

Abstract Submitted  
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**NNLO  $t$ -channel single-top-quark production revisited<sup>1</sup>** ZACK SULLIVAN, Illinois Institute of Technology, JOHN CAMPBELL, Fermi National Accelerator Laboratory, TOBIAS NEUMANN, Illinois Institute of Technology — Single-top-quark production is an important channel for measuring the top-quark mass, the Cabibbo-Kobayashi-Maskawa matrix element  $V_{tb}$ , and provides strong constraints on the parton distribution functions. Previous NNLO QCD calculations of  $t$ -channel production disagree by 100% of the size of the NNLO correction, and are limited to using top-quark mass as a fixed choice of scale. We present a new fully differential NNLO calculation that allows for a variety of scale choices and tracks  $b$ -flavored jets.

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