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Soft gluon resummation for the production of four top quarks at the LHC

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In this talk we present results for soft gluon threshold resummation applied to the production of four top quarks. Current theoretical predictions include next-to-leading (NLO) strong and electroweak corrections, yielding a relatively large associated systematic error. By considering the matching of the next-to-leading logarithmic (NLL) result to the available NLO result, we achieve $\text{NLO+NLL}'$ precision for the total cross section, which in addition to logarithmic terms also takes into account $\mathcal{O}(\alpha_s)$ non-logarithmic terms that do not vanish at threshold. The threshold-resummed result shows an improved scale dependence when compared to the fixed-order calculation.

Summary

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