

## Document details

[< Back to results](#) | 1 of 1[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)[Full Text](#) [View at Publisher](#)Journal of High Energy Physics [Open Access](#)  
Volume 2017, Issue 12, 1 December 2017, Article number 142Search for supersymmetry in events with at least one photon, missing transverse momentum, and large transverse event activity in proton-proton collisions at  $\sqrt{s}=13$  TeV (Article)Sirunyan, A.M.<sup>a</sup>, Tumasyan, A.<sup>a</sup>, Adam, W.<sup>b</sup>, Ambroggi, F.<sup>b</sup>, Asilar, E.<sup>b</sup>, Bergauer, T.<sup>b</sup>, Brandstetter, J.<sup>b</sup>, Brondolin, E.<sup>b</sup>, Dragicevic, M.<sup>b</sup>, Erö, J.<sup>b</sup>, Flechl, M.<sup>b</sup>, Friedl, M.<sup>b</sup>, Frühwirth, R.<sup>bgr</sup>, Ghete, V.M.<sup>b</sup>, Grossmann, J.<sup>b</sup>, Hrubec, J.<sup>b</sup>, Jeitler, M.<sup>bgr</sup>, König, A.<sup>b</sup>, Krammer, N.<sup>b</sup>, Krätschmer, I.<sup>b</sup>, Liko, D.<sup>b</sup>,[View additional authors](#) [v](#)<sup>a</sup>Yerevan Physics Institute, Yerevan, Armenia<sup>b</sup>Institut für Hochenergiephysik, Wien, Austria<sup>c</sup>Institute for Nuclear Problems, Minsk, Belarus[View additional affiliations](#) [v](#)

## Abstract

[v View references \(49\)](#)

A search for physics beyond the standard model in final states with at least one photon, large transverse momentum imbalance, and large total transverse event activity is presented. Such topologies can be produced in gauge-mediated supersymmetry models in which pair-produced gluinos or squarks decay to photons and gravitinos via short-lived neutralinos. The data sample corresponds to an integrated luminosity of  $35.9 \text{ fb}^{-1}$  of proton-proton collisions at  $\sqrt{s}=13$  TeV recorded by the CMS experiment at the LHC in 2016. No significant excess of events above the expected standard model background is observed. The data are interpreted in simplified models of gluino and squark pair production, in which gluinos or squarks decay via neutralinos to photons. Gluino masses of up to 1.50-2.00 TeV and squark masses up to 1.30-1.65 TeV are excluded at 95% confidence level, depending on the neutralino mass and branching fraction.[Figure not available: see fulltext.]. © 2017, The Author(s).

## Author keywords

Hadron-Hadron scattering (experiments) [Photon production](#) [Supersymmetry](#)

## Funding details

Funding number	Funding sponsor	Acronym	Funding opportunities
	Austrian Science Fund	FWF	<a href="#">See opportunities by FWF</a>
	Conselho Nacional de Desenvolvimento Científico e Tecnológico	CNPq	<a href="#">See opportunities by CNPq</a>
	Fundação de Amparo à Pesquisa do Estado de São Paulo	FAPESP	<a href="#">See opportunities by FAPESP</a>
	Secretaría de Educación Superior, Ciencia, Tecnología e Innovación	SENESCYT	<a href="#">See opportunities by SENESCYT</a>
	Center for African Studies	CAS	<a href="#">See opportunities by CAS</a>
	Bundesministerium für Wissenschaft, Forschung und Wirtschaft	BMFWF	<a href="#">See opportunities by BMFWF</a>

[Metrics](#) [View all metrics >](#)1 Citation in Scopus  
0 Field-Weighted Citation Impact[PlumX Metrics](#) [v](#)

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

## Cited by 1 document

Production of  $H H$  and  $H H \nu$  ( $\nu = \gamma, Z$ ) at the hadron colliders  
Agrawal, P. , Saha, D. , Shivaji, A. (2018) *Physical Review D*[View details of this citation](#)

Inform me when this document is cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)Related research data [?](#)Search for supersymmetry in events with at least one photon, missing transverse momentum, and large transverse event activity in proton-proton collisions at  $\sqrt{s}=13$  TeVOvcharova, Ana , et al *JHEP 1712 (2017) 142*Search for supersymmetry in events with at least one photon, missing transverse momentum, and large transverse event activity in proton-proton collisions at  $\sqrt{s}=13$  TeVOvcharova, Ana , et al *Deutsches Elektronen-Synchrotron, DESY, Hamburg*

