Data samples and event selection

- ***Data***: 98, 99e, 99p, 00p (Mini Ntuples, v08b)
- ***MC Signal***: 98-99p (Rapgap 3.202, v08b) Direct, Resolved
- ***MC Background***: 98-99p (Pythia 6.221, Giant Dijet MC, v08b) Direct

Event selection

Trigger HPP16 on

|Zvtx| < 40 cm

|BCAL time| < 10 ns

Cal_pt < 10

0.2 < Yjb < 0.7

No SINISTRA electron with Prob > 0.9 and Yel < 0.7

Prompt photon selection

Tufo[][0]%1000 = 31

$-0.7 < \eta < 0.9$

6 < Et < 15 GeV

Ezufo/Ejet > 0.9

Zufoeemc/Zufoecal > 0.9

Pt track > 0.25

track isolation in cone 0.2

Diffractive event selection

$\eta_{max} < 2.8$ for Ezufo > 0.4 GeV

Xp < 0.03

Efpc < 1 GeV

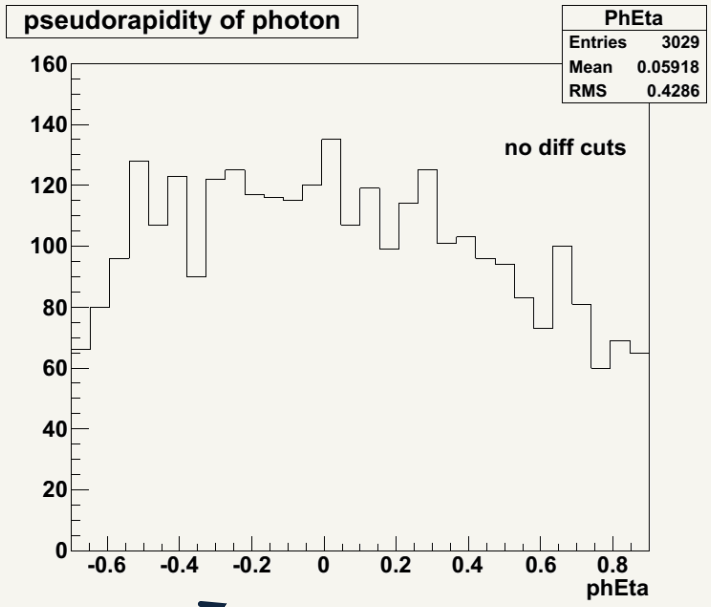
Hadronic jet selection

based on zufos

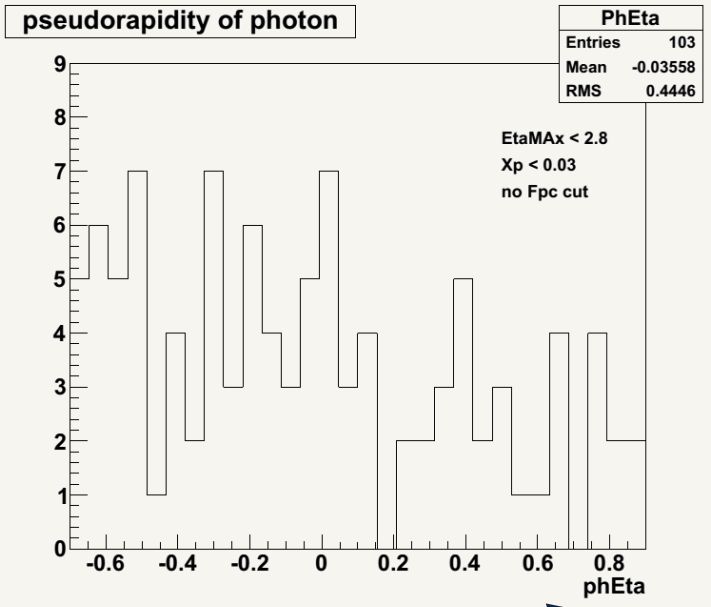
4 < Et jet < 35 GeV

$1.5 < \eta$ jet < 1.8

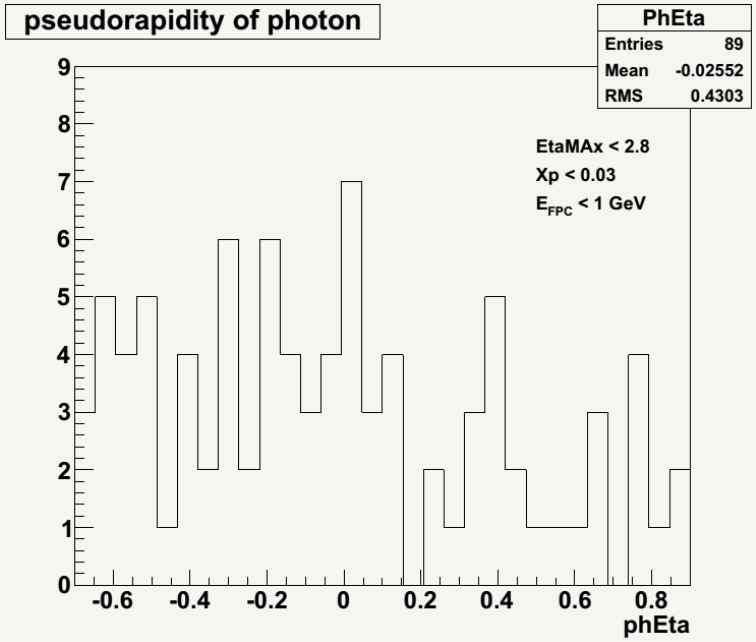
Photon pseudorapidity



RD



with all php cuts,
but without diffractive cuts,
3029 events

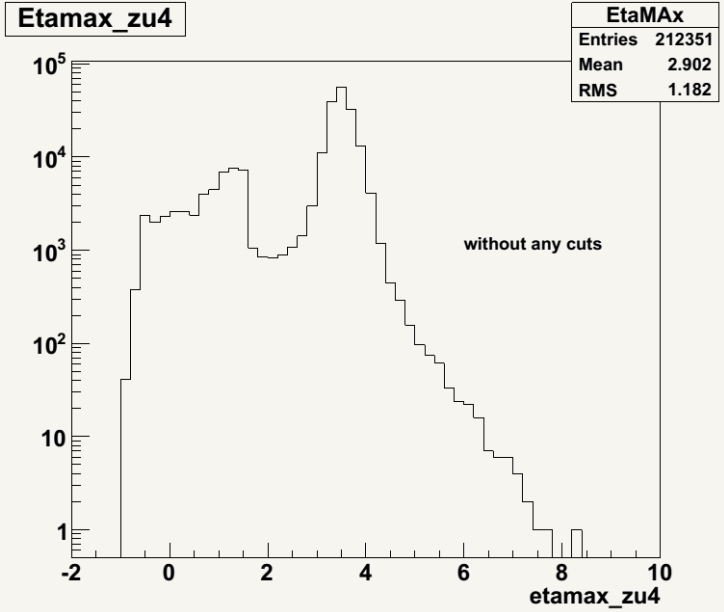


with all php cuts,
Xp and EtaMax cuts,
but without Efpc cut,
103 events

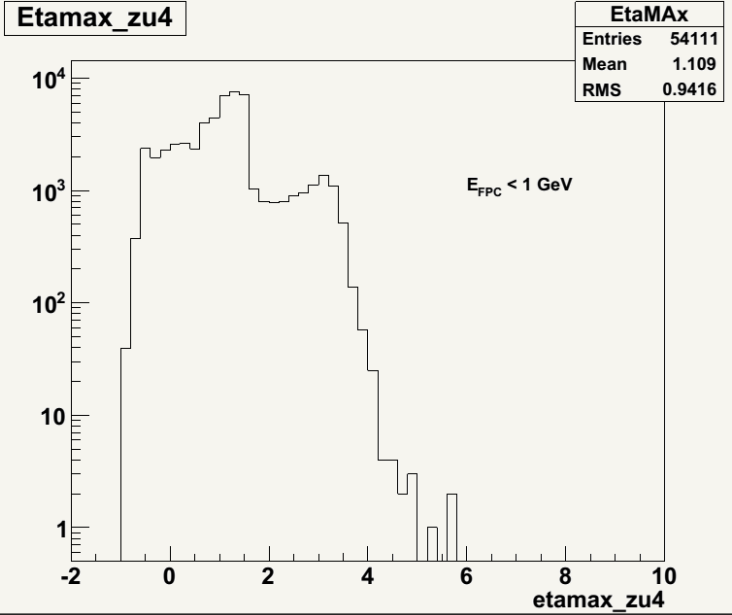
with all php cuts, and Xp, EtaMax, Efpc cuts (that is with all diff cuts), 89 events

