Upsilon Status

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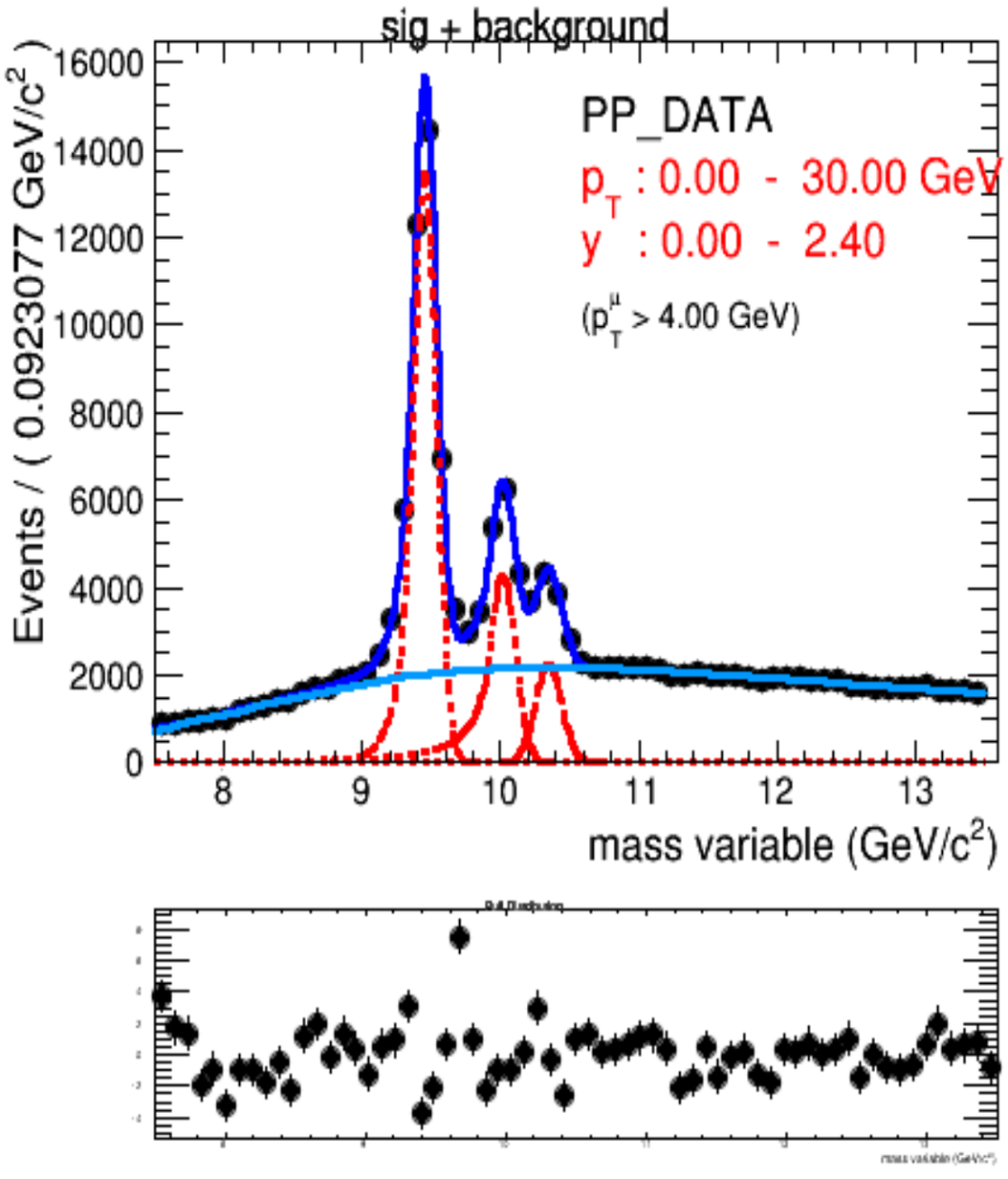
Fit Setting