Search for supersymmetry in events with at least one photon, missing transverse momentum,

Funding number	Funding sponsor	Acronym	Funding opportunities	
	Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro	FAPERJ	See opportunities by FAPERJ↗	and large transverse event activity in proton-proton collisions at $\sqrt{s}=13$ TeV Ovcharova, Ana , et al <i>JHEP 1712 (2017) 142</i>
	CS Fund	CSF	See opportunities by CSF↗	
	Canadian Mathematical Society	CMS	See opportunities by CMS↗	Data linking provided by
	Fonds De La Recherche Scientifique - FNRS	FNRS	See opportunities by FNRS↗	
	European Regional Development Fund	ERDF	See opportunities by ERDF↗	<b>Related documents</b>
	CERN		See opportunities↗	Search for gauge-mediated supersymmetry in events with at least one photon and missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV
	National Natural Science Foundation of China	NSFC	See opportunities by NSFC↗	Sirunyan, A.M. , Tumasyan, A. , Adam, W. <i>(2018) Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i>
	Academy of Finland		See opportunities↗	
	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior	CAPES	See opportunities by CAPES↗	
	Fonds Wetenschappelijk Onderzoek	FWO	See opportunities by FWO↗	Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at $\sqrt{s}=8$ TeV
	Ministerio de Educación y Cultura	MEC	See opportunities by MEC↗	
	Ministry of Education and Science	MES	See opportunities by MES↗	Khachatryan, V. , Sirunyan, A.M. , Tumasyan, A. <i>(2016) Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i>
	Erciyes Üniversitesi		See opportunities↗	
	Research Promotion Foundation	RPF	See opportunities by RPF↗	Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at $\sqrt{s}=8$ TeV
	Hispanics in Philanthropy	HIP	See opportunities by HIP↗	Khachatryan, V. , Sirunyan, A.M. , Tumasyan, A. <i>(2016) Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i>
	Ministerstwo Nauki i Szkolnictwa Wyższego	MNiSW	See opportunities by MNiSW↗	
	European Regional Development Fund	ERDF	See opportunities by ERDF↗	
C-1845	Welch Foundation		See opportunities↗	
675440	European Research Council	ERC	See opportunities by ERC↗	View all related documents based on references
	Fundacja na rzecz Nauki Polskiej	FNP	See opportunities by FNP↗	Find more related documents in Scopus based on:
	Korea Research Council for Industrial Science and Technology	ISTK	See opportunities by ISTK↗	Authors > Keywords >
	Alfred P. Sloan Foundation		See opportunities↗	
	Qatar National Research Fund	QNRF	See opportunities by QNRF↗	
	Agentschap voor Innovatie door Wetenschap en Technologie	IWT	See opportunities by IWT↗	
	Federaal Wetenschapsbeleid	BELSPO	See opportunities by BELSPO↗	
	Chulalongkorn University	CU	See opportunities by CU↗	
	National Research Program for Biopharmaceuticals	NRPB	See opportunities by NRPB↗	
	Alexander von Humboldt-Stiftung		See opportunities↗	

Funding number	Funding sponsor	Acronym	Funding opportunities
	European Geosciences Union	EGU	See opportunities by EGU ↗
	A.G. Leventis Foundation		See opportunities ↗
	Ministerstvo Školství, Mládeže a Tělovýchovy	MŠMT	See opportunities by MŠMT ↗
2014/13/B/ST2/02543	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS ↗
2014/15/B/ST2/03998	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS ↗
Sonata-bis 2012/07/E/ST2/01406	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS ↗
2015/19/B/ST2/02861	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS ↗
Harmonia 2014/14/M/ST2/00428	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS ↗
Thailand	Chulalongkorn University	CU	See opportunities by CU ↗
	Fonds pour la Formation à la Recherche dans l'Industrie et dans l'Agriculture	FRIA	See opportunities by FRIA ↗
	Gobierno del Principado de Asturias		See opportunities ↗

