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Estimation of non-prompt fake muon background in scattering of two massive vector bosons (VBS), W W → W W .

Tuesday, 5 July 2016 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

$W^{\pm}W^{\pm} \rightarrow W^{\pm}W^{\pm}$ is a rare Standard Model process which can be used to investigate the spontaneous symmetry breaking present in the Standard Model. Previous analysis using $\sqrt{s} = 8$ TeV proton-proton collision data recorded by the ATLAS detector at the Large Hadron Collider analysed $W^{\pm}W^{\pm}$jj production cross sections in two fiducial regions with different sensitivities to the electroweak and strong production mechanisms. Events with two reconstructed same sign leptons ($e^{\pm} e^{\pm}$,$e^{\pm} \mu^{\pm}$, and $\mu^{\pm}\mu^{\pm}$) and two jets were analysed. First evidence for $W^{\pm}W^{\pm}$ production and electroweak only production were observed to a significance of 4.5 and 3.6 standard deviations respectively. Starting in 2015, analysis is underway to attempt to increase the significance for the measurements using $\sqrt{s} = 13$ TeV proton-proton collision data recorded by the ATLAS detector at the Large Hadron Collider. Since the process is very rare, it is dominated by various backgrounds, one of which is tt^{-} decay. In this presentation we discuss estimating the fake muon background coming from tt^{-}decay using Monte Carlo simulations.

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Main supervisor (name and email)
and his / her institution

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