

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2VWG\_pp13\_2.20\_4.50

$N_{J/\psi} = 214 \pm 18$

Mass =  $3.0956 \pm 0.0071$

$\sigma_{J/\psi} = 0.0688 \pm 0.0067$

$N_{\psi'} = 13 \pm 1$

$\chi^2/nDoF = 1.03$

$S/B = 5.25$

$S/\sqrt{S+B} = 2.05$

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:  $319.987 \pm 166.939$

a1:  $13.990 \pm 4.148$

a2:  $3.968 \pm 0.539$

a3:  $8.417 \pm 1.624$

a4:  $9.984 \pm 3.416$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

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$2.5 < y < 4$

fitFuncCB2VWG\_geant3\_2.20\_4.50

$N_{J/\psi} = 220 \pm 20$

Mass =  $3.0928 \pm 0.0072$

$\sigma_{J/\psi} = 0.0726 \pm 0.0075$

$N_{\psi'} = 10 \pm 8$

$\chi^2/nDoF = 1.00$

$S/B_{\pm 3\sigma} = 5.21$

$S/\sqrt{S+B} = 2.07$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.15

p1: 3.84

t2: 1.98

p1: 2.28

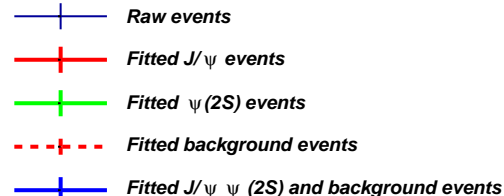
Background Normalization factor:  $320.000 \pm 220.882$

a1:  $13.395 \pm 6.272$

a2:  $4.029 \pm 1.143$

a3:  $8.656 \pm 3.219$

a4:  $9.970 \pm 18.745$



$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2VWG\_pp13\_2.40\_4.70

$N_{J/\psi} = 213 \pm 18$

Mass =  $3.0955 \pm 0.0070$

$\sigma_{J/\psi} = 0.0684 \pm 0.0070$

$N_{\psi'} = 13 \pm 1$

$\chi^2/nDoF = 1.05$

$S/B_{\pm 3\sigma} = 5.15$

$S/\sqrt{S+B} = 2.04$

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:  $7.255 \pm 7.344$

a1:  $0.000 \pm 0.000$

a2:  $1.195 \pm 0.339$

a3:  $0.000 \pm 0.000$

a4:  $-0.000 \pm 0.000$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2VWG\_geant3\_2.40\_4.70

$N_{J/\psi} = 221 \pm 18$

Mass =  $3.0926 \pm 0.0071$

$\sigma_{J/\psi} = 0.0727 \pm 0.0071$

$N_{\psi'} = 13 \pm 1$

$\chi^2/nDoF = 1.04$

$S/B = 5.46$

$S/\sqrt{S+B} = 2.08$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.13

p1: 4.18

t2: 1.97

p1: 2.30

Background Normalization factor:  $319.763 \pm 270.862$

a1:  $0.000 \pm 0.001$

a2:  $0.139 \pm 0.194$

a3:  $0.000 \pm 0.000$

a4:  $-0.000 \pm 0.000$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2Pol\_pp13\_2.20\_4.50