#### Funding text #1

We congratulate our colleagues in the CERN accelerator departments for the excellent performance of the LHC and thank the technical and administrative staffs at CERN and at other CMS institutes for their contributions to the success of the CMS effort. In addition, we gratefully acknowledge the computing centres and personnel of the Worldwide LHC Computing Grid for delivering so effectively the computing infrastructure essential to our analyses. Finally, we acknowledge the enduring support for the construction and operation of the LHC and the CMS detector provided by the following funding agencies: BMWFW and FWF (Austria); FNRS and FWO (Belgium); CNPq, CAPES, FAPERJ, and FAPESP (Brazil); MES (Bulgaria); CERN; CAS, MoST, and NSFC (China); COL-CIENCIAS (Colombia); MSES and CSF (Croatia); RPF (Cyprus); SENESCYT (Ecuador); MoER, ERC IUT, and ERDF (Estonia); Academy of Finland, MEC, and HIP (Finland);

#### Funding text #2

Individuals have received support from the Marie-Curie programme and the European Research Council and Horizon 2020 Grant, contract No. 675440 (European Union); the Leventis Foundation; the A. P. Sloan Foundation; the Alexander von Humboldt Foundation; the Belgian Federal Science Policy Office; the Fonds pour la Formation à la Recherche dans l'Industrie et dans l'Agriculture (FRIA-Belgium); the Agentschap voor Innovatie door Wetenschap en Technologie (IWT-Belgium); the Ministry of Education, Youth and Sports (MEYS) of the Czech Republic; the Council of Science and Industrial Research, India; the HOMING PLUS programme of the Foundation for Polish Science, cofinanced from European Union, Regional Development Fund, the Mobility Plus programme of the Ministry of Science and Higher Education, the National Science Center (Poland), contracts Harmonia 2014/14/M/ST2/00428, Opus 2014/13/B/ST2/02543, 2014/15/B/ST2/03998, and 2015/19/B/ST2/02861, Sonata-bis 2012/07/E/ST2/01406; the National Prioriti... View All ▾

ISSN: 11266708

Source Type: Journal

Original language: English

DOI: 10.1007/JHEP12(2017)142

Document Type: Article

Publisher: Springer Verlag

#### References (49)

[View in search results format >](#)

All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Barbieri, R., Giudice, G.F.  
Upper bounds on supersymmetric particle masses

(1988) *Nuclear Physics, Section B*, 306 (1), pp. 63-76. Cited 759 times.  
doi: 10.1016/0550-3213(88)90171-X

[View at Publisher](#)

2 Ramond, P.  
**Dual theory for free fermions**  
(1971) *Physical Review D*, 3 (10), pp. 2415-2418. Cited 895 times.  
doi: 10.1103/PhysRevD.3.2415  
[View at Publisher](#)

---

3 Extension of the algebra of Poincaré group generators and violation of P invariance  
(1971) *JETP Lett*  
Yu. A. Gol'fand and E.P. Likhtman323 []

---

4 Ferrara, S., Zumino, B.  
**Supergauge invariant Yang-Mills theories**  
(1974) *Nuclear Physics, Section B*, 79 (3), pp. 413-421. Cited 351 times.  
doi: 10.1016/0550-3213(74)90559-8  
[View at Publisher](#)

---

5 Wess, J., Zumino, B.  
**Supergauge transformations in four dimensions**  
(1974) *Nuclear Physics, Section B*, 70 (1), pp. 39-50. Cited 1609 times.  
doi: 10.1016/0550-3213(74)90355-1  
[View at Publisher](#)

---

6 Chamseddine, A.H., Arnowitt, R., Nath, P.  
**Locally supersymmetric grand unification**  
(1982) *Physical Review Letters*, 49 (14), pp. 970-974. Cited 1361 times.  
doi: 10.1103/PhysRevLett.49.970  
[View at Publisher](#)

---

7 Barbieri, R., Ferrara, S., Savoy, C.A.  
**Gauge models with spontaneously broken local supersymmetry**  
(1982) *Physics Letters B*, 119 (4-6), pp. 343-347. Cited 1221 times.  
doi: 10.1016/0370-2693(82)90685-2  
[View at Publisher](#)

---

8 Hall, L., Lykken, J., Weinberg, S.  
**Supergravity as the messenger of supersymmetry breaking**  
(1983) *Physical Review D*, 27 (10), pp. 2359-2378. Cited 1102 times.  
doi: 10.1103/PhysRevD.27.2359  
[View at Publisher](#)

---

9 Fayet, P.  
**Mixing between gravitational and weak interactions through the massive gravitino**  
(1977) *Physics Letters B*, 70 (4), pp. 461-464. Cited 246 times.  
doi: 10.1016/0370-2693(77)90414-2  
[View at Publisher](#)

