

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncCB2VWG_pp13_2.20_4.50

$N_{J/\psi} = 52 \pm 8$

Mass = 3.1044 ± 0.0184

$\sigma_{J/\psi} = 0.0985 \pm 0.0476$

$N_{\psi'} = 8 \pm 1$

$\chi^2/nDoF = 0.36$

$S/B_{\pm 3\sigma} = 26.73$

$S/\sqrt{S+B} = 1.08$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 0.97

p1: 6.97

t2: 1.86

p1: 14.99

Background Normalization factor: 0.973 ± 0.564

a1: 4.125 ± 0.049

a2: 0.044 ± 0.014

a3: 0.014 ± 0.850

a4: 6.584 ± 2.493

—+— Raw events
—+— Fitted J/ψ events
—+— Fitted $\psi(2S)$ events
- - + - Fitted background events
—+— Fitted J/ψ $\psi(2S)$ and background events

$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

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fitFuncCB2VWG_geant3_2.20_4.50

$N_{J/\psi} = 53 \pm 8$

Mass = 3.0978 ± 0.0178

$\sigma_{J/\psi} = 0.1000 \pm 0.0382$

$N_{\psi'} = 4 \pm 0$

$\chi^2/nDoF = 0.35$

S/B = $35.51^{+3.0}_{-3.0}$

S/ $\sqrt{S+B} = 1.10$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.17

p1: 3.65

t2: 1.95

p1: 3.10

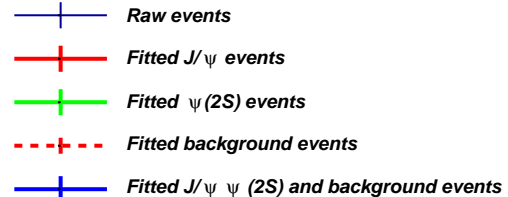
Background Normalization factor: 1.043 ± 3.290

a1: 2.072 ± 0.847

a2: 0.176 ± 0.428

a3: 0.172 ± 1.602

a4: 0.658 ± 1.883



$m_{\mu\mu}$ (GeV/c²)

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$2.5 < y < 4$

fitFuncCB2VWG_pp13_2.40_4.70

$N_{J/\psi} = 50 \pm 0$

Mass = 3.0989 ± 0.0185

$\sigma_{J/\psi} = 0.1000 \pm 0.0451$

$N_{\psi'} = 0 \pm 0$

$\chi^2/nDoF = 0.32$

$S/B_{\pm 3\sigma} = 12.35$

$S/\sqrt{S+B} = 1.05$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 1

t1: 0.97

p1: 6.97

t2: 1.86

p1: 14.99

Background Normalization factor: 0.161 ± 0.058

a1: 1.809 ± 0.576

a2: 10.000 ± 17.675

a3: 9.872 ± 19.194

a4: -9.707 ± 18.360

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$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

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fitFuncCB2VWG_geant3_2.40_4.70

$N_{J/\psi} = 52 \pm 8$

Mass = 3.0958 ± 0.0177

$\sigma_{J/\psi} = 0.1000 \pm 0.0373$

$N_{\psi^*} = 0 \pm 0$

$\chi^2/nDoF = 0.32$

$S/B_{\pm 3\sigma} = 17.76$

$S/\sqrt{S+B} = 1.07$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.18

p1: 3.54

t2: 1.95

p1: 3.09

Background Normalization factor: 4.469 ± 24.618

a1: 2.451 ± 0.008

a2: 0.001 ± 0.006

a3: 0.888 ± 0.724

a4: 0.048 ± 0.251

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$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncCB2Pol_pp13_2.20_4.50