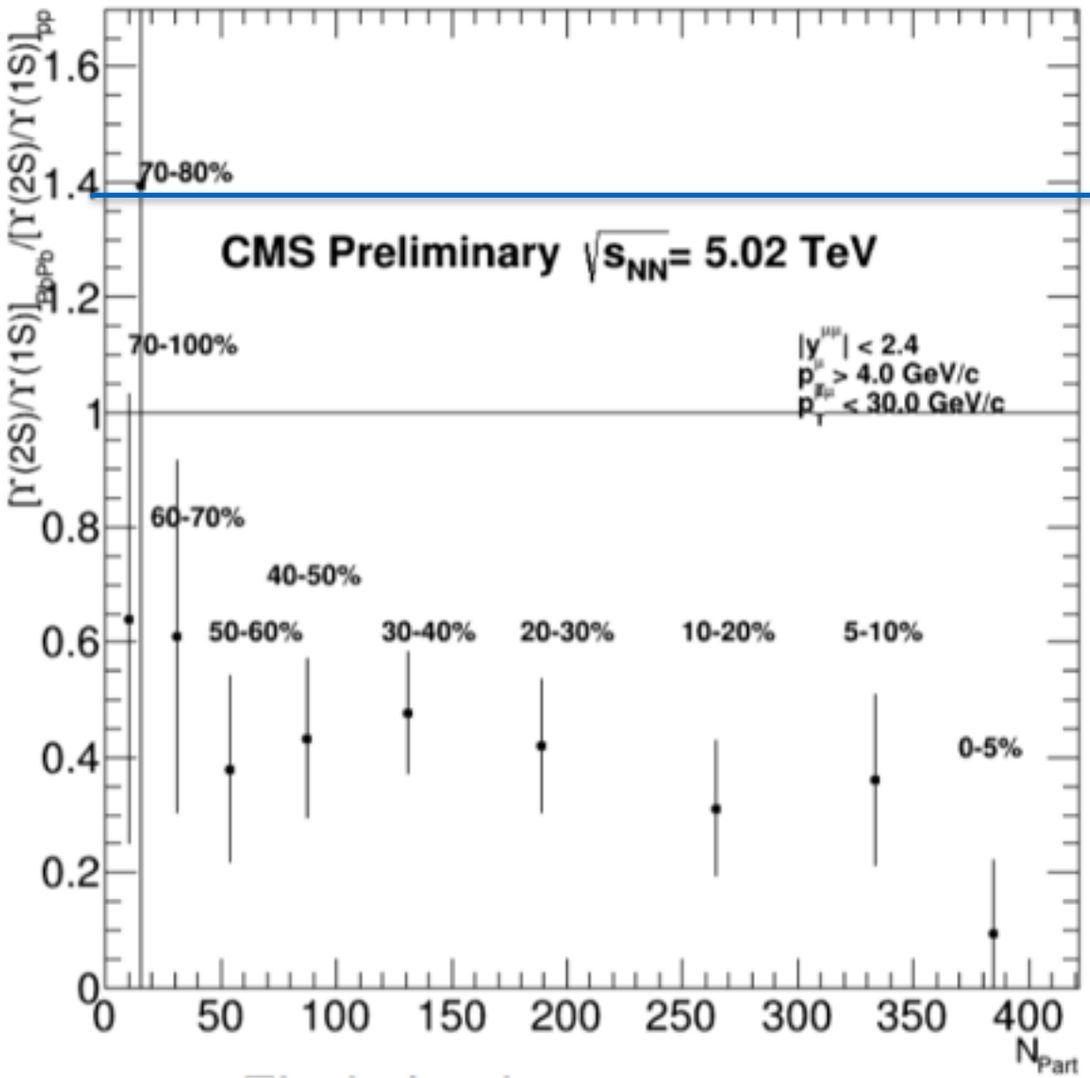
- Signal function : Single CB
- BKG function : err*exp*N
  - pp : all free parameter
  - PbPb : signal function fixed by pp
- $p_T(\mu) \geqq 4$ GeV/c
- $0 \leqq p_T(\mu^+\mu^-) \leqq 30$ GeV/c
- $0 \leqq |y| \leqq 2.4$
- 9 centrality bins up to 80%