Maximal pseudorapidity for zufos with energy > 400 MeV

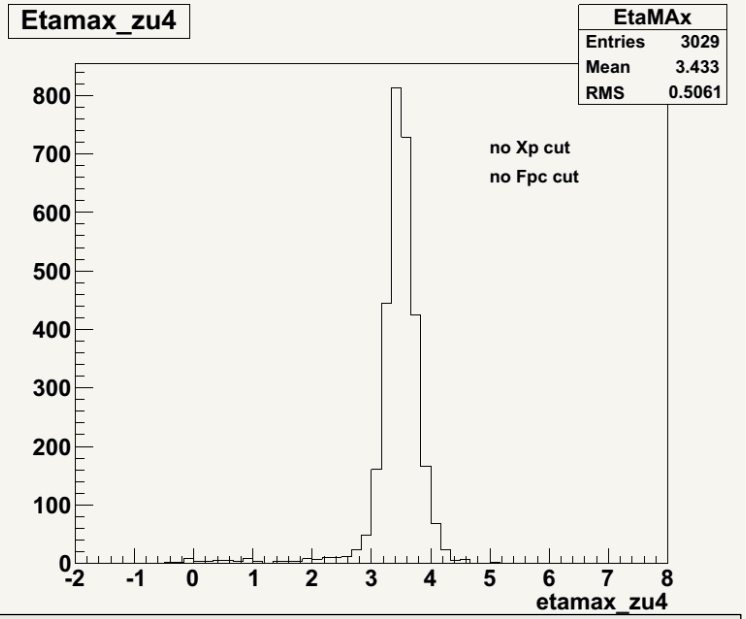
RD



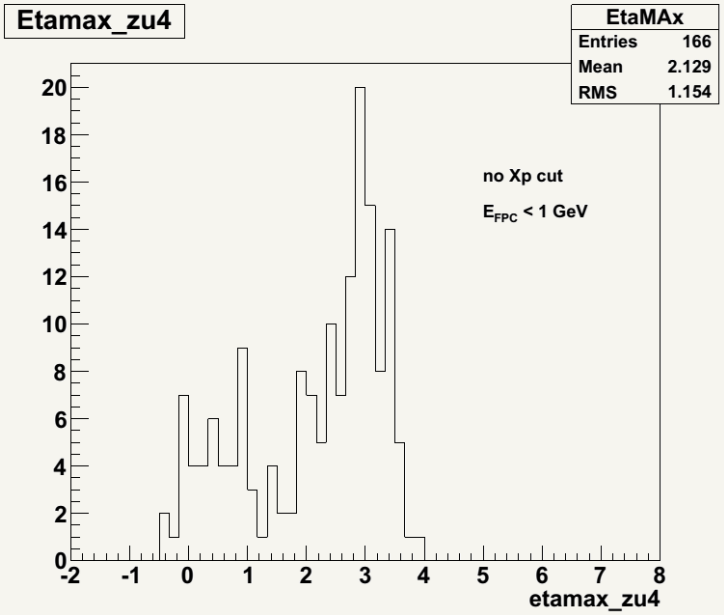
without any cuts, 212351 events



with only one cut Efpc < 1 GeV, 54111 events

