\( \chi_{c1}(3872) \) production in \( pPb \) and \( PbP \) collisions at \( \sqrt{s_{NN}} = 8.16 \) TeV

LHCb collaboration

Abstract

This document shows performance plots of the \( J/\psi \pi^+\pi^- \) invariant mass spectra from \( pPb \) and \( PbP \) collisions at \( \sqrt{s_{NN}} = 8.16 \) TeV, to be shown at the conference Quark Matter 2019. Once combined with appropriate efficiency corrections, this data can be used to place limits on the nuclear modification factor of the exotic \( \chi_{c1}(3872) \) state.
Figure 1: The $J/\psi \pi^+\pi^-$ invariant mass spectrum from $p\text{Pb}$ data recorded at $\sqrt{s_{NN}} = 8.16$ TeV. The solid black line shows the total fit, which is composed of a third order Chebychev polynomial representing the background (red dashed line) and a Gaussian representing the $\chi_{c1}(3872)$ resonance (blue shaded area). The signal significance is $3.9\sigma$. 
Figure 2: The $J/\psi \pi^+ \pi^-$ invariant mass spectrum from Pb$p$ data recorded at $\sqrt{s_{NN}} = 8.16$ TeV. The solid black line shows the total fit, which is composed of a third order Chebychev polynomial representing the background (red dashed line) and a Gaussian representing the $\chi_{c1}(3872)$ resonance (blue shaded area). The signal significance is 2.6$\sigma$.