

Document details

< Back to results | 1 of 3 Next >

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 10, 1 October 2017, Article number 76

Search for light bosons in decays of the 125 GeV Higgs boson in proton-proton collisions at $\sqrt{s}=8$ TeV (Article)

The CMS collaboration, Khachatryan, V.^a, Sirunyan, A.M.^a, Tumasyan, A.^a, Adam, W.^b, Asilar, E.^b, Bergauer, T.^b, Brandstetter, J.^b, Brondolin, E.^b, Dragicevic, M.^b, Erö, J.^b, Flechl, M.^b, Friedl, M.^b, Frühwirth, R.^{b,ggp}, Ghetta, V.M.^b, Hartl, C.^b, Hörmann, N.^b, Hrubec, J.^b, Jeitler, M.^{b,ggp}, König, A.^b,

View additional authors \downarrow

^aYerevan Physics Institute, Yerevan, Armenia

^bInstitut für Hochenergiephysik, Wien, Austria

^cInstitute for Nuclear Problems, Minsk, Belarus

View additional affiliations \downarrow

Abstract

\downarrow View references (99)

A search is presented for decays beyond the standard model of the 125 GeV Higgs bosons to a pair of light bosons, based on models with extended scalar sectors. Light boson masses between 5 and 62.5 GeV are probed in final states containing four τ leptons, two muons and two b quarks, or two muons and two τ leptons. The results are from data in proton-proton collisions corresponding to an integrated luminosity of 19.7 fb^{-1} , accumulated by the CMS experiment at the LHC at a center-of-mass energy of 8 TeV. No evidence for such exotic decays is found in the data. Upper limits are set on the product of the cross section and branching fraction for several signal processes. The results are also compared to predictions of two-Higgs-doublet models, including those with an additional scalar singlet.

[Figure not available: see fulltext.]. © 2017, The Author(s).

Author keywords

Hadron-Hadron scattering (experiments) Higgs physics Supersymmetry

Funding details

Funding number	Funding sponsor	Acronym	Funding opportunities
	Fonds De La Recherche Scientifique - FNRS	FNRS	See opportunities by FNRS \nearrow
	Conselho Nacional de Desenvolvimento Científico e Tecnológico	CNPq	See opportunities by CNPq \nearrow
	Austrian Science Fund	FWF	See opportunities by FWF \nearrow
	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior	CAPES	See opportunities by CAPES \nearrow
	Fonds Wetenschappelijk Onderzoek	FWO	See opportunities by FWO \nearrow
	Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro	FAPERJ	See opportunities by FAPERJ \nearrow
	Chinese Academy of Sciences	CAS	See opportunities by CAS \nearrow

Metrics $\textcircled{?}$ View all metrics >

2 Citations in Scopus

1.60 Field-Weighted Citation Impact



PlumX Metrics \downarrow

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

Cited by 2 documents

Collider probes of axion-like particles

Bauer, M. , Neubert, M. , Thamm, A. (2017) *Journal of High Energy Physics*

Search for a light pseudoscalar Higgs boson produced in association with bottom quarks in pp collisions at $\sqrt{s}=8$ TeV

Sirunyan, A.M. , Tumasyan, A. , Adam, W. (2017) *Journal of High Energy Physics*

View all 2 citing documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

[Set citation feed >](#)

Related research data $\textcircled{?}$

Search for light bosons in decays of the 125 GeV Higgs boson in proton-proton collisions at $\sqrt{s}=8$ TeV

