

Document details

[< Back to results](#) | 1 of 53 [Next >](#)[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)[View at Publisher](#)European Physical Journal C [Open Access](#)
Volume 79, Issue 2, February 2019, Article number 123Study of the underlying event in top quark pair production in p p collisions at 13 TeV (Article) [\(Open Access\)](#)Sirunyan, A.M.^a, Tumasyan, A.^a, Adam, W.^b, Ambrogi, F.^b, Asilar, E.^b, Bergauer, T.^b, Brandstetter, J.^b, Brondolin, E.^b, Dragicevic, M.^b, Erö, J.^b, Del Valle, A.E.^b, Flechl, M.^b, Frühwirth, R.^b, Ghete, V.M.^b, Hrubec, J.^b, Jeitler, M.^b, Krammer, N.^b, Krätschmer, I.^b, Liko, D.^b, Madlener, T.^b, Mikulec, I.^b, Rad, N.^b,[View additional authors](#) [v](#)^aYerevan Physics Institute, Yerevan, Armenia^bInstitut für Hochenergiephysik, Vienna, Austria^cInstitute for Nuclear Problems, Minsk, Belarus[View additional affiliations](#) [v](#)

Abstract

[v](#) [View references \(74\)](#)

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 TeV, and are based on data collected by the CMS experiment at the LHC in 2016 corresponding to an integrated luminosity of 35.9 fb⁻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. © 2019, CERN for the benefit of the CMS collaboration.

Funding details

Funding sponsor	Funding number	Acronym
Ministry of Science, ICT and Future Planning		MSIP
Ministerstwo Nauki i Szkolnictwa Wyższego		MNiSW
Joint Institute for Nuclear Research		JINR
Austrian Science Fund		FWF
Bundesministerium für Bildung und Forschung		BMBF
Российский Фонд Фундаментальных Исследований (РФФИ)		RFBR
National Academy of Sciences of Ukraine		NASU
National Council for Scientific Research		NCSR
Lietuvos Moksl Akademiija		LMA

Metrics [?](#)

0 Citations in Scopus

0 Field-Weighted Citation Impact

PlumX Metrics [v](#)

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)

Related documents

Measurements of $t\bar{t}$ differential cross sections in proton-proton collisions at $\sqrt{s}=13$ TeV using events containing two leptonsSirunyan, A.M., Tumasyan, A., Adam, W. (2019) *Journal of High Energy Physics*

Top quark modelling and generators in cms

Yazgan, E. (2017) *Proceedings of Science*Measurements of differential cross sections of top quark pair production as a function of kinematic event variables in proton-proton collisions at $\sqrt{s}=13$ TeVSirunyan, A.M., Tumasyan, A., Adam, W. (2018) *Journal of High Energy Physics*[View all related documents based on references](#)[Find more related documents in Scopus based on:](#)

Funding sponsor	Funding number	Acronym
Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung See opportunities by SNF ↗		SNF
Korea Research Council for Industrial Science and Technology		ISTK
Compagnia di San Paolo		
Qatar National Research Fund		QNRF
National Research Foundation of Korea		NRF
General Secretariat for Research and Technology		GSRT
Canadian Mathematical Society See opportunities by CMS ↗		CMS
Russian Academy of Sciences		RAS
A.G. Leventis Foundation		
Thailand Graduate Institute of Science and Technology		TGIST
Academy of Finland		
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior		CAPES
Foundation for Promotion of Cancer Research		
Fonds pour la Formation à la Recherche dans l'Industrie et dans l'Agriculture		FRIA
Chinese Academy of Sciences		CAS
Ministry of Science and Innovation, New Zealand		MSI
European Regional Development Fund		FEDER
Haridus- ja Teadusministeerium		
Ministry of Science and Technology, Croatia		
Anhui Science and Technology Department		
Eesti Teadusagentuur See opportunities ↗	IUT23-6,IUT23-4	
Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional		CINVESTAV
National Science and Technology Development Agency		NSTDA
Conselho Nacional de Desenvolvimento Científico e Tecnológico		CNPq
Fonds Wetenschappelijk Onderzoek		FWO