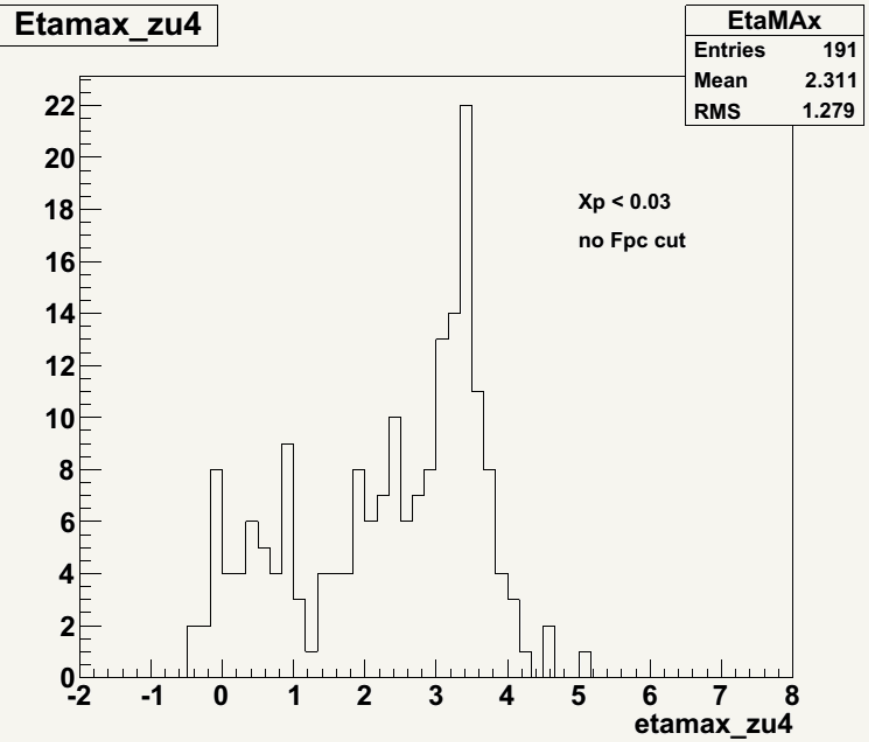


all php cuts, but without Xp and Efpc cuts, 3029 events

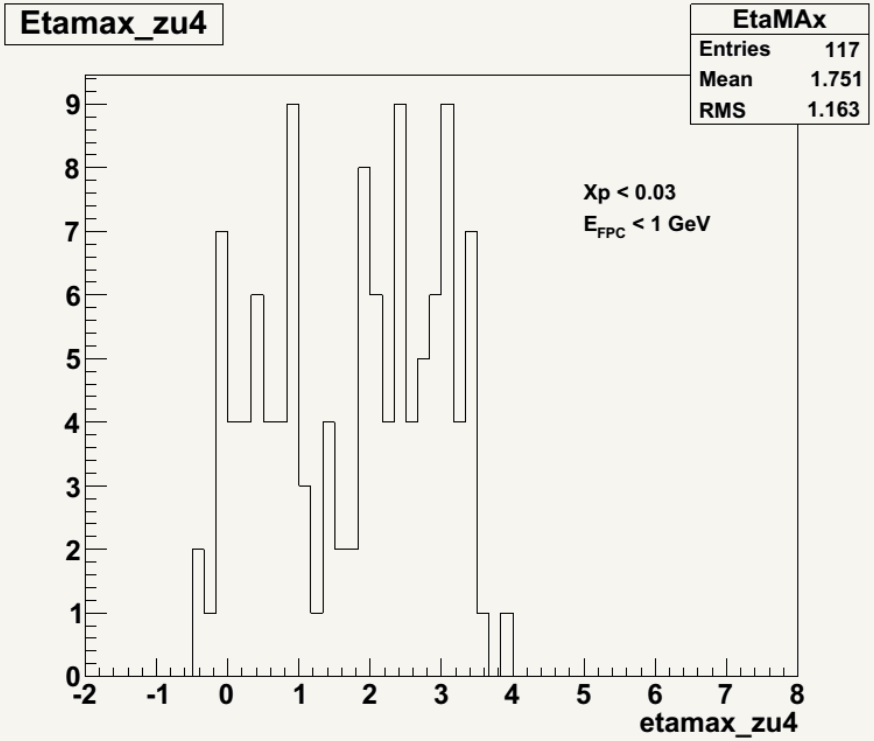


all php cuts and Efpc cut, but without Xp cut, 166 events

RD

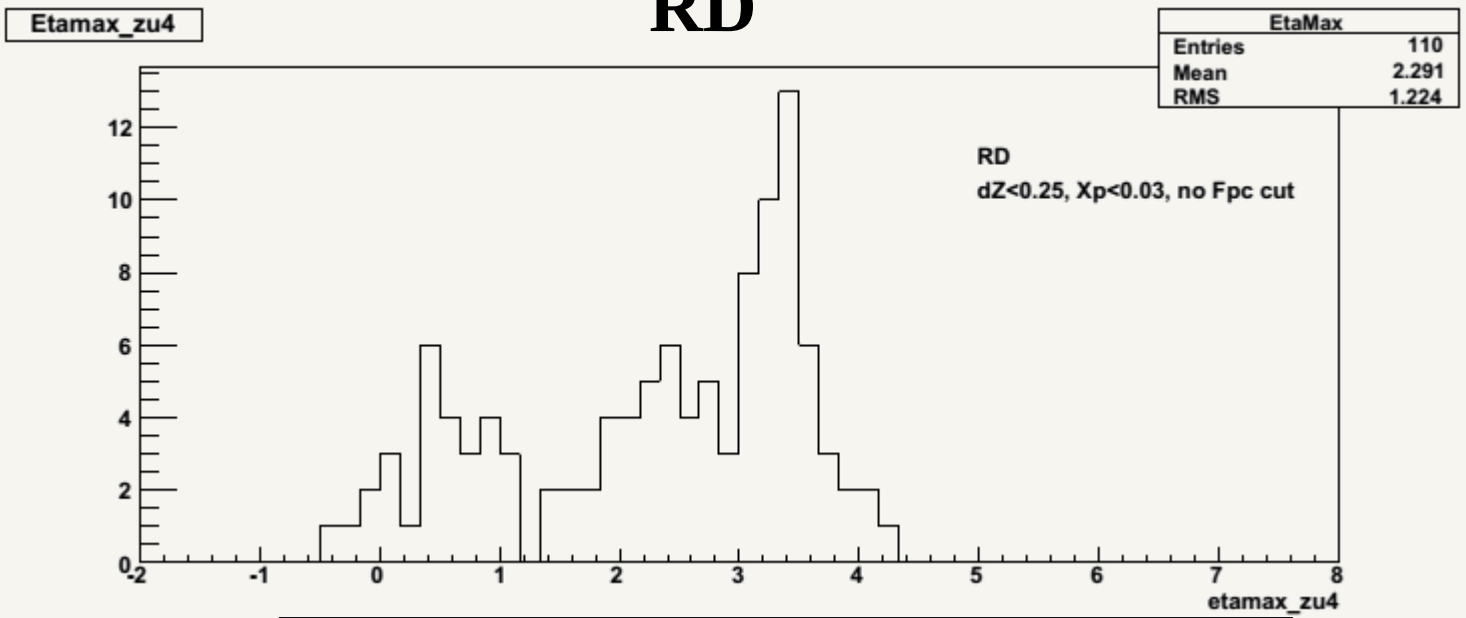