Ovcharova, Ana , et al *RWTH Aachen University*

Data linking provided by

Funding number	Funding sponsor	Acronym	Funding opportunities	Related documents
	Canadian Mathematical Society	CMS	See opportunities by CMS↗	Search for a light pseudoscalar Higgs boson produced in association with bottom quarks in pp collisions at $\sqrt{s}=8$ TeV
	Ministry of Education and Science	MES	See opportunities by MES↗	
IUT23-6	Eesti Teadusagentuur		See opportunities↗	Sirunyan, A.M. , Tumasyan, A. , Adam, W. (2017) <i>Journal of High Energy Physics</i>
IUT23-4	Eesti Teadusagentuur		See opportunities↗	
	Academy of Finland		See opportunities↗	Measurement of electroweak-induced production of $W\gamma$ with two jets in pp collisions at $\sqrt{s}=8$ TeV and constraints on anomalous quartic gauge couplings
	Research Promotion Foundation	RPF	See opportunities by RPF↗	
	European Regional Development Fund	ERDF	See opportunities by ERDF↗	Khachatryan, V. , Sirunyan, A.M. , Tumasyan, A. (2017) <i>Journal of High Energy Physics</i>
	Haridus- ja Teadusministeerium		See opportunities↗	
	Hrvatska Zaklada za Znanost	HRZZ	See opportunities by HRZZ↗	Search for a low-mass pseudoscalar Higgs boson produced in association with a bb^{-} pair in pp collisions at $\sqrt{s}=8$ TeV
	National Natural Science Foundation of China	NSFC	See opportunities by NSFC↗	
Particules / CNRS	Ministerstwo Nauki i Szkolnictwa Wyższego	MNiSW	See opportunities by MNiSW↗	Khachatryan, V. , Sirunyan, A.M. , Tumasyan, A. (2016) <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i>
	Joint Institute for Nuclear Research	JINR	See opportunities by JINR↗	
	Commissariat à l'Énergie Atomique et aux Énergies Alternatives	CEA	See opportunities by CEA↗	View all related documents based on references
	IDA Ireland		See opportunities↗	
	Bundesministerium für Bildung und Forschung	BMBF	See opportunities by BMBF↗	Find more related documents in Scopus based on:
	Russian Foundation for Basic Research	RFBR	See opportunities by RFBR↗	
	Instituto Nazionale di Fisica Nucleare	INFN	See opportunities by INFN↗	Authors > Keywords >
	Consejo Nacional de Ciencia y Tecnología	CONACYT	See opportunities by CONACYT↗	
	Secretaría de Estado de Investigación, Desarrollo e Innovación	SEIDI	See opportunities by SEIDI↗	
	Universiti Malaya	UM	See opportunities by UM↗	
	Deutsche Forschungsgemeinschaft	DFG	See opportunities by DFG↗	
	Lietuvos Moksl Akademija	LMA	See opportunities by LMA↗	
	Stavros Niarchos Foundation	SNF	See opportunities by SNF↗	
	Russian Academy of Sciences	RAS	See opportunities by RAS↗	
	Ministry of Science and Innovation, New Zealand	MSI	See opportunities by MSI↗	
	Ministry of Science and Technology, Croatia		See opportunities↗	
	Department of Science and Technology, Government of Kerala		See opportunities↗	

Funding number	Funding sponsor	Acronym	Funding opportunities
	Ministry of Education	MOE	See opportunities by MOE↗
	Secretaría de Educación Pública	SEP	See opportunities by SEP↗
	School of Energy Resources, University of Wyoming	SER	See opportunities by SER↗
	Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional	CINVESTAV	See opportunities by CINVESTAV↗
	Ministry of Science, ICT and Future Planning	MSIP	See opportunities by MSIP↗
	Department of Atomic Energy, Government of India	DAE	See opportunities by DAE↗
	Narodowym Centrum Nauki	NCN	See opportunities by NCN↗
	Physicians' Services Incorporated Foundation	PSI	See opportunities by PSI↗
	Ministry of Education and Science of the Russian Federation	Minobrnauka	See opportunities by Minobrnauka↗
	Pakistan Atomic Energy Commission	PAEC	See opportunities by PAEC↗
	National Academy of Sciences of Ukraine	NASU	See opportunities by NASU↗
	Türkiye Atom Enerjisi Kurumu	TAEK	See opportunities by TAEK↗
	State Fund for Fundamental Research of Ukraine	SFFR	See opportunities by SFFR↗
	National Science and Technology Development Agency	NSTDA	See opportunities by NSTDA↗
	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↗
	Fundacja na rzecz Nauki Polskiej	FNP	See opportunities by FNP↗
	Korea Research Council for Industrial Science and Technology	ISTK	See opportunities by ISTK↗
	Alfred P. Sloan Foundation		See opportunities↗
	Qatar National Research Fund	QNRF	See opportunities by QNRF↗
	Chulalongkorn University	CU	See opportunities by CU↗
	Federaal Wetenschapsbeleid	BELSP0	See opportunities by BELSP0↗
	Alexander von Humboldt-Stiftung		See opportunities↗
	A.G. Leventis Foundation		See opportunities↗
	Ministerstvo Školství, Mládeže a Tělovýchovy	MŠMT	See opportunities by MŠMT↗
	National Center for Theoretical Sciences	NCTS	See opportunities by NCTS↗

