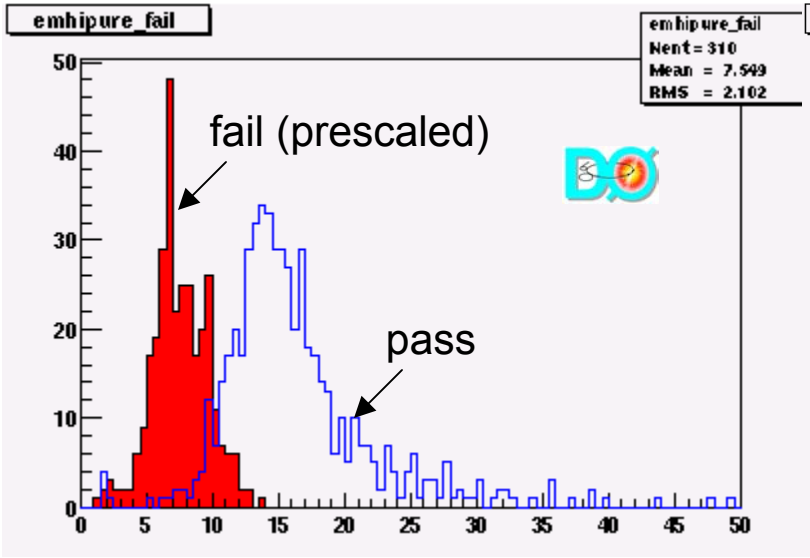
Avto Kharchilava, Notre Dame

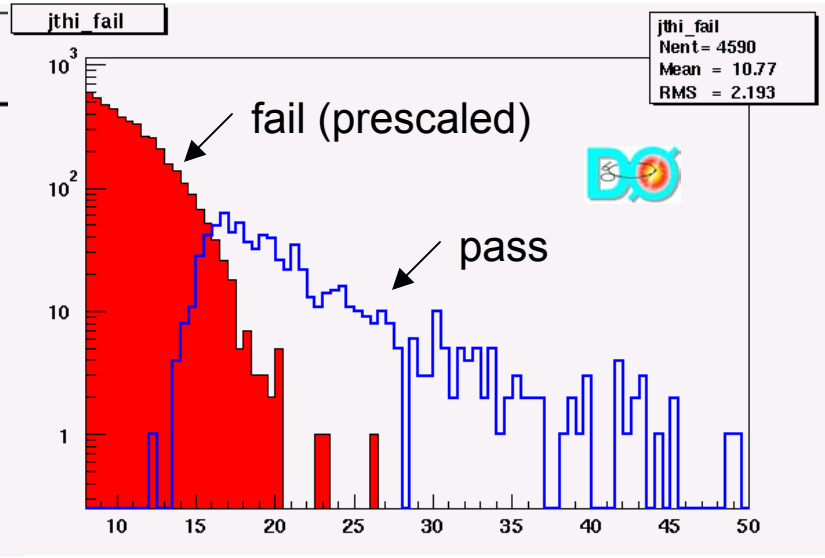


Level 3 Calorimeter Trigger

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