all php cuts and Xp cut, but without Efpc cut, 191 events

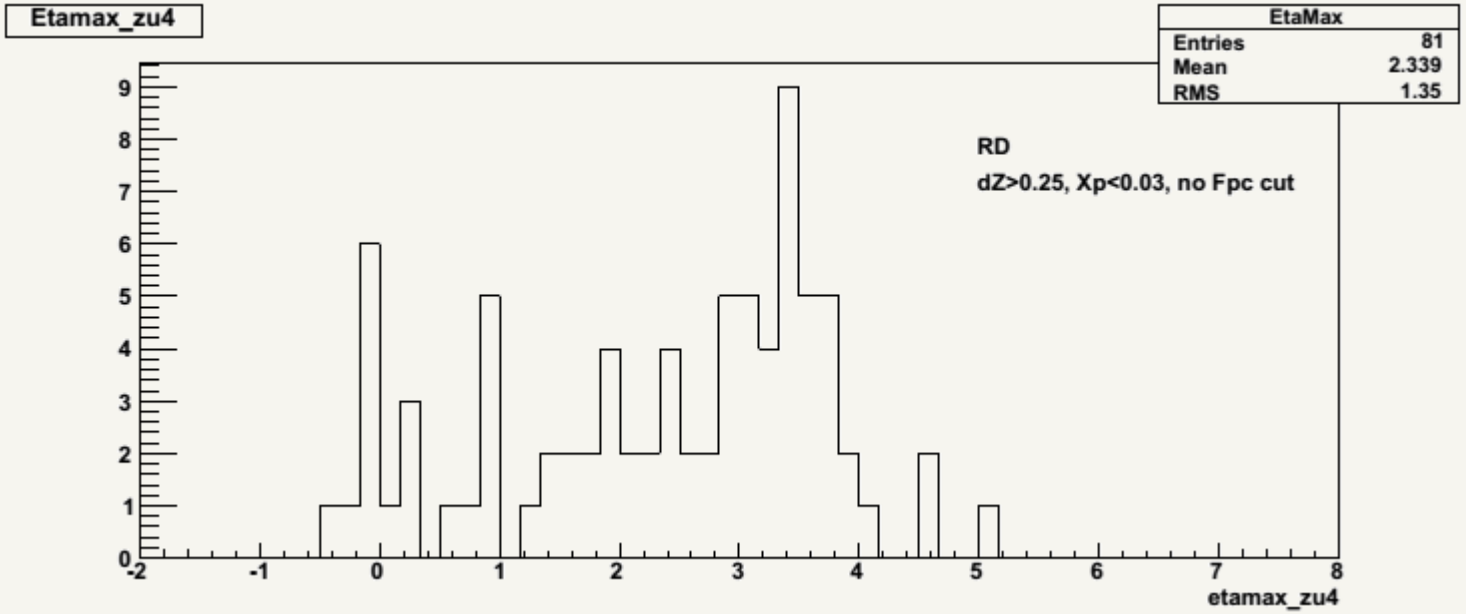


all php cuts, with Xp and Efpc cuts, 117 events

RD

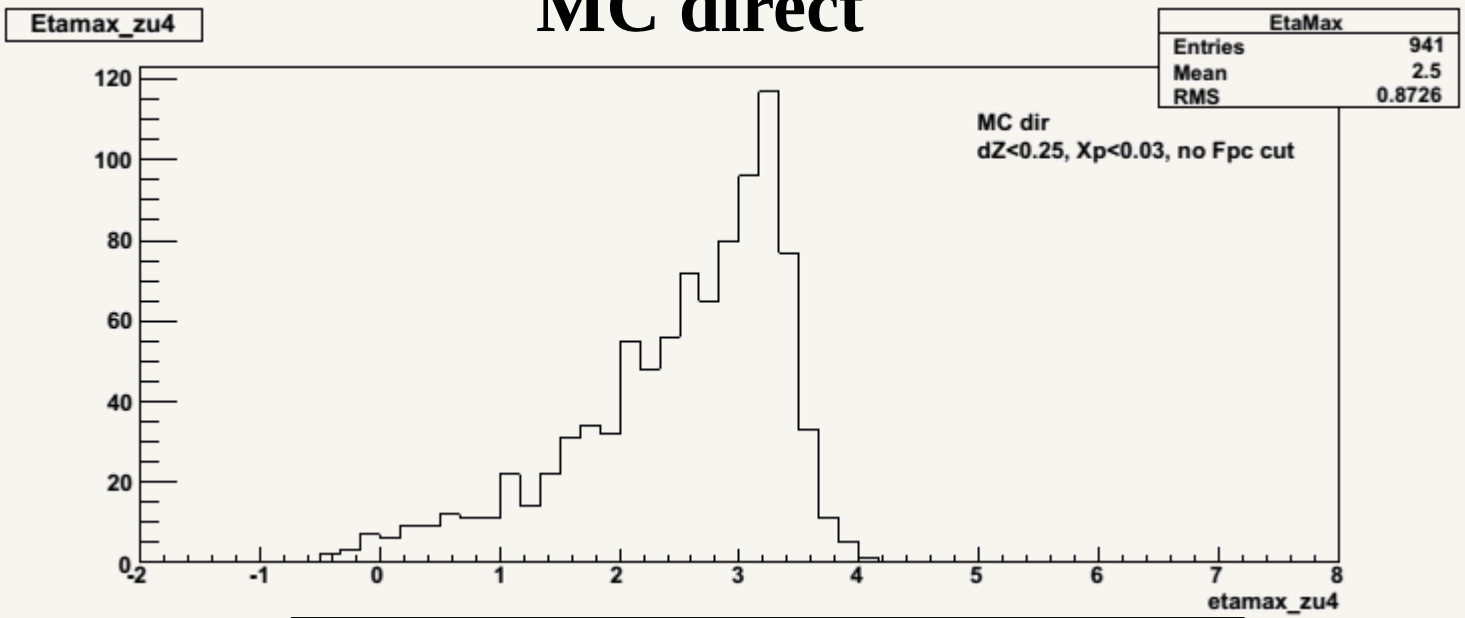


dZ < 0.25, with Xp cut, without Fpc cut, 110 events

