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Study of the underlying event in top quark pair production in pp collisions at 13 TeV

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Abstract

Measurements of normalized differential cross sections as functions of the multiplicity and kinematic variables of charged-particle tracks from the underlying event in top quark and antiquark pair production are presented. The measurements are performed in proton-proton collisions at a center-of-mass energy of 13<, and are based on data collected by the CMS experiment at the LHC in 2016 corresponding to an integrated luminosity of 35.9fb(-1). Events containing one electron, one muon, and two jets from the hadronization and fragmentation of b quarks are used. These measurements characterize, for the first time, properties of the underlying event in top quark pair production and show no deviation from the universality hypothesis at energy scales typically above twice the top quark mass.

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1. [GEANT4-a simulation toolkit](#) Times Cited: **10,384**
 By: Agostinelli, S; Allison, J; Amako, K; et al.
 NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT Volume: 506 Issue: 3 Pages: 250-303 Published: JUL 1 2003
2. Title: [not available] Times Cited: **2**
 By: ALIOLI S
 JHEP Volume: 9 Pages: 11 Published: 2009
3. [A general framework for implementing NLO calculations in shower Monte Carlo programs: the POWHEG BOX](#) Times Cited: **863**
 By: Alioli, Simone; Nason, Paolo; Oleari, Carlo; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 6 Article Number: 043 Published: JUN 2010
4. [NLO single-top production matched with shower in POWHEG: s- and t-channel contributions](#) Times Cited: **215**
 By: Alioli, Simone; Nason, Paolo; Oleari, Carlo; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 9 Article Number: 111 Published: SEP 2009
5. [Geant4 developments and applications](#) Times Cited: **2,726**
 By: Allison, J; Amako, K; Apostolakis, J; et al.
 IEEE TRANSACTIONS ON NUCLEAR SCIENCE Volume: 53 Issue: 1 Pages: 270-278 Part: 2 Published: FEB 2006
6. [Recent developments in GEANT4](#) Times Cited: **328**
 By: Allison, J.; Amako, K.; Apostolakis, J.; et al.
 NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT Volume: 835 Pages: 186-225 Published: NOV 1 2016
7. [Comparative study of various algorithms for the merging of parton showers and matrix elements in hadronic collisions](#) Times Cited: **439**
 By: Alwall, J.; Hoche, S.; Krauss, F.; et al.
 EUROPEAN PHYSICAL JOURNAL C Volume: 53 Issue: 3 Pages: 473-500 Published: FEB 2008
8. [The automated computation of tree-level and next-to-leading order differential cross sections, and their matching to parton shower simulations](#) Times Cited: **1,873**
 By: Alwall, J.; Frederix, R.; Frixione, S.; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 7 Article Number: 079 Published: JUL 17 2014
9. [Effects of color reconnection on \$t\bar{t}\$ over-bar final states at the LHC](#) Times Cited: **14**
 By: Argyropoulos, Spyros; Sjostrand, Torbjorn
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 11 Article Number: 043 Published: NOV 10 2014
10. [Automatic spin-entangled decays of heavy resonances in Monte Carlo simulations](#) Times Cited: **139**
 By: Artoisenet, Pierre; Frederix, Rikkert; Mattelaer, Olivier; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 3 Article Number: 015 Published: MAR 2013
11. [Combination of inclusive and differential \$t\bar{t}\$ measurements using ATLAS and CMS data at \$s = 7\$](#) Times Cited: **2**
 $\documentclass[12pt]{minimal} \usepackage{amsmath} \usepackage{wasysym} \usepackage{amsfonts} \usepackage{amssymb} \usepackage{amsbsy} \usepackage{mathrsfs} \usepackage{upgreek} \setlength{\oddsidemargin}{-69pt} \begin{document} \text{t} \overline{\text{t}} \end{document} charge asymmetry measurements using ATLAS and CMS data at $s = 7$ \documentclass[12pt]{minimal} \usepackage{amsmath}$

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JHEP Volume: 04 Article Number: 033 Published: 2018