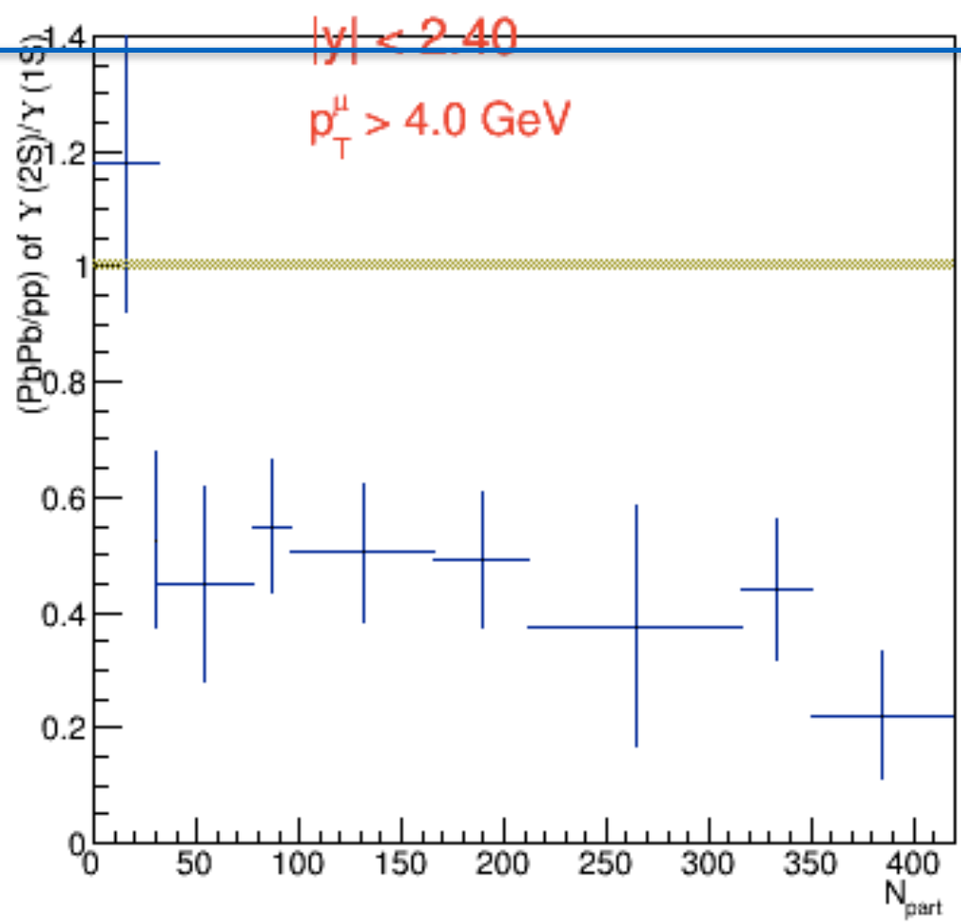
alpha1s_1 =	1.146 ± 0.019
alpha2s_1 =	1.000 ± 0.014
alpha3s_1 =	6.8 ± 6.6
bkg_N =	46933 ± 45684
err_mu =	8.563 ± 0.012
err_sigma =	1.334 ± 0.019
frac2over1 =	0.3012 ± 0.0030
m_decay =	7.64 ± 0.11
mass =	3.1 GeV/c^2
mean1s =	9.45124 ± 0.00062
n1s_1 =	7.71 ± 0.96
n2s_1 =	1.800 ± 0.045
n3s_1 =	7.0 ± 3.2
nBkg =	116733 ± 371
nSig12s =	47726 ± 262
nSig3s =	5784 ± 121
sigma1s_1 =	0.08456 ± 0.00061
sigma2s_1 =	0.0937 ± 0.0016
sigma3s_1 =	0.0944 ± 0.0023