Funding number	Funding sponsor	Acronym	Funding opportunities
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↗
	European Research Council	ERC	See opportunities by ERC↗
	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↗
	Agentschap voor Innovatie door Wetenschap en Technologie	IWT	See opportunities by IWT↗

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 centers 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: the Austrian Federal Ministry of Science, Research and Economy and the Austrian Science Fund; the Belgian Fonds de la Recherche Scientifique, and Fonds voor Wetenschappelijk Onderzoek; the Brazilian Funding Agencies (CNPq, CAPES, FAPERJ, and FAPESP); the Bulgarian Ministry of Education and Science; CERN; the Chinese Academy of Sciences, Ministry of

Funding text #2

Science and Technology, and National Natural Science Foundation of China; the Colombian Funding Agency (COLCIENCIAS); the Croatian Ministry of Science, Education and Sport, and the Croatian Science Foundation; the Research Promotion Foundation, Cyprus; the Secretariat for Higher Education, Science, Technology and Innovation, Ecuador; the Ministry of Education and Research, Estonian Research Council via IUT23-4 and IUT23-6 and European Regional Development Fund, Estonia; the Academy of Finland, Finnish Ministry of Education and Culture, and Helsinki Institute of Physics; the Institut Na-

Funding text #3

tional de Physique Nucléaire et de Physique des Particules / CNRS, and Commissariat à l'Énergie Atomique et aux Énergies Alternatives / CEA, France; the Bundesministerium für Bildung und Forschung, Deutsche Forschungsgemeinschaft, and Helmholtz-Gemeinschaft Deutscher Forschungszentren, Germany; the General Secretariat for Research and Technology, Greece; the National Scientific Research Foundation, and National Innovation Office, Hungary; the Department of Atomic Energy and the Department of Science and Technology, India; the Institute for Studies in Theoretical Physics and Mathematics, Iran; the Science Foundation, Ireland; the Istituto Nazionale di Fisica Nucleare, Italy; the Ministry of Science, ICT and Future Planning, and National Research Foundation (NRF), Republic of Korea; the Lithuanian Academy of Sciences; the Ministry of Education, and University of Malaya (Malaysia); the Mexican Funding Agencies (BUAP, CINVESTAV, CONACYT, LNS, SEP, and UASLP-FAI); the Ministry of Business, ... View All ▾

Funding text #4

for Activating Research and the National Science and Technology Development Agency of Thailand; the Scientific and Technical Research Council of Turkey, and Turkish Atomic Energy Authority; the National Academy of Sciences of Ukraine, and State Fund for Fundamental Researches, Ukraine; the Science and Technology Facilities Council, U.K.; the US Department of Energy, and the US National Science Foundation.

Funding text #5

Individuals have received support from the Marie-Curie program and the European Research Council and EPLANET (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 program of the Foundation for Polish Science, cofinanced from European Union, Regional

ISSN: 11266708

DOI: 10.1007/JHEP10(2017)076

Source Type: Journal



Document Type: Article

Original language: English

Publisher: Springer Verlag

References (99)

[View in search results format >](#)

All Export  Print  E-mail Save to PDF Create bibliography

View all 99 references

- 1 Aad, G., Abajyan, T., Abbott, B., Abdallah, J., Abdel Khalek, S., Abdelalim, A.A., Abdinov, O., (...), Zwalinski, L.
Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC

(2012) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 716 (1), pp. 1-29. Cited 3931 times.
<http://www.sciencedirect.com.ezlib.iium.edu.my/science/journal/03702693>
doi: 10.1016/j.physletb.2012.08.020

[View at Publisher](#)

- 2 Chatrchyan, S., Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Aguilo, E., Bergauer, T., (...), Wenman, D.
Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC

(2012) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 716 (1), pp. 30-61. Cited 4166 times.
<http://www.sciencedirect.com.ezlib.iium.edu.my/science/journal/03702693>
doi: 10.1016/j.physletb.2012.08.021

[View at Publisher](#)

- 3 Chatrchyan, S., Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Bergauer, T., Dragicevic, M., (...), Swanson, J.
Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s}=7$ and 8 TeV

