Contribution ID: **997** Type: **Parallel session talk**

Four top final states with NLO accuracy in perturbative QCD: 4 lepton channel

Thursday 18 July 2024 17:54 (18 minutes)

We will report on the calculation of the next-to-leading order QCD corrections to the Standard Model process $pp \to t\bar{t}t\bar{t}$ in the 4ℓ top-quark decay channel. Higher-order QCD effects in both the production and decays of the four top quarks are taken into account. The latter effects are treated in the narrow width approximation, which preserves top-quark spin correlations. We will present results for two renormalisation and factorisation scale settings and three different PDF sets. Furthermore, the main theoretical uncertainties associated with the neglected higher-order terms in the perturbative expansion and with the parameterisation of the PDF sets will be presented. The results at the integrated and differential fiducial cross-section level are going to be shown for the LHC Run III center-of-mass energy of $\sqrt{s}$=13.6TeV. Our findings are relevant for precise measurements of the four top-quark fiducial cross sections and the modelling of top-quark decays at the LHC.

Alternate track

1. Strong Interactions and Hadron Physics

I read the instructions above

Yes

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Session Classification: Top Quark and Electroweak Physics

Track Classification: 04. Top Quark and Electroweak Physics