$N_{J/\psi} = 52 \pm 0$

Mass = 3.0934 ± 0.0000

$\sigma_{J/\psi} = 0.0983 \pm 0.0000$

$N_{\psi'} = 4 \pm 0$

$\chi^2/\text{nDoF} = 0.36$

$S/B_{\pm 3\sigma} = 32.48$

$S/\sqrt{S+B} = 1.09$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 2

t1: 0.97

p1: 6.97

t2: 1.86

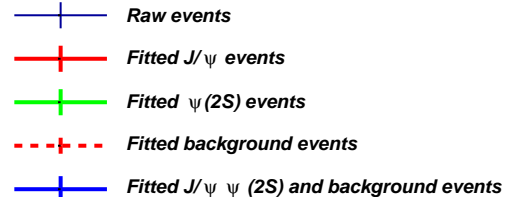
p1: 14.99

Background Normalization factor: 12.977 ± 0.000

a1: -0.722 ± 0.000 ; a2: 0.13001 ± 0.000

b1: 21.657 ± 0.000 ; b2: -3.570 ± 13.442

b3: -6.483 ± 0.000 ; b4: 1.792 ± 0.000



$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

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$2.5 < y < 4$

fitFuncCB2Pol_geant3_2.20_4.50

$N_{J/\psi} = 49 \pm 0$

Mass = 3.0951 ± 0.0013

$\sigma_{J/\psi} = 0.0867 \pm 0.0007$

$N_{\psi'} = 0 \pm 0$

$\chi^2/nDoF = 0.36$

$S/B_{\pm 3\sigma} = 11.16$

$S/\sqrt{S+B} = 1.03$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 2

t1: 1.17

p1: 3.65

t2: 1.95

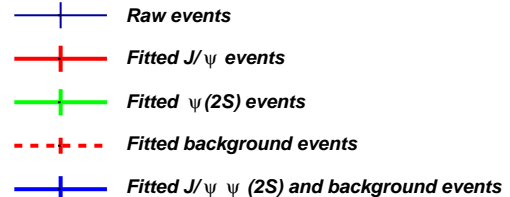
p1: 3.10

Background Normalization factor: 3.433 ± 0.066

a1: -4.904 ± 0.007 ; a2: 2.06651 ± 0.003

b1: 93.188 ± 0.000 ; b2: -72.607 ± 0.000

b3: -11.454 ± 0.000 ; b4: 11.446 ± 0.000



$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

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$2.5 < y < 4$

fitFuncCB2Pol_pp13_2.40_4.70

$N_{J/\psi} = 46 \pm 0$

Mass = 3.0984 ± 0.0001

$\sigma_{J/\psi} = 0.0718 \pm 0.0000$

$N_{\psi^*} = 0 \pm 0$

$\chi^2/\text{nDoF} = 0.38$

$S/B_{\pm 3\sigma} = 12.03$

$S/\sqrt{S+B} = 1.00$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 2

t1: 0.97

p1: 6.97

t2: 1.86

p1: 14.99

Background Normalization factor: 26.323 ± 0.025

a1: 0.170 ± 0.000 ; a2: -0.08263 ± 0.000

b1: -11.846 ± 0.000 ; b2: 49.979 ± 0.000

b3: 4.115 ± 0.000 ; b4: -3.037 ± 0.009

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$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncCB2Pol_geant3_2.40_4.70

$N_{J/\psi} = 50 \pm 0$

Mass = 3.0951 ± 0.0000

$\sigma_{J/\psi} = 0.0769 \pm 0.0000$

$N_{\psi^*} = 0 \pm 0$

$\chi^2/\text{nDoF} = 0.41$

$S/B_{\pm 3\sigma} = 12.95$

$S/\sqrt{S+B} = 1.04$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 2

t1: 1.18

p1: 3.54

t2: 1.95

p1: 3.09

Background Normalization factor: 44.921 ± 0.007

a1: -0.114 ± 0.000 ; a2: -0.02212 ± 0.000

b1: 99.841 ± 0.000 ; b2: 20.093 ± 0.000

b3: -2.084 ± 0.052 ; b4: -1.436 ± 0.000

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$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncNA60VWG_geant3_2.20_4.50