---

10 Baer, H., Brhlik, M., Chen, C., Tata, X.  
Signals for the minimal gauge-mediated supersymmetry-breaking model at the Fermilab Tevatron collider  
(1997) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 55 (7), pp. 4463-4474. Cited 111 times.  
doi: 10.1103/PhysRevD.55.4463  
[View at Publisher](#)

---

11 Baer, H., Mercadante, P.G., Tata, X., Wang, Y.  
Reach of Fermilab Tevatron upgrades in gauge-mediated supersymmetry breaking models  
(1999) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 60 (5). Cited 44 times.  
doi: 10.1103/PhysRevD.60.055001  
[View at Publisher](#)

---

12 Dimopoulos, S., Thomas, S., Wells, J.D.  
Sparticle spectroscopy and electroweak symmetry breaking with gauge-mediated supersymmetry breaking  
(1997) *Nuclear Physics B*, 488 (1-2), pp. 39-91. Cited 240 times.  
[View at Publisher](#)

---

13 Ellis, J., Lopez, J.L., Nanopoulos, D.V.  
Analysis of LEP constraints on supersymmetric models with a light gravitino  
(1997) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 394 (3-4), pp. 354-358. Cited 27 times.  
[View at Publisher](#)

---

14 Dine, M., Nelson, A.E., Nir, Y., Shirman, Y.  
New tools for low energy dynamical supersymmetry breaking  
(1996) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 53 (5), pp. 2658-2669. Cited 957 times.  
doi: 10.1103/PhysRevD.53.2658  
[View at Publisher](#)

---

15 Giudice, G.F., Rattazzi, R.  
(1998) *Gauge-mediated supersymmetry breaking, in Perspectives on supersymmetry*, p. 355. Cited 2 times.  
World Scientific, Singapore

---

16 Grajek, P., Mariotti, A., Redigolo, D.  
Phenomenology of general gauge mediation in light of a 125 GeV Higgs  
(2013) *Journal of High Energy Physics*, 2013 (7), art. no. 109. Cited 21 times.  
doi: 10.1007/JHEP07(2013)109  
[View at Publisher](#)

---

17 Farrar, G.R., Fayet, P.  
Phenomenology of the production, decay, and detection of new hadronic states associated with supersymmetry  
(1978) *Physics Letters B*, 76 (5), pp. 575-579. Cited 863 times.  
doi: 10.1016/0370-2693(78)90858-4  
[View at Publisher](#)

---

- 18 Barbier, R., Bérat, C., Besançon, M., Chemtob, M., Deandrea, A., Dudas, E., Fayet, P., (...), Sirois, Y.  
R-Parity-violating supersymmetry  
(2005) *Physics Reports*, 420 (1-6), pp. 1-195. Cited 591 times.  
doi: 10.1016/j.physrep.2005.08.006  
View at Publisher
- 
- 19 Ruderman, J.T., Shih, D.  
General neutralino NLSPs at the early LHC  
(2012) *Journal of High Energy Physics*, 2012 (8), art. no. 159. Cited 31 times.  
doi: 10.1007/JHEP08(2012)159  
View at Publisher
- 
- 20 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.  
Search for supersymmetry with photons in pp collisions at  $\sqrt{s}=8\text{TeV}$   
(2015) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 92 (7), art. no. 072006. Cited 7 times.  
<http://harvest.aps.org/bagit/articles/10.1103/PhysRevD.92.072006/apsxml>  
doi: 10.1103/PhysRevD.92.072006  
View at Publisher
- 
- 21 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.  
Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at  $\sqrt{s}=8\text{TeV}$   
(2016) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 759, pp. 479-500. Cited 7 times.  
<http://www.sciencedirect.com/science/journal/03702693>  
doi: 10.1016/j.physletb.2016.05.088  
View at Publisher
- 
- 22 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.  
Search for supersymmetry in events with photons and missing transverse energy in pp collisions at 13 TeV  
(2017) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 769, pp. 391-412. Cited 2 times.  
<http://www.sciencedirect.com/science/journal/03702693>  
doi: 10.1016/j.physletb.2017.04.005  
View at Publisher
- 
- 23 Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., AbouZeid, O.S., (...), Zwahlen, L.  
Search for photonic signatures of gauge-mediated supersymmetry in 8 TeV pp collisions with the ATLAS detector  
(2015) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 92 (7), art. no. 072001. Cited 13 times.  
<http://harvest.aps.org/bagit/articles/10.1103/PhysRevD.92.072001/apsxml>  
doi: 10.1103/PhysRevD.92.072001  
View at Publisher

- 24 Aaboud, M., Aad, G., Abbott, B., Abdallah, J., Abidinov, O., Abeloos, B., Aben, R., (...), Zwalinski, L.  
Search for supersymmetry in a final state containing two photons and missing transverse momentum in  $\sqrt{s} = 13$  TeV pp collisions at the LHC using the ATLAS detector

(2016) *European Physical Journal C*, 76 (9), art. no. 517. Cited 8 times.