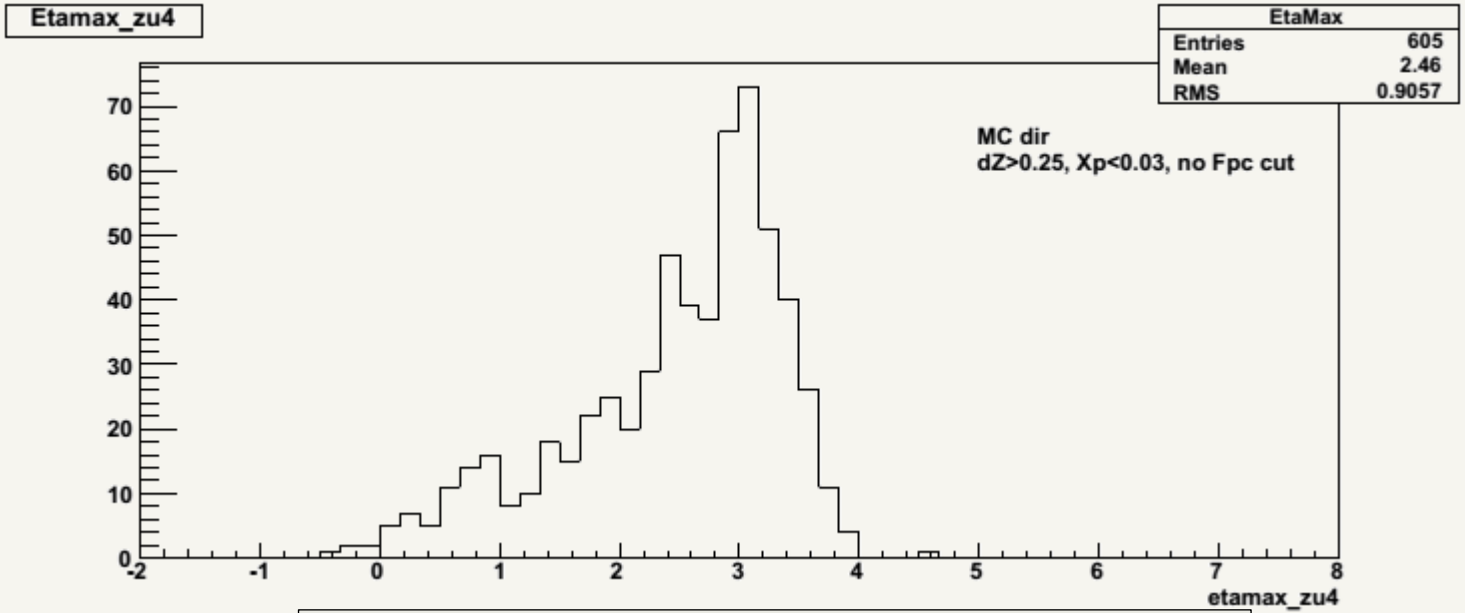


dZ > 0.25, with Xp cut, without Fpc cut, 81 events

MC direct

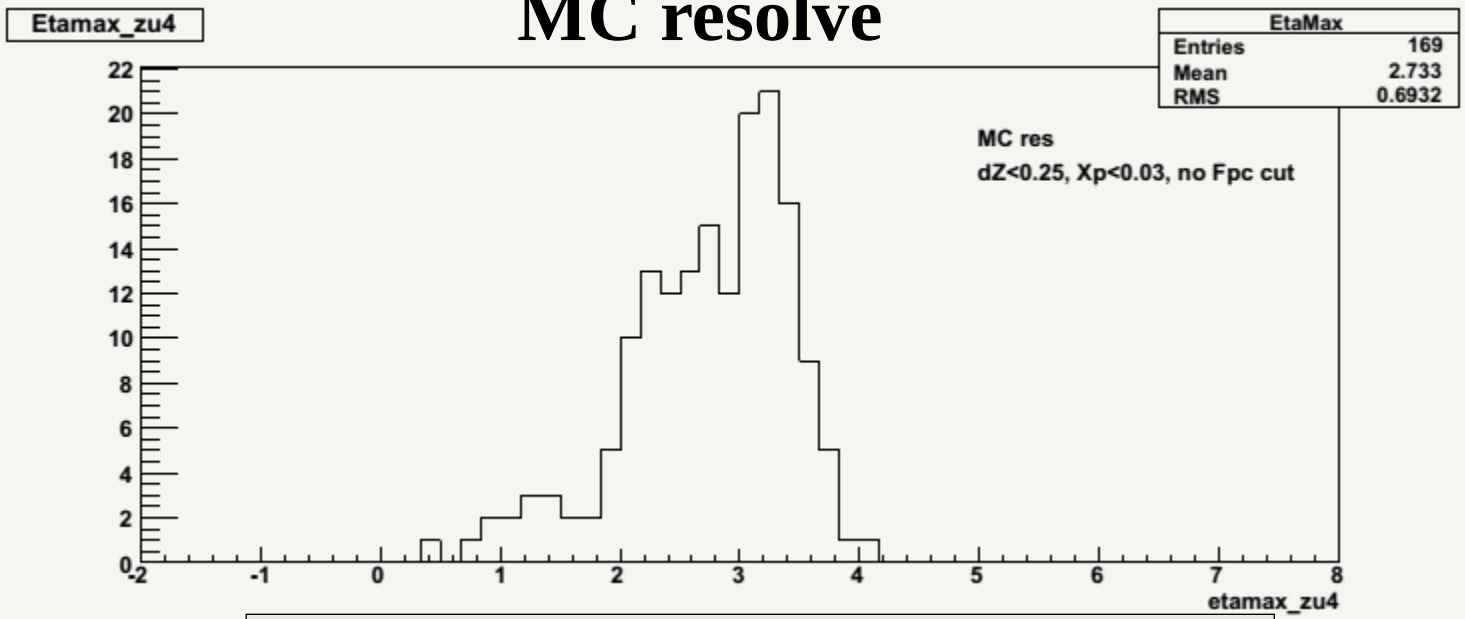


dZ < 0.25, with Xp cut, without Fpc cut, 941 events

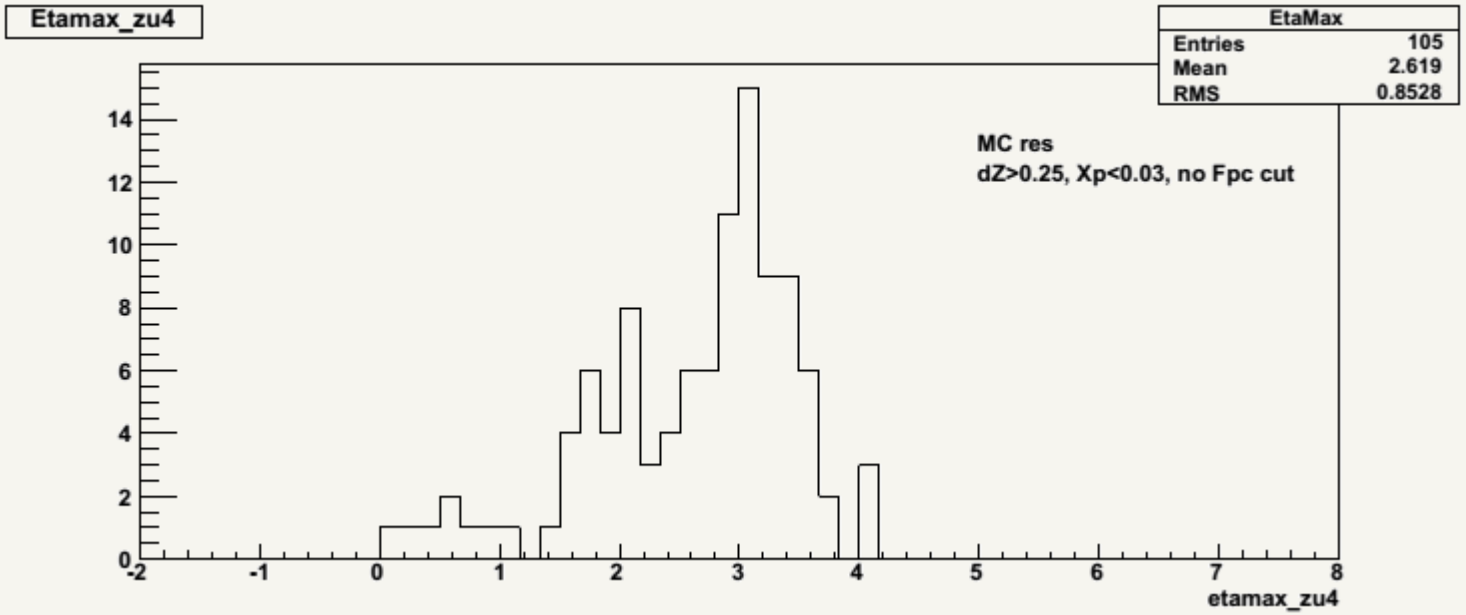