$N_{J/\psi} = 211 \pm 19$

Mass =  $3.0956 \pm 0.0070$

$\sigma_{J/\psi} = 0.0681 \pm 0.0072$

$N_{\psi'} = 6 \pm 7$

$\chi^2/nDoF = 0.99$

S/B <sub>$\pm 3\sigma$</sub>  = 4.89

S/  $\sqrt{S+B}$  = 2.03

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 0.97

p1: 6.97

t2: 1.86

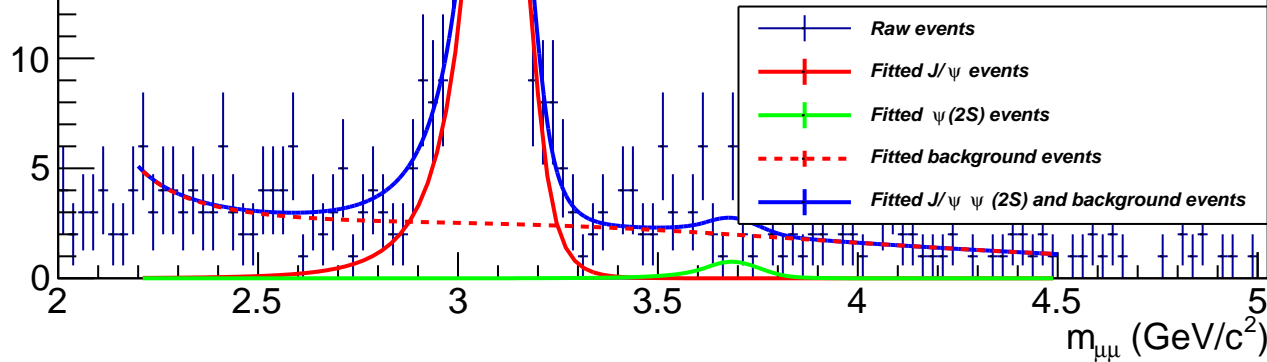
p1: 14.99

Background Normalization factor:  $0.090 \pm 0.089$

a1:  $1.700 \pm 0.174$ ; a2:  $1.34498 \pm 0.109$

b1:  $-9.333 \pm 1.044$ ; b2:  $9.553 \pm 0.551$

b3:  $-3.192 \pm 0.038$ ; b4:  $0.372 \pm 0.029$



Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2Pol\_geant3\_2.20\_4.50

$N_{J/\psi} = 225 \pm 19$

Mass =  $3.0916 \pm 0.0072$

$\sigma_{J/\psi} = 0.0741 \pm 0.0073$

$N_{\psi'} = 14 \pm 1$

$\chi^2/nDoF = 1.03$

$S/B_{\pm 3\sigma} = 5.71$

$S/\sqrt{S+B} = 2.10$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.15

p1: 3.84

t2: 1.98

p1: 2.28

Background Normalization factor:  $0.489 \pm 1.371$

a1:  $0.326 \pm 0.065$ ; a2:  $0.37908 \pm 0.138$

b1:  $-6.268 \pm 1.827$ ; b2:  $5.884 \pm 0.429$

b3:  $-1.794 \pm 0.706$ ; b4:  $0.222 \pm 0.098$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2Pol\_pp13\_2.40\_4.70

$N_{J/\psi} = 224 \pm 20$

Mass =  $3.0931 \pm 0.0072$

$\sigma_{J/\psi} = 0.0716 \pm 0.0077$

$N_{\psi'} = 26 \pm 3$

$\chi^2/nDoF = 1.27$

S/B <sub>$\pm 3\sigma$</sub>  = 6.65

S/  $\sqrt{S+B}$  = 2.14

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:  $0.054 \pm 0.081$

a1:  $6.181 \pm 0.190$ ; a2:  $1.02078 \pm 0.153$

b1:  $-9.829 \pm 2.072$ ; b2:  $8.647 \pm 2.271$

b3:  $-2.458 \pm 1.112$ ; b4:  $0.253 \pm 0.131$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncCB2Pol\_geant3\_2.40\_4.70

$N_{J/\psi} = 229 \pm 20$

Mass =  $3.0913 \pm 0.0072$

$\sigma_{J/\psi} = 0.0750 \pm 0.0076$

$N_{\psi'} = 14 \pm 1$

$\chi^2/nDoF = 1.04$

S/B<sub>±3 $\sigma$</sub>  = 6.29

S/  $\sqrt{S+B}$  = 2.14

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

t1: 1.13

p1: 4.18

t2: 1.97

p1: 2.30

Background Normalization factor:  $0.037 \pm 0.040$

a1:  $6.593 \pm 0.126$ ; a2:  $0.74818 \pm 0.059$

b1:  $-9.548 \pm 0.366$ ; b2:  $8.699 \pm 0.406$

b3:  $-2.567 \pm 0.345$ ; b4:  $0.263 \pm 0.055$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)



Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncNA60VWG\_geant3\_2.20\_4.50