$N_{J/\psi} = 54 \pm 8$

Mass = 3.1006 ± 0.0185

$\sigma_{J/\psi} = 0.1000 \pm 0.0405$

$N_{\psi'} = 4 \pm 0$

$\chi^2/nDoF = 0.35$

$S/B_{\psi(2S)} = 50.38$

$S/\sqrt{S+B} = 1.11$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.21

p2: 1.38

p3: 0.10

p4: 0.19

p5: 1.07

p6: -0.02

t1: -0.82

t2: 2.07

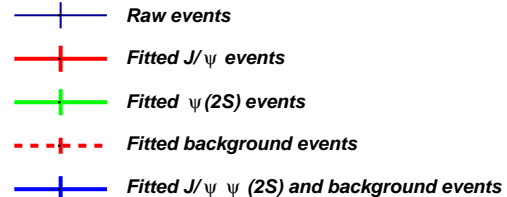
Background Normalization factor: 0.878 ± 1.810

a1: 2.063 ± 0.722

a2: 0.253 ± 0.574

a3: -0.158 ± 2.019

a4: 0.945 ± 2.105



$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

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$2.5 < y < 4$

fitFuncNA60VWG_geant3_2.40_4.70

$N_{J/\psi} = 52 \pm 7$

Mass = 3.0987 ± 0.0180

$\sigma_{J/\psi} = 0.1000 \pm 0.0402$

$N_{\psi'} = 0 \pm 0$

$\chi^2/nDoF = 0.31$

$S/B_{3\sigma} = 18.73$

$S/\sqrt{S+B} = 1.08$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.20

p2: 1.58

p3: 0.16

p4: 0.19

p5: 1.07

p6: -0.02

t1: -0.55

t2: 2.06

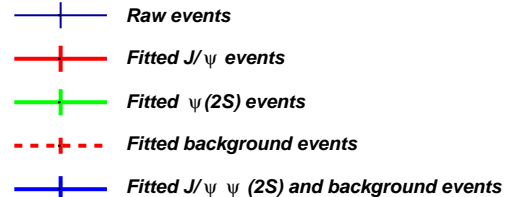
Background Normalization factor: 4.558 ± 38.351

a1: 2.451 ± 0.008

a2: 0.001 ± 0.006

a3: 0.877 ± 0.571

a4: 0.058 ± 0.260



$m_{\mu\mu}$ (GeV/c²)

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fitFuncNA60Pol2_geant3_2.20_4.50

$N_{J/\psi} = 50 \pm 7$

Mass = 3.0938 ± 0.0168

$\sigma_{J/\psi} = 0.0979 \pm 0.0432$

$N_{\psi'} = -3 \pm 0$

$\chi^2/nDoF = 0.34$

$S/B = 9.55$

$S/\sqrt{S+B} = 1.02$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.21

p2: 1.38

p3: 0.10

p4: 0.19

p5: 1.07

p6: -0.02

t1: -0.82

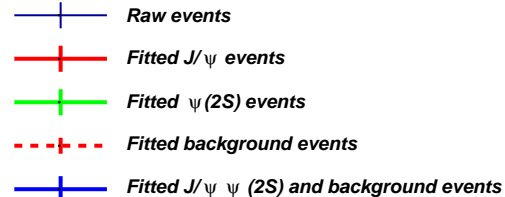
t2: 2.07

Background Normalization factor: 0.710 ± 0.224

a1: -8.970 ± 0.577 ; a2: 4.14616 ± 0.230

b1: -9.414 ± 1.226 ; b2: -8.225 ± 0.318

b3: -0.391 ± 0.217 ; b4: 2.819 ± 0.078



$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncNA60Pol2_geant3_2.40_4.70