12. **Measurement of jet shapes in top-quark pair events at $s = 7 \text{ TeV}$ using the ATLAS detector** Times Cited: **10**
 Group Author(s): ATLAS Collaboration
 Eur. Phys. J. Volume: C 73 Pages: 2676 Published: 2013
13. **Herwig plus physics and manual** Times Cited: **902**
 By: Baehr, Manuel; Gieseke, Stefan; Gigg, Martyn A.; et al.
 EUROPEAN PHYSICAL JOURNAL C Volume: 58 Issue: 4 Pages: 639-707 Published: DEC 2008
14. **Parton distributions for the LHC run II** Times Cited: **611**
 By: Ball, Richard D.; Bertone, Valerio; Carrazza, Stefano; et al.
 Group Author(s): NNPDF Collaboration
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 4 Article Number: 040 Published: APR 8 2015
15. **Herwig 7.0/Herwig++3.0 release note** Times Cited: **129**
 By: Bellm, Johannes; Gieseke, Stefan; Grellscheid, David; et al.
 EUROPEAN PHYSICAL JOURNAL C Volume: 76 Issue: 4 Article Number: 196 Published: APR 11 2016
16. **Effects of overlapping strings in pp collisions** Times Cited: **41**
 By: Bierlich, Christian; Gustafson, Gosta; Lonnblad, Leif; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 3 Article Number: 148 Published: MAR 26 2015
17. **Effects of color reconnection on hadron flavor observables** Times Cited: **25**
 By: Bierlich, Christian; Christiansen, Jesper Roy
 PHYSICAL REVIEW D Volume: 92 Issue: 9 Article Number: 094010 Published: NOV 5 2015
18. **Rivet user manual** Times Cited: **162**
 By: Buckley, Andy; Butterworth, Jonathan; Grellscheid, David; et al.
 COMPUTER PHYSICS COMMUNICATIONS Volume: 184 Issue: 12 Pages: 2803-2819 Published: DEC 2013
19. **The $t\bar{t}$ cross-section at 1.8 and 1.96 TeV: a study of the systematics due to parton densities and scale dependence** Times Cited: **149**
 By: Cacciari, M; Frixione, S; Ridolfi, G; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 4 Article Number: 068 Published: APR 2004
20. **FastJet user manual** Times Cited: **1,603**
 By: Cacciari, Matteo; Salam, Gavin P.; Soyez, Gregory
 EUROPEAN PHYSICAL JOURNAL C Volume: 72 Issue: 3 Article Number: 1896 Published: MAR 2012
21. **The anti-k(t) jet clustering algorithm** Times Cited: **1,861**
 By: Cacciari, Matteo; Salam, Gavin P.; Soyez, Gregory
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 4 Article Number: 063 Published: APR 2008
22. **Scattering Amplitudes with Open Loops** Times Cited: **334**
 By: Cascioli, F.; Maierhoefer, P.; Pozzorini, S.
 PHYSICAL REVIEW LETTERS Volume: 108 Issue: 11 Article Number: 111601 Published: MAR 12 2012
23. **Soft-gluon resummation for Higgs boson production at hadron colliders** Times Cited: **341**
 By: Catani, S; de Florian, D; Grazzini, M; et al.
 JOURNAL OF HIGH ENERGY PHYSICS Issue: 7 Article Number: 028 Published: JUL 2003
24. **Description and performance of track and primary-vertex reconstruction with the CMS tracker** Times Cited: **168**
 By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al.
 Group Author(s): CMS Collaboration

JOURNAL OF INSTRUMENTATION Volume: 9 Article Number: P10009 Published: OCT 2014

25. **Performance of CMS muon reconstruction in pp collision events at root s=7TeV** Times Cited: 347
By: Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; et al.
Group Author(s): CMS Collaboration
JOURNAL OF INSTRUMENTATION Volume: 7 Article Number: P10002 Published: OCT 2012
26. **The CMS experiment at the CERN LHC** Times Cited: 1,583
By: Chatrchyan, S.; Hmayakyan, G.; Khachatryan, V.; et al.
Group Author(s): CMS Collaboration
JOURNAL OF INSTRUMENTATION Volume: 3 Article Number: S08004 Published: AUG 2008
27. **String formation beyond leading colour** Times Cited: 36
By: Christiansen, Jesper R.; Skands, Peter Z.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 8 Article Number: 003 Published: AUG 3 2015
28. **Tracking POG plot results on 2015 data** Times Cited: 1
Group Author(s): CMS Collaboration
CMS Detector Performance Summary CMS-DP-2016-2012 Published: 2016
29. **Object definitions for top quark analyses at the particle level.** Times Cited: 1
Group Author(s): CMS Collaboration
CMS Note 2017-004 Published: 2017
30. **CMS luminosity measurements for the 2016 data taking period** Times Cited: 52
Group Author(s): CMS Collaboration
CMS Physics Analysis Summary CMS-PAS-LUM-17-001 Published: 2017

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