<http://link.springer-ny.com/link/service/journals/10052/index.htm>

doi: 10.1140/epjc/s10052-016-4344-x

[View at Publisher](#)

---

- 25 *Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV*. Cited 18 times.  
CMS collaboration2017 JINST 12 P02014 [\[\]](#) [\[\]](#)

- 26 *The CMS Experiment at the CERN LHC*. Cited 88 times.  
CMS collaboration2008 JINST 3 S08004 [\[\]](#)

- 27 *Particle-flow reconstruction and global event description with the CMS detector*. Cited 17 times.  
CMS collaboration2017 JINST 12 P10003 [\[\]](#) [\[\]](#)

- 28 Cacciari, M., Salam, G.P., Soyez, G.  
The anti- $k_t$  jet clustering algorithm  
(2008) *Journal of High Energy Physics*, 2008 (4), art. no. 063. Cited 2312 times.  
doi: 10.1088/1126-6708/2008/04/063

[View at Publisher](#)

---

- 29 Cacciari, M., Salam, G.P., Soyez, G.  
FastJet user manual: (For version 3.0.2)  
(2012) *European Physical Journal C*, 72 (3), art. no. 1896, pp. 1-54. Cited 794 times.  
<http://link.springer-ny.com/link/service/journals/10052/index.htm>  
doi: 10.1140/epjc/s10052-012-1896-2

[View at Publisher](#)

---

- 30 Cacciari, M., Salam, G.P.  
Pileup subtraction using jet areas  
(2008) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 659 (1-2), pp. 119-126. Cited 426 times.  
doi: 10.1016/j.physletb.2007.09.077

[View at Publisher](#)

---

- 31 Alwall, J., Frederix, R., Frixione, S., Hirschi, V., Maltoni, F., Mattelaer, O., Shao, H.-S., (...), Zaro, M.  
The automated computation of tree-level and next-to-leading order differential cross sections, and their matching to parton shower simulations  
(2014) *Journal of High Energy Physics*, 2014 (7), art. no. 079. Cited 1458 times.  
<http://link.springer.com/journal/13130>  
doi: 10.1007/JHEP07(2014)079

[View at Publisher](#)

---

- 32 Ball, R.D., Bertone, V., Carrazza, S., Deans, C.S., Del Debbio, L., Forte, S., Guffanti, A., (...), Ubiali, M.

### Parton distributions for the LHC run II

(2015) *Journal of High Energy Physics*, 2015 (4), art. no. 40, pp. 1-148. Cited 242 times.

<http://link.springer.com/journal/13130>

doi: 10.1007/JHEP04(2015)040

[View at Publisher](#)

---

- 33 Sjöstrand, T., Mrenna, S., Skands, P.

### A brief introduction to PYTHIA 8.1

(2008) *Computer Physics Communications*, 178 (11), pp. 852-867. Cited 1981 times.

doi: 10.1016/j.cpc.2008.01.036

[View at Publisher](#)

---

- 34 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.

### Event generator tunes obtained from underlying event and multiparton scattering measurements

(2016) *European Physical Journal C*, 76 (3), art. no. 155. Cited 86 times.

<http://link.springer-ny.com/link/service/journals/10052/index.htm>

doi: 10.1140/epjc/s10052-016-3988-x

[View at Publisher](#)

---

- 35 Borschensky, C., Krämer, M., Kulesza, A., Mangano, M., Padhi, S., Plehn, T., Portell, X.

### Squark and gluino production cross sections in pp collisions at $\sqrt{s}=13, 14, 33$ and 100 TeV

(2014) *European Physical Journal C*, 74 (12), art. no. 3174, pp. 1-12. Cited 29 times.