$N_{J/\psi} = 50 \pm 0$

Mass = 3.0981 ± 0.0088

$\sigma_{J/\psi} = 0.0913 \pm 0.0050$

$N_{\psi'} = 7 \pm 0$

$\chi^2/\text{nDoF} = 0.39$

S/B = 14.11

S/ $\sqrt{S+B} = 1.04$

Fit Status = 4

Fit Validity : bad

Fit Cov Matrix Status = 2

p1: 0.20

p2: 1.58

p3: 0.16

p4: 0.19

p5: 1.07

p6: -0.02

t1: -0.55

t2: 2.06

Background Normalization factor: 16.130 ± 13.752

a1: 0.549 ± 0.111 ; a2: -0.16372 ± 0.026

b1: 25.943 ± 0.006 ; b2: 37.182 ± 0.002

b3: 11.808 ± 0.001 ; b4: -4.477 ± 0.000

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$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

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$2.5 < y < 4$

```
fitfunc.CS2Exp_pp13_2.26_A.50

N_{ps} = 6 ± 4

Mass = 3.1855 ± 0.0022

σ_{ps} = 0.0403 ± 0.0009

N_{b1} = 3 ± 0

χ² / ndof = 22.83

S/N = 15641.407380388644173932020355469551874784017352428587427883277238622888431238735262062903667641870232258922058864345488443232731265763769822664.00

S/N = 10.37

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 5.97

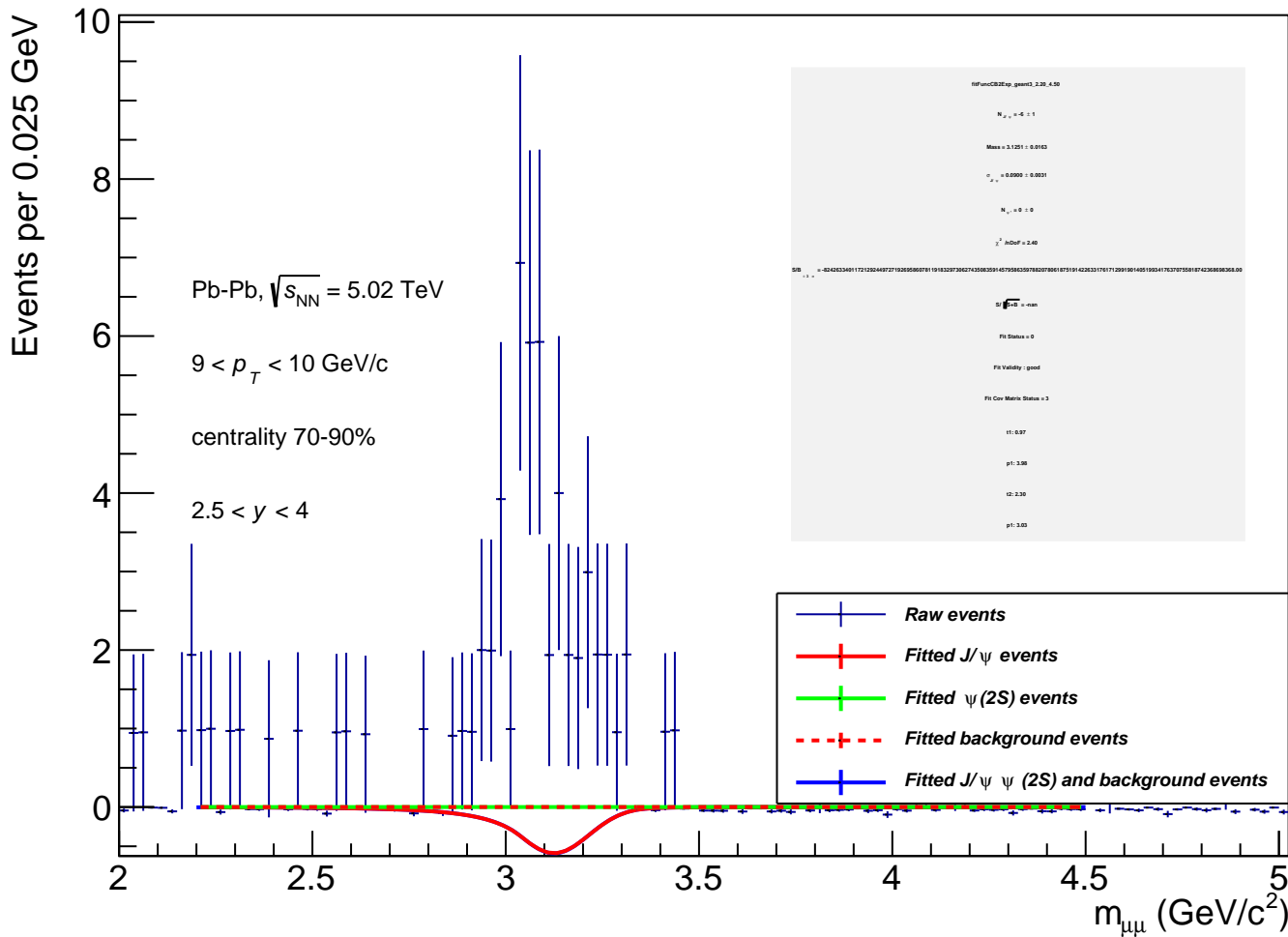
p1: 5.97

t2: 1.86

p1: 14.99
```