Double Ratio 1S/2S

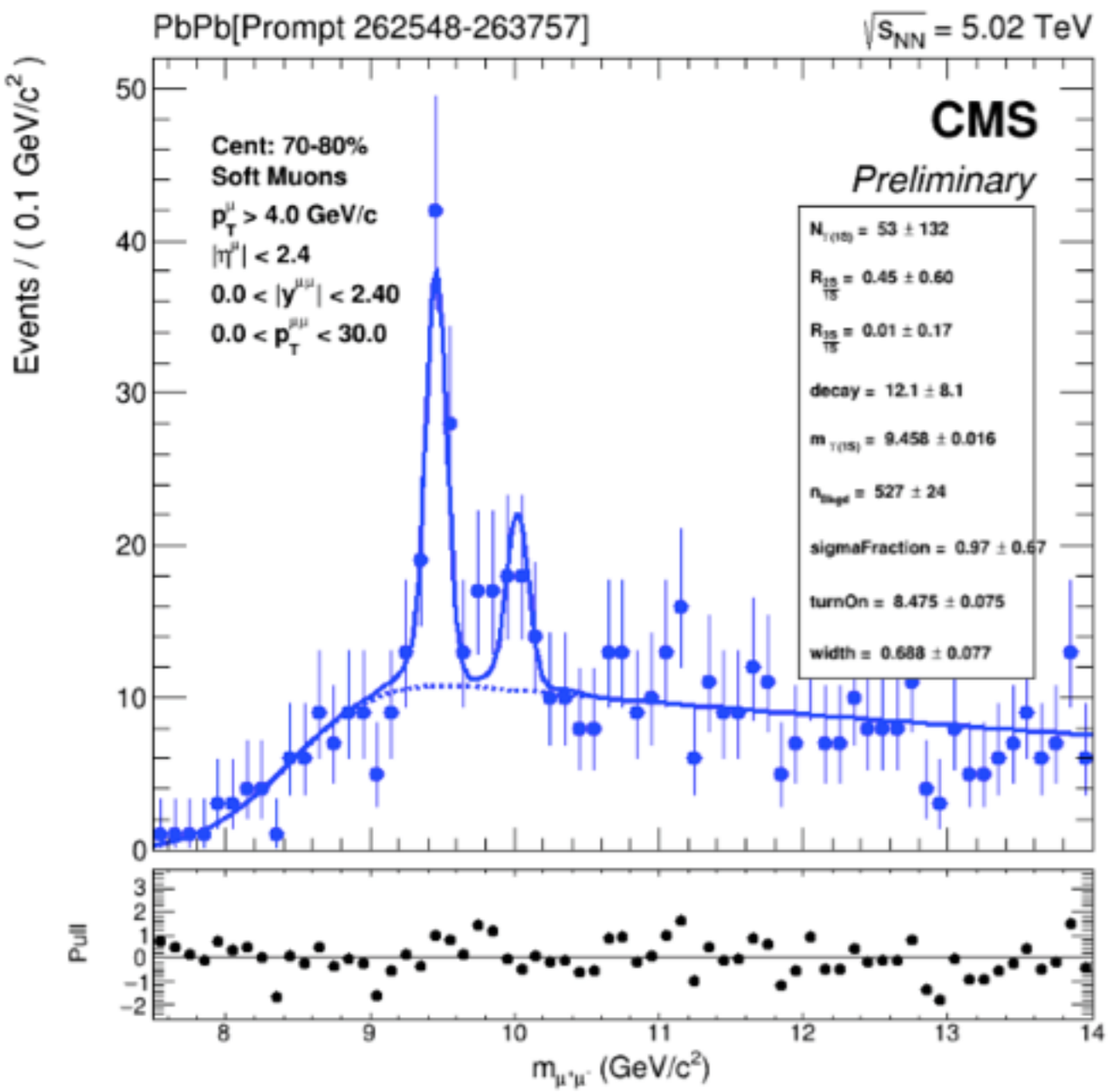
Double Crystall Ball function

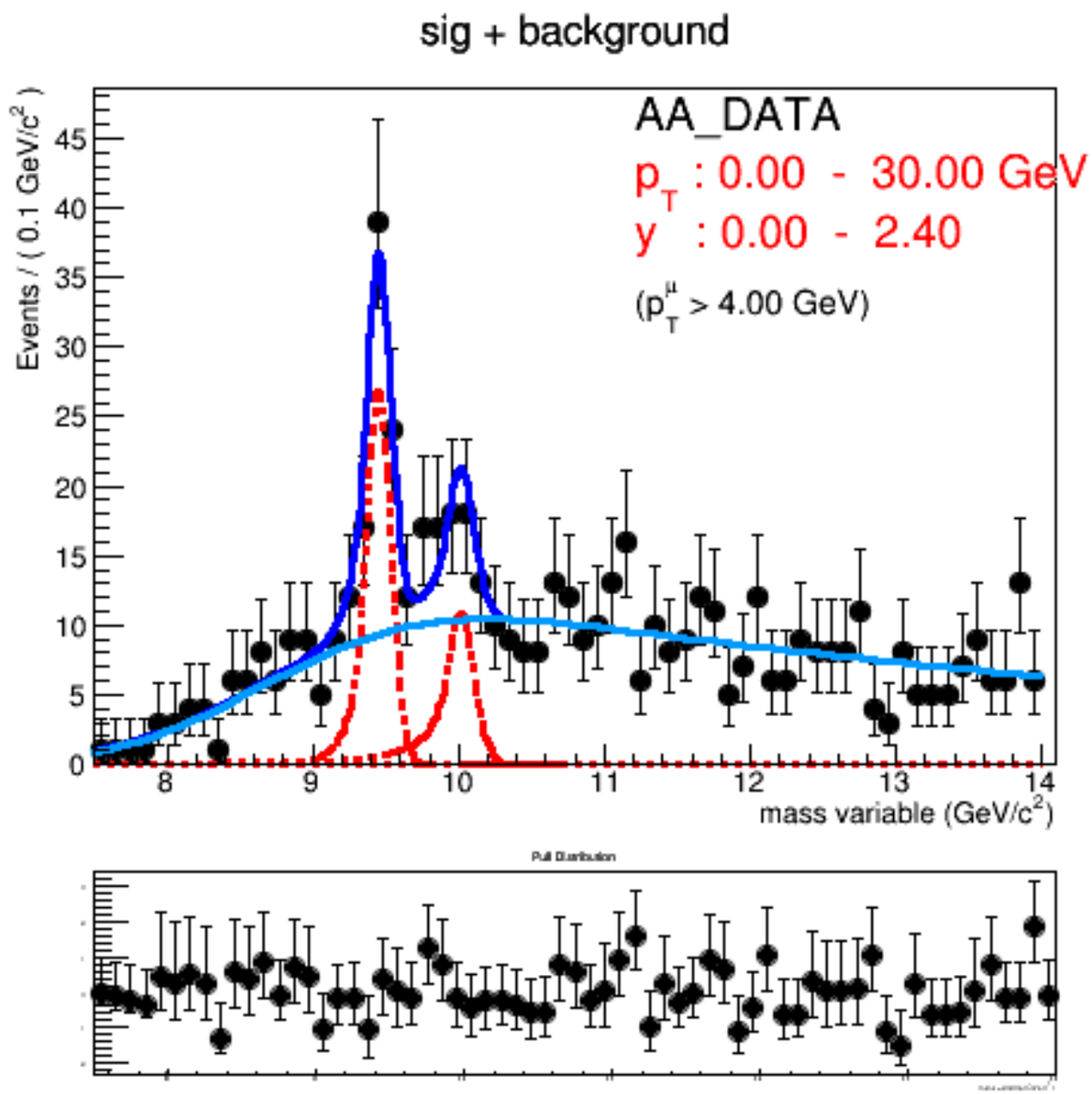


Single Crystall Ball function

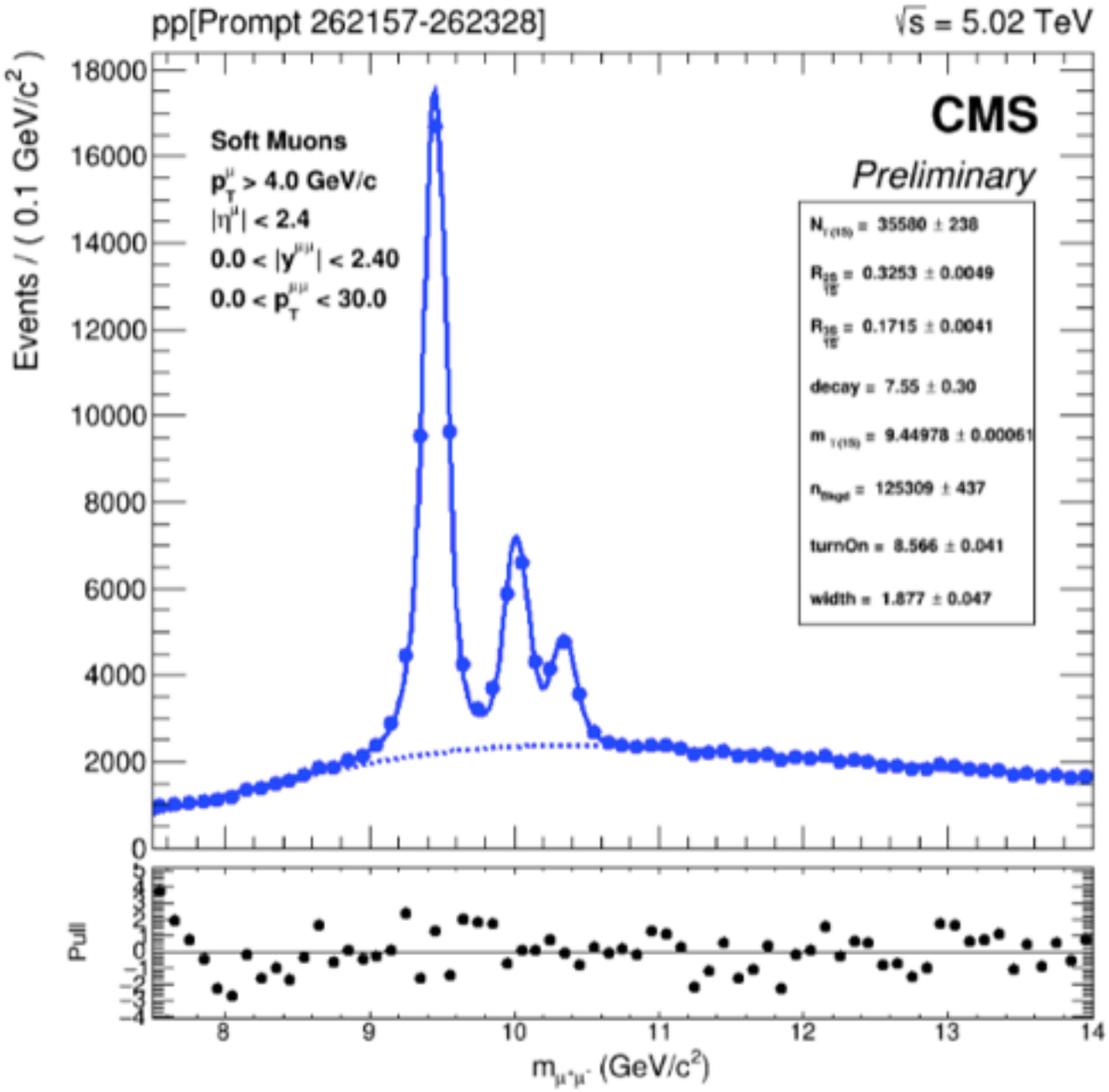


70~80% Bin

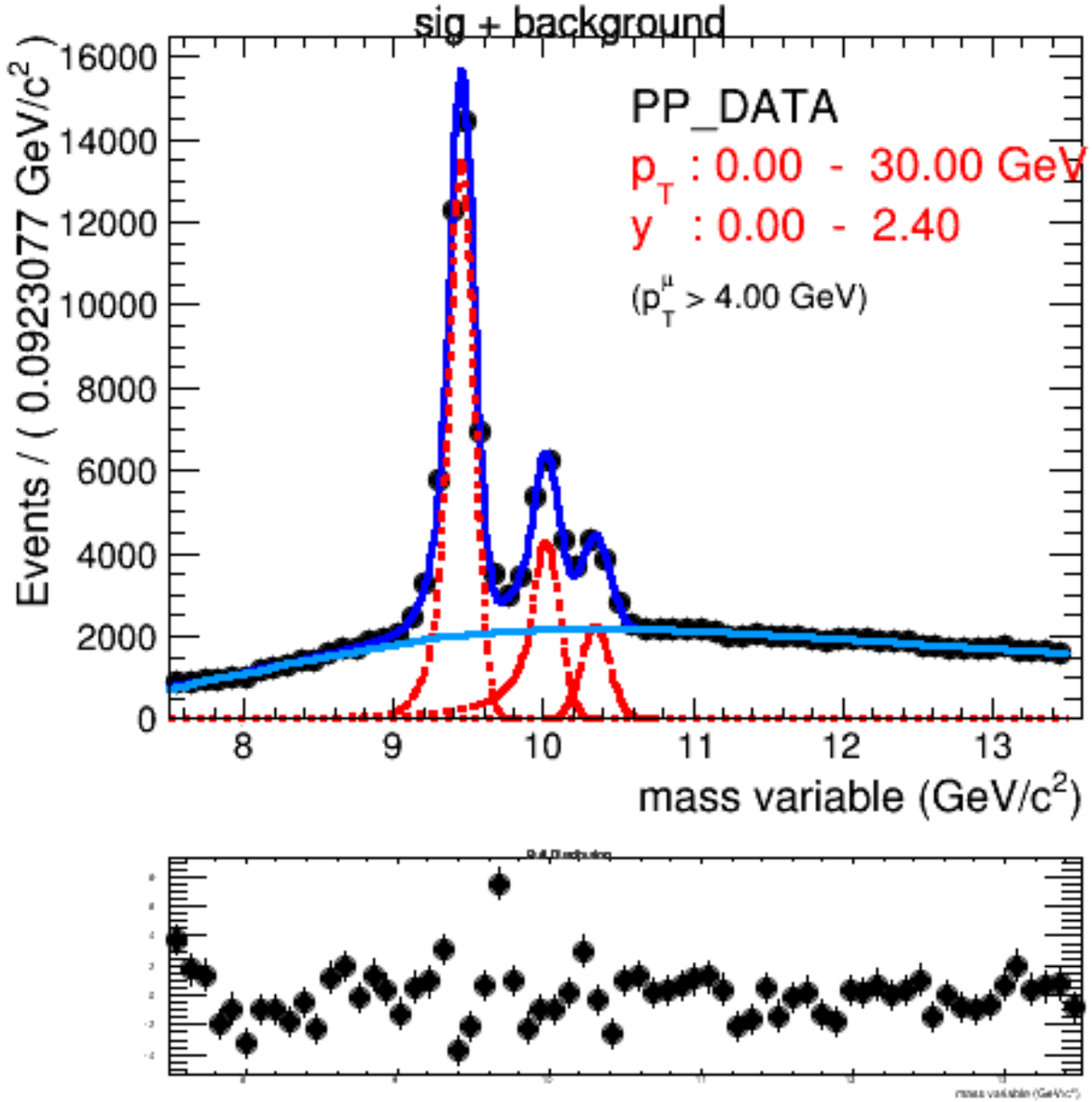

PbPb[Prompt 262548-263757]
$\sqrt{s_{NN}}$ = 5.02 TeV
CMS
Preliminary
Cent: 70-80%
Soft Muons
p_T^μ > 4.0 GeV/c
$|\eta^\mu|$ < 2.4
0.0 < $|y^{\mu\mu}|$ < 2.40
0.0 < $p_T^{\mu\mu}$ < 30.0
$N_{\Upsilon(1S)}$ = 53 ± 132
$R_{\frac{2S}{1S}}$ = 0.45 ± 0.60