<http://link.springer-ny.com/link/service/journals/10052/index.htm>



doi: 10.1140/epjc/s10052-014-3174-y

[View at Publisher](#)

---

- 36 D. Alves, Simplified models for LHC new physics searches

(2012) *J. Phys. G*

39 105005  

---

- 37 Chatrchyan, S., Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Aguilo, E., Bergauer, T., (...), Swanson, J.

### Interpretation of searches for supersymmetry with simplified models

(2013) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 88 (5), art. no. 052017. Cited 44 times.

<http://oai.aps.org/filefetch?>

[identifier=10.1103/PhysRevD.88.052017&component=fulltext&description=markup&format=xml](http://oai.aps.org/filefetch?identifier=10.1103/PhysRevD.88.052017&component=fulltext&description=markup&format=xml)

doi: 10.1103/PhysRevD.88.052017

[View at Publisher](#)

---

- 38 Agostinelli, S., Allison, J., Amako, K., Apostolakis, J., Araujo, H., Arce, P., Asai, M., (...), Zschesche, D.

### GEANT4 - A simulation toolkit

(2003) *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 506 (3), pp. 250-303. Cited 9917 times.

doi: 10.1016/S0168-9002(03)01368-8

[View at Publisher](#)

---



- 39 S. Abdullin, P. Azzi, F. Beaudette, P. Janot and A. Perrotta, The fast simulation of the CMS detector at LHC (2011) *J. Phys. Conf. Ser* 331 032049 [\[\]](#)
- 
- 40 *Recent developments in CMS fast simulation*  
CMS collaboration, S. Sekmen [\[\]](#) [\[\]](#)
- 
- 41 *The CMS trigger system*. Cited 11 times.  
CMS collaboration 2017 JINST 12 P01020 [\[\]](#) [\[\]](#)
- 
- 42 *Performance of missing energy reconstruction in 13 TeV pp collision data using the CMS detector*  
CMS collaboration [\[\]](#)
- 
- 43 Butterworth, J., Carrazza, S., Cooper-Sarkar, A., Roeck, A.D., Feltesse, J., Forte, S., Gao, J., (...), Thorne, R.  
PDF4LHC recommendations for LHC Run II  
  
(2016) *Journal of Physics G: Nuclear and Particle Physics*, 43 (2), art. no. 023001. Cited 162 times.  
<http://iopscience.iop.org/article/10.1088/0954-3899/43/2/023001/pdf>  
doi: 10.1088/0954-3899/43/2/023001  
  
View at Publisher
- 
- 44 *CMS luminosity measurements for the 2016 data taking period*  
CMS collaboration [\[\]](#)
- 
- 45 Junk, T.  
Confidence level computation for combining searches with small statistics  
  
(1999) *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 434 (2), pp. 435-443. Cited 766 times.  
doi: 10.1016/S0168-9002(99)00498-2  
  
View at Publisher
- 
- 46 Read, A.L.  
Presentation of search results: The CL<sub>s</sub> technique  
  
(2002) *Journal of Physics G: Nuclear and Particle Physics*, 28 (10), pp. 2693-2704. Cited 1063 times.  
doi: 10.1088/0954-3899/28/10/313  
  
View at Publisher
- 
- 47 *Procedure for the LHC Higgs boson search combination in Summer*  
ATLAS and CMS collaborations [\[\]](#)
- 
- 48 Cowan, G., Cranmer, K., Gross, E., Vitells, O.  
Asymptotic formulae for likelihood-based tests of new physics  
  
(2011) *European Physical Journal C*, 71 (2). Cited 427 times.  
<http://link.springer-ny.com/link/service/journals/10052/index.htm>  
doi: 10.1140/epjc/s10052-011-1554-0  
  
View at Publisher
-

- 49 Cowan, G., Cranmer, K., Gross, E., Vitells, O.  
Asymptotic formulae for likelihood-based tests of new physics  
(2013) *Eur. Phys. J. C* 73, p. 2501. Cited 151 times.

© Copyright 2018 Elsevier B.V., All rights reserved.

< Back to results | 1 of 1

^ Top of page

## About Scopus

[What is Scopus](#)  
[Content coverage](#)  
[Scopus blog](#)  
[Scopus API](#)  
[Privacy matters](#)

## Language

[日本語に切り替える](#)  
[切换到简体中文](#)  
[切换到繁體中文](#)  
[Русский язык](#)

## Customer Service

[Help](#)  
[Contact us](#)

**ELSEVIER**

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2018 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

 RELX Group™