Raw events
Fitted J/ψ events
Fitted $\psi(2S)$ events
Fitted background events
Fitted J/ψ $\psi(2S)$ and background events

$m_{\mu\mu}$ (GeV/c²)



Events per 0.025 GeV

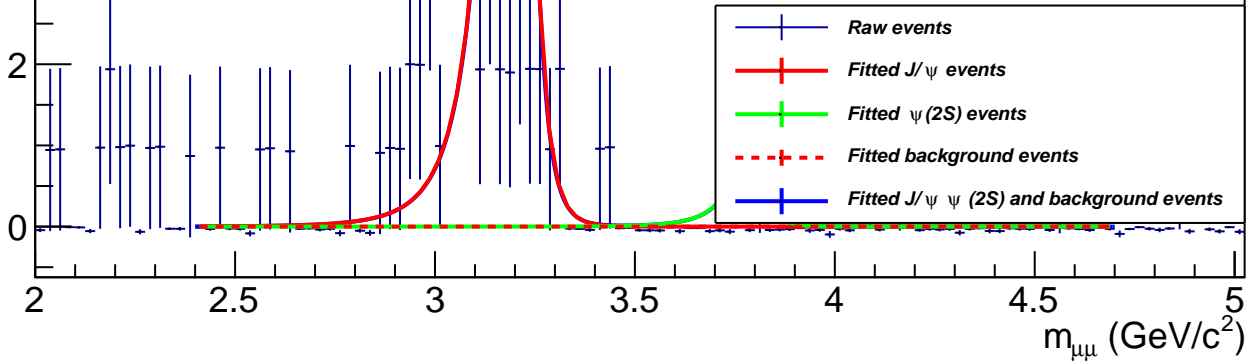
Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

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fitFuncCB2Exp_pp13_2.40_4.70
 $N_{J/\psi} = 60 \pm 0$
Mass = 3.1813 ± 0.0011
 $\sigma_{J/\psi} = 0.0495 \pm 0.0004$
 $N_{\psi'} = 4 \pm 0$
 $\chi^2/\text{nDoF} = 33.17$
S/B $_{\pm 3\sigma} = 20394418188652024137678585856.00$
S/ $\sqrt{S+B} = 1.18$
Fit Status = 4
Fit Validity : bad
Fit Cov Matrix Status = 1
t1: 0.97
p1: 6.97
t2: 1.86
p1: 14.99



Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

fitFuncCB2Exp_geant3_2.40_4.70

$N_{J/\psi} = 7 \pm 4$

Mass = 3.1852 ± 0.0264

$\sigma_{J/\psi} = 0.0400 \pm 0.0025$

$N_{\psi'} = 0 \pm 0$

$\chi^2/nDoF = 1.73$

$S/B_{\pm 3\sigma} = -40.31$

$S/\sqrt{S+B} = 0.41$

Fit Status = 0

Fit Validity : good

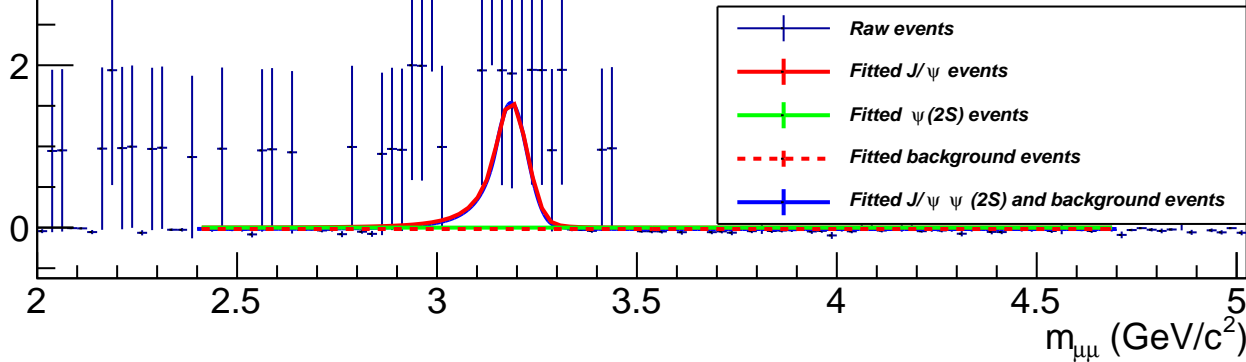
Fit Cov Matrix Status = 3

t1: 0.97

p1: 3.98

t2: 2.30

p1: 3.03



Events per 0.025 GeV

Pb-Pb, $\sqrt{s_{NN}} = 5.02$ TeV

$9 < p_T < 10$ GeV/c

centrality 70-90%

$2.5 < y < 4$

```
fitfuncM42Exp_gauss1_2,30_4,50  
  
Nmuon = 4 ± 1  
  
Mass = 3.0965 ± 0.0163  
  
 $\sigma$   
 $\sigma$  = 0.1000 ± 0.0027  
 $\sigma$   
 $\sigma$  = 0 ± 0  
  
 $\chi^2$  /ndof = 2.32  
  
S/B = -19424846692209222363816436212306157560314144276586305303040647897919633343534133278770231644166800478489100381071076152615889504.00  
+1.0  
  
S/B = 10 ± 10  
  
Fit Status = 0  
  
Fit Validity : good  
  
Fit Cov Matrix Status = 3  
  
p1: 0.21  
p2: 1.38  
p3: 0.10  
p4: 0.19  
p5: 1.07  
p6: -0.02  
t1: -0.82  
t2: 3.97
```

Raw events
Fitted J/ψ events
Fitted ψ(2S) events
Fitted background events
Fitted J/ψ ψ(2S) and background events

$m_{\mu\mu}$ (GeV/c²)

Events per 0.025 GeV

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$9 < p_T < 10$ GeV/c

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```
fitFuncNA60Exp_geant3_2.40_4.70
NJ/ψ = -6 ± 1
Mass = 3.0999 ± 0.0190
σJ/ψ = 0.1000 ± 0.0037
Nψ = 0 ± 0
χ2/nDoF = 2.41
S/B3σ = -37231087015273193270128283194029106915844317773824.00
S/√(S+B) = -nan
Fit Status = 0
Fit Validity : good
Fit Cov Matrix Status = 3
p1: 0.21
p2: 1.38
p3: 0.10
p4: 0.19
p5: 1.07
p6: -0.02
t1: -0.82
t2: 2.07
```

—+— *Raw events*
—+— *Fitted J/ψ events*
—+— *Fitted ψ(2S) events*
- - + - *Fitted background events*
—+— *Fitted J/ψ ψ(2S) and background events*

$m_{\mu\mu}$ (GeV/c²)