$R_{\frac{3S}{1S}}$ = 0.01 ± 0.17
decay = 12.1 ± 8.1
$m_{\Upsilon(1S)}$ = 9.458 ± 0.016
n_{bkgd} = 527 ± 24
sigmaFraction = 0.97 ± 0.67
turnOn = 8.475 ± 0.075
width = 0.688 ± 0.077
Events / (0.1 GeV/c^2)
Pull
$m_{\mu^+\mu^-}$ (GeV/c^2)


sig + background
AA_DATA
p_T : 0.00 - 30.00 GeV
y : 0.00 - 2.40
(p_T^μ > 4.00 GeV)
Events / (0.1 GeV/c^2)
mass variable (GeV/c^2)
Pull Distribution

PP Data



fraction 1S/2S : 0.3253



fraction 1S/2S : 0.3012

Back - up

Data samples

- pp : DoubleMu0
- PbPb : DoubleMu0 (0-30%)
  DoubleMu0_Peripheral (30-80%)

	pp Data	PbPb Data	PbPb Data Peripheral
File Name	OniaTree_DoubleMu_Run2015E-PromptReco-v1_Run_262157_262328.root	OniaTree_HIOniaL1DoubleMu0ABCD_HIRun2015-PromptReco-v1_Run_262620_263757.root	OniaTree_HIOniaPeripheral30100_HIRun2015-PromptReco-v1_Run_262620_263757.root
HLT Trigger	L1DoubleMu0	L1DoubleMu0	L1DoubleMu0Peripheral
PASS 1 : # of events passing HLT	8727725	31531797	3539183
PASS 2 : # of dimuons passing trigger match + PASS 1	3017463	4797051	1036764
PASS 3 : # of dimuons passing muonID cut + PASS 2 + acceptance cut	3017463	4797051	1036764
PASS 4 : # of dimuons in mass range 7.5-14GeV+ PASS 3 + vertex probability cut + opposite sign in all centrality 0-100%)	460724	631612	129904
PASS 4-1 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin1 (0-5%)	N/A	135166	0
PASS 4-2 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin2 (5-10%)	N/A	121656	0
PASS 4-3 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin3 (10-20%)	N/A	184123	0
PASS 4-4 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin4 (20-30%)	N/A	107140	23378
PASS 4-5 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin5 (30-40%)	N/A	49470	63149
PASS 4-6 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin6 (40-50%)	N/A	21228	27028
PASS 4-7 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin7 (50-60%)	N/A	8062	10269
PASS 4-8 : # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin8 (60-70%)	N/A	2900	3703
PASS 4-9: # of dimuons in mass range 7.5-14GeV + PASS 4 in centrality bin9 (70-80%)	N/A	1112	1399

Fitting

Fitting samples – PbPb 70-80%