Results Models

SG (Single Gaussian)

[1] $F = 0.294 \pm 0.001$
$a = 0.00230 \pm 5 \times 10^{-5} (MeV/c^2)^{-1}$
$\mu = 3096.90 \pm 0.03\ MeV/c^2$
$\sigma = 13.70 \pm 0.03\ MeV/c^2$

~~DG (Double Gaussian)~~

~~(1] $F = 0.267 \pm 0.001$~~
~~$a = 0.00212 \pm 6 \times 10^{-5} (MeV/c^2)^{-1}$~~
~~$\mu_1 = 3097.51 \pm 0.05\ MeV/c^2$~~
~~$\mu_2 = 3093.6 \pm 0.3\ MeV/c^2$~~
~~$\sigma_1 = 11.70 \pm 0.07\ MeV/c^2$~~
~~$\sigma_2 = 22.4 \pm 0.4\ MeV/c^2$~~
~~$Q = 0.72 \pm 0.01$~~

Removed μ_2 from Double Gaussian, as having just μ_1 improved results residuals. Thus, more accurate.

$2996.917\ MeV/c^2 < m_0 < 3196.898\ MeV/c^2$

CB (Crystal Ball)

[1] $n = 3 \pm 16$

$\alpha = 6 \pm 6$

$\mu = 3096.91 \pm 0.03\ MeV/c^2$

$\sigma = 13.69 \pm 0.03\ MeV/c^2$

$F = 0.294 \pm 0.001$

$a = 0.00230 \pm 5 \times 10^{-5}\ (MeV/c^2)^{-1}$

DG (Double Gaussian)

[1] $F = 0.270 \pm 0.001$

$a = 0.00245 \pm 6 \times 10^{-5}\ (MeV/c^2)^{-1}$

$\mu = 3096.92 \pm 0.03\ MeV/c^2$

$\sigma_1 = 11.49 \pm 0.03\ MeV/c^2$

$\sigma_2 = 21.21 \pm 0.07\ MeV/c^2$

$Q = 0.68 \pm 0.01$

For Definitions refer to:

[1] A. Anderson, "Proofs and definitions for modeling invariant mass data J/ψ meson production." [Unpublished Manuscript], University of Edinburgh, Nov 2020.