(2013) *Journal of High Energy Physics*, 2013 (6), art. no. 081. Cited 217 times.
doi: 10.1007/JHEP06(2013)081

[View at Publisher](#)

- 4 The ATLAS collaboration, Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Abeloos, B., Aben, R., (...), Woods, N.
Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at $\sqrt{s}=7$ and 8 TeV

(2016) *Journal of High Energy Physics*, 2016 (8), art. no. 45. Cited 166 times.
<http://link.springer.com.ezlib.iium.edu.my/journal/13130>
doi: 10.1007/JHEP08(2016)045

[View at Publisher](#)

- 5 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Bergauer, T., Dragicevic, M., Erö, J., (...), The CMS Collaboration
Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV

(2015) *European Physical Journal C*, 75 (5), art. no. 212. Cited 238 times.
<http://link.springer-ny.com.ezlib.iium.edu.my/link/service/journals/10052/index.htm>
doi: 10.1140/epjc/s10052-015-3351-7

[View at Publisher](#)

- 6 Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., AbouZeid, O.S., (...), ATLAS Publications
Measurements of the Higgs boson production and decay rates and coupling strengths using pp collision data at $\sqrt{s}=7$ and 8 TeV in the ATLAS experiment
- (2016) *European Physical Journal C*, 76 (1), art. no. 6, pp. 1-51. Cited 96 times.
<http://link.springer-ny.com.ezlib.iium.edu.my/link/service/journals/10052/index.htm>
doi: 10.1140/epjc/s10052-015-3769-y
- [View at Publisher](#)
-
- 7 The ATLAS collaboration, Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., (...), Zwalinski, L.
Constraints on new phenomena via Higgs boson couplings and invisible decays with the ATLAS detector
- (2015) *Journal of High Energy Physics*, 2015 (11), art. no. 206, pp. 1-52. Cited 39 times.
<http://link.springer.com.ezlib.iium.edu.my/journal/13130>
doi: 10.1007/JHEP11(2015)206
- [View at Publisher](#)
-
- 8 Curtin, D., Essig, R., Gori, S., Jaiswal, P., Katz, A., Liu, T., Liu, Z., (...), Zhong, Y.-M.
Exotic decays of the 125 GeV Higgs boson
- (2014) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 90 (7), art. no. 075004. Cited 108 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.90.075004/apsxml>
doi: 10.1103/PhysRevD.90.075004
- [View at Publisher](#)
-
- 9 Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., Abouzeid, O.S., (...), Woods, N.
Combined Measurement of the Higgs Boson Mass in pp Collisions at $s=7$ and 8 TeV with the ATLAS and CMS Experiments
- (2015) *Physical Review Letters*, 114 (19), art. no. 191803. Cited 351 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevLett.114.191803/apsxml>
doi: 10.1103/PhysRevLett.114.191803
- [View at Publisher](#)
-
- 10 *Comparison of LHC and ILC capabilities for Higgs boson coupling measurements.* Cited 4 times.
M.E. Peskin[]
-
- 11 *Projected performance of an upgraded CMS detector at the LHC and HL-LHC: contribution to the Snowmass process.* Cited 34 times.
CMS collaboration[]
-
- 12 *Physics at a high-luminosity LHC with ATLAS.* Cited 21 times.
ATLAS collaboration[]
-
- 13 Dermišek, R., Gunion, J.F.
Escaping the large fine-tuning and little hierarchy problems in the next to minimal supersymmetric model and $h \rightarrow aa$ decays
- (2005) *Physical Review Letters*, 95 (4), art. no. 041801. Cited 249 times.
http://oai.aps.org.ezlib.iium.edu.my/oai?verb=ListRecords&metadataPrefix=oai_apsmeta_2&set=journal:PRL:95
doi: 10.1103/PhysRevLett.95.041801
- [View at Publisher](#)

14 The NMSSM close to the R-symmetry limit and naturalness in $h \rightarrow aa$ decays for $m_a < 2m_b$
(2007) *Phys. Rev. D*
R. Dermisek and J.F. Gunion075019

15 Chang, S., Dermíšek, R., Gunion, J.F., Weiner, N.
Nonstandard Higgs boson decays
(2008) *Annual Review of Nuclear and Particle Science*, 58, pp. 75-98. Cited 111 times.
<http://arjournals.annualreviews.org/doi/pdf/10.1146/annurev.nucl.58.110707.171200>
doi: 10.1146/annurev.nucl.58.110707.171200