dZ > 0.25, with Xp cut, without Fpc cut, 605 events

MC resolve



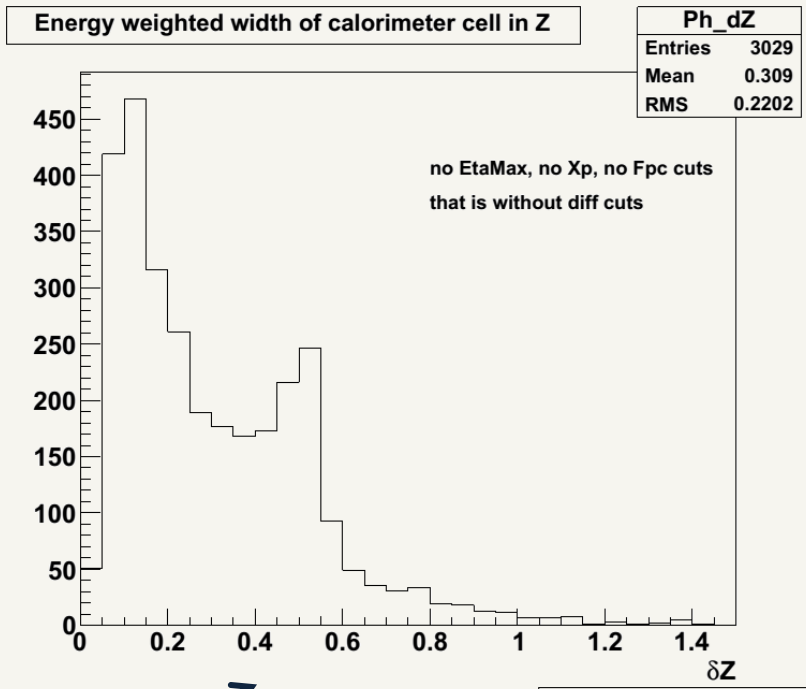
dZ < 0.25, with Xp cut, without Fpc cut, 169 events



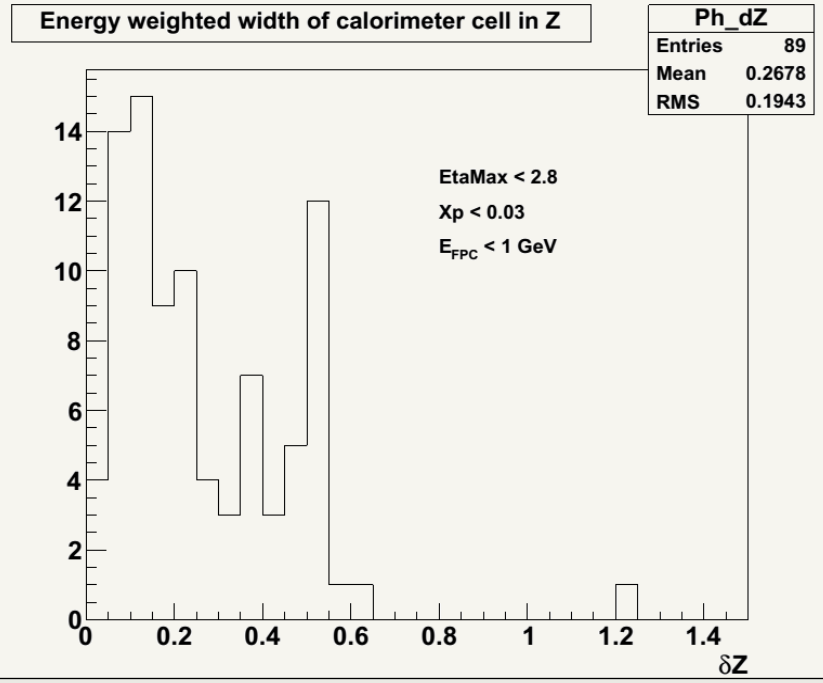
dZ > 0.25, with Xp cut, without Fpc cut, 105 events

