

DIS 2015

XXIII International Workshop on
Deep-Inelastic Scattering and
Related Subjects

Dallas, Texas
April 27 – May 1, 2015



Contribution ID: 55

Type: **not specified**

N³LO approximate results for top-quark differential cross sections and forward-backward asymmetry

Wednesday, 29 April 2015 09:20 (20 minutes)

I present a calculation of approximate N³LO corrections from NNLL soft-gluon resummation for differential distributions in top-antitop pair production in hadronic collisions. I show that soft-gluon corrections are the dominant contribution to top-quark production and closely approximate exact results through NNLO. I show aN³LO results for the total $t\bar{t}$ cross section, the top-quark p_T and rapidity distributions, and the top-quark forward-backward asymmetry. The higher-order corrections are significant and they reduce theoretical uncertainties.

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Session Classification: WG5 Heavy Flavours

Track Classification: WG5 Heavy Flavours