$N_{J/\psi} = 218 \pm 18$

Mass =  $3.0932 \pm 0.0070$

$\sigma_{J/\psi} = 0.0611 \pm 0.0059$

$N_{\psi'} = 9 \pm 7$

$\chi^2/\text{ndof} = 0.99$

S/B = 5.87

$S/\sqrt{S+B} = 2.05$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.23

p2: 0.98

p3: -0.01

p4: 0.13

p5: 2.26

p6: 0.17

t1: -1.01

t2: -1.00

Background Normalization factor:  $319.594 \pm 160.196$

a1:  $14.202 \pm 4.132$

a2:  $3.963 \pm 0.532$

a3:  $8.370 \pm 1.608$

a4:  $10.000 \pm 17.231$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncNA60VWG\_geant3\_2.40\_4.70

$N_{J/\psi} = 217 \pm 20$

Mass =  $3.0931 \pm 0.0071$

$\sigma_{J/\psi} = 0.0610 \pm 0.0064$

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

$\chi^2/nDoF = 1.01$

$S/B = 5.73$

$S/(S+B) = 2.04$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.23

p2: 1.00

p3: 0.00

p4: 0.13

p5: 2.26

p6: 0.17

t1: -0.99

t2: -1.00

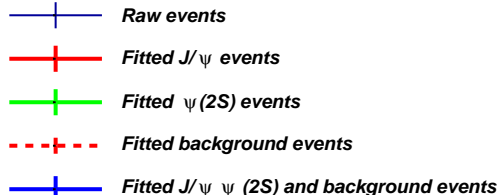
Background Normalization factor:  $11.843 \pm 293.575$

a1:  $0.376 \pm 0.962$

a2:  $0.303 \pm 5.824$

a3:  $0.208 \pm 0.576$

a4:  $-0.006 \pm 0.042$



$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncNA60Pol2\_geant3\_2.20\_4.50

$N_{J/\psi} = 223 \pm 19$

Mass =  $3.0920 \pm 0.0071$

$\sigma_{J/\psi} = 0.0623 \pm 0.0061$

$N_{\psi'} = 13 \pm 1$

$\chi^2/nDoF = 1.02$

$S/B = 6.36$

$S/\sqrt{S+B} = 2.09$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.23

p2: 0.98

p3: -0.01

p4: 0.13

p5: 2.26

p6: 0.17

t1: -1.01

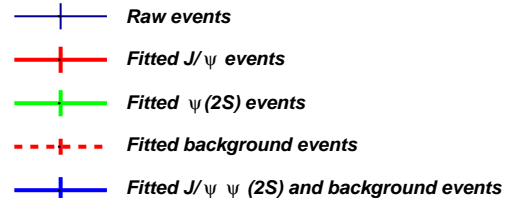
t2: -1.00

Background Normalization factor:  $0.436 \pm 1.074$

a1:  $0.762 \pm 0.100$ ; a2:  $0.08634 \pm 0.062$

b1:  $-4.875 \pm 1.266$ ; b2:  $4.656 \pm 0.342$

b3:  $-1.406 \pm 0.441$ ; b4:  $0.162 \pm 0.062$



35  
30  
25  
20  
15  
10  
5  
0

2

2.5

3

3.5

4

4.5

5

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

Events per 0.025 GeV

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

$11 < p_T < 12$  GeV/c

centrality 40-90%

$2.5 < y < 4$

fitFuncNA60Pol2\_geant3\_2.40\_4.70

$N_{J/\psi} = 220 \pm 19$

Mass =  $3.0920 \pm 0.0072$

$\sigma_{J/\psi} = 0.0620 \pm 0.0062$

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

$\chi^2/nDoF = 1.00$

$S/B = 5.92$

$S/\sqrt{S+B} = 2.06$

Fit Status = 0

Fit Validity : good

Fit Cov Matrix Status = 3

p1: 0.23

p2: 1.00

p3: 0.00

p4: 0.13

p5: 2.26

p6: 0.17

t1: -0.99

t2: -1.00

Background Normalization factor:  $0.078 \pm 0.062$

a1:  $-18.898 \pm 29.839$ ; a2:  $9.78977 \pm 19.542$

b1:  $-29.812 \pm 0.700$ ; b2:  $29.535 \pm 0.338$

b3:  $-9.854 \pm 0.140$ ; b4:  $1.148 \pm 0.050$

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

$m_{\mu\mu}$  (GeV/c<sup>2</sup>)