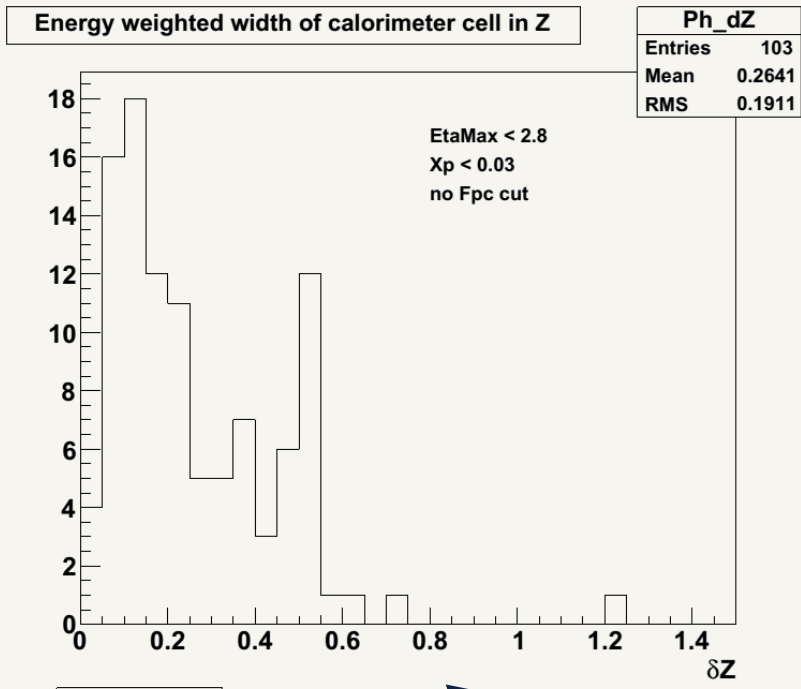
Energy weighted mean width of the electromagnetic cluster in Z direction
(δZ)

RD



with all php cuts,
but without diffractive cuts,
3029 events

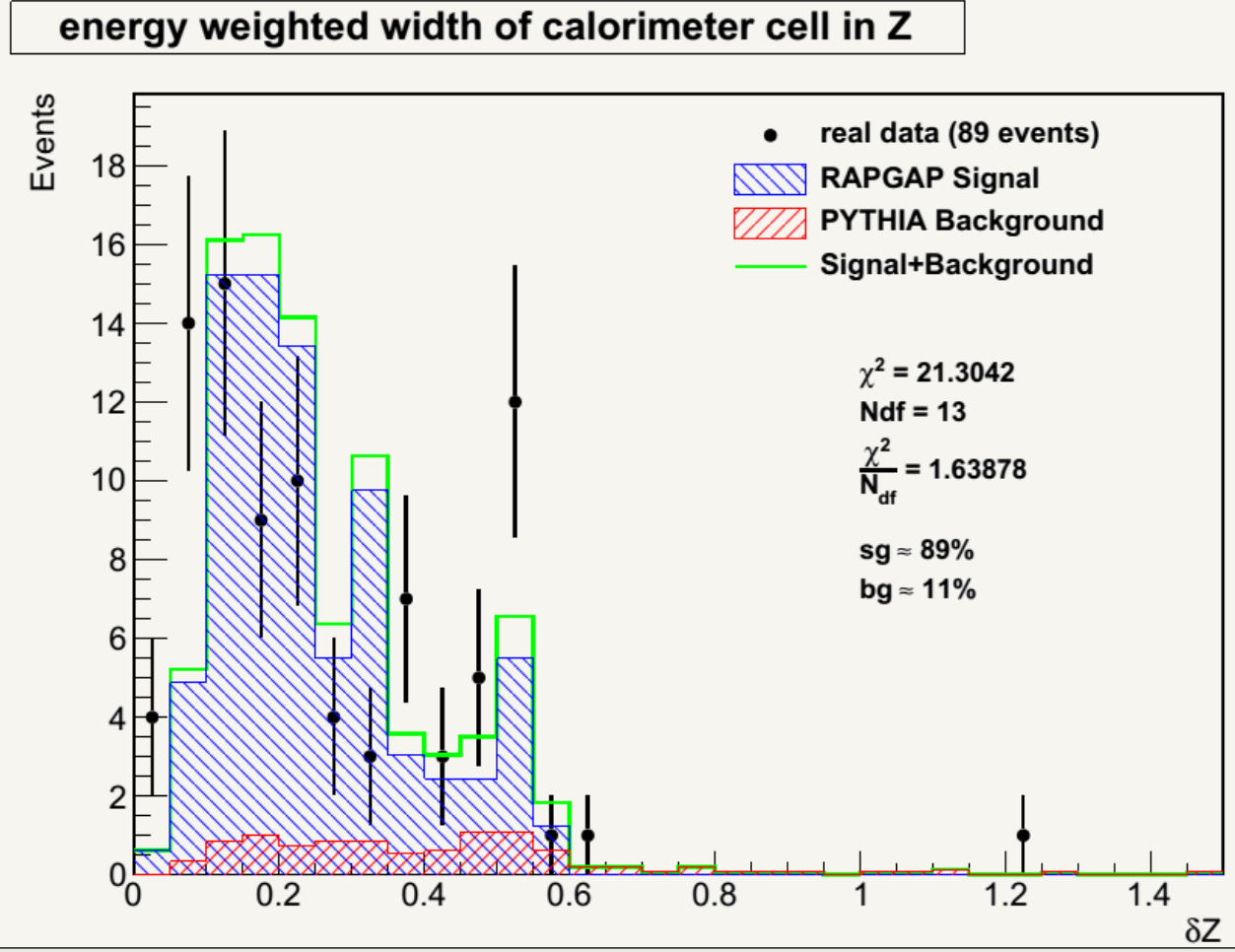




with all php cuts,
Xp and EtaMax cuts,
but without Efpc cut,
103 events

with all php cuts, and Xp, EtaMax, Efpc cuts (that is with all diff cuts), 89 events

Fitting



Fitting range: from 2 to 16 bin;
instead of 60 bins I use 30 bins

- MC signal (direct) → I have 25000 events before cuts and 130 after all cuts with diffractive inclusive.
- MC background (direct) → I should have to collect about 680000 events in order to have 147 events after applying php cuts. When in addition I also imposed the diffractive cuts on MC background I had no events (zero). So I didn't apply diff cuts on MC background.