

STAR $p+p \rightarrow p' + \pi^+ \pi^- + p' \quad \sqrt{s} = 200 \text{ GeV}$ $\pi^+, \pi^-:$ $p_T > 0.2 \text{ GeV}$ $|\eta| < 0.7$ $m(\pi^+ \pi^-) > 1.5 \text{ GeV}$ $p': (p_x + 0.3 \text{ GeV})^2 + p_y^2 < 0.25 \text{ GeV}^2$ $0.2 \text{ GeV} < |p_y| < 0.4 \text{ GeV}$ $p_x > -0.2 \text{ GeV}$

Ratio to nominal

1.2

1

-1

-0.5

0

0.5

1

 $\cos \theta^{\text{GJ}}(\pi^+)$ $\Delta \epsilon_{\text{TPC}}$ (embed. stat.) $\Delta \epsilon_{\text{TPC}}$ (dead mat.) $\Delta \epsilon_{\text{RP}}$ $\Delta \epsilon_{\text{RP}}$ $\Delta \epsilon_{\text{veto}}$ $\Delta \sigma(z_{\text{vtx}})$ $\Delta \text{Luminosity}$ $\Delta \epsilon_{\text{TPC}}$ (pile-up) $\Delta \epsilon_{\text{TOF}}$ $\Delta \epsilon_{\text{DM veto}}$ $\Delta \epsilon_{\text{RP}}$ $\Delta \epsilon_{\text{vtx}}$ $\Delta \langle z \rangle_{\text{vtx}}$ $\Delta N_{\text{bkgd}}^{\text{non-excl}}$

Total (w/o lumi.)

Total (w/ lumi.)