[View at Publisher](#)

16 Englert, C., Plehn, T., Zerwas, D., Zerwas, P.M.
Exploring the Higgs portal
(2011) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 703 (3), pp. 298-305. Cited 119 times.
doi: 10.1016/j.physletb.2011.08.002

[View at Publisher](#)

17 Lee, T.D.
A theory of spontaneous t violation
(1973) *Physical Review D*, 8 (4), pp. 1226-1239. Cited 814 times.
doi: 10.1103/PhysRevD.8.1226

[View at Publisher](#)

18 Deshpande, N.G., Ma, E.
Pattern of symmetry breaking with two Higgs doublets
(1978) *Physical Review D*, 18 (7), pp. 2574-2576. Cited 444 times.
doi: 10.1103/PhysRevD.18.2574

[View at Publisher](#)

19 Haber, H.E., Kane, G.L., Sterling, T.
The fermion mass scale and possible effects of Higgs bosons on experimental observables
(1979) *Nuclear Physics, Section B*, 161 (2-3), pp. 493-532. Cited 386 times.
doi: 10.1016/0550-3213(79)90225-6

[View at Publisher](#)

20 Gunion, J.F., Haber, H.E., Kane, G.L., Dawson, S.
The Higgs hunter's guide, volume 80 of *Frontiers in Physics*
(2000) *Perseus Books*

21 Branco, G.C., Ferreira, P.M., Lavoura, L., Rebelo, M.N., Sher, M., Silva, J.P.
Theory and phenomenology of two-Higgs-doublet models
(2012) *Physics Reports*, 516 (1-2), pp. 1-102. Cited 724 times.
doi: 10.1016/j.physrep.2012.02.002

[View at Publisher](#)

- 22 Fayet, P.
Supergauge invariant extension of the Higgs mechanism and a model for the electron and its neutrino
(1975) *Nuclear Physics, Section B*, 90 (C), pp. 104-124. Cited 646 times.
doi: 10.1016/0550-3213(75)90636-7
View at Publisher
-
- 23 Fayet, P.
Spontaneously broken supersymmetric theories of weak, electromagnetic and strong interactions
(1977) *Physics Letters B*, 69 (4), pp. 489-494. Cited 697 times.
doi: 10.1016/0370-2693(77)90852-8
View at Publisher
-
- 24 Kim, J.E., Nilles, H.P.
The μ -problem and the strong CP-problem
(1984) *Physics Letters B*, 138 (1-3), pp. 150-154. Cited 660 times.
doi: 10.1016/0370-2693(84)91890-2
View at Publisher
-
- 25 Ellwanger, U., Hugonie, C., Teixeira, A.M.
The Next-to-Minimal Supersymmetric Standard Model
(2010) *Physics Reports*, 496 (1-2), pp. 1-77. Cited 545 times.
doi: 10.1016/j.physrep.2010.07.001
View at Publisher
-
- 26 Bernon, J., Gunion, J.F., Jiang, Y., Kraml, S.
Light Higgs bosons in two-Higgs-doublet models
(2015) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 91 (7), art. no. 075019. Cited 29 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.91.075019/apsxml>
doi: 10.1103/PhysRevD.91.075019
View at Publisher
-
- 27 Peccei, R.D., Quinn, H.R.
CP conservation in the presence of pseudoparticles
(1977) *Physical Review Letters*, 38 (25), pp. 1440-1443. Cited 2965 times.
doi: 10.1103/PhysRevLett.38.1440
View at Publisher
-
- 28 Peccei, R.D., Quinn, H.R.
Constraints imposed by CP conservation in the presence of pseudoparticles
(1977) *Physical Review D*, 16 (6), pp. 1791-1797. Cited 1473 times.
doi: 10.1103/PhysRevD.16.1791
View at Publisher
-
- 29 Fayet, P.
Supersymmetry and weak, electromagnetic and strong interactions
(1976) *Physics Letters B*, 64 (2), pp. 159-162. Cited 301 times.
doi: 10.1016/0370-2693(76)90319-1
View at Publisher

- 30 Heinemeyer, S., Stål, O., Weiglein, G.
Interpreting the LHC Higgs search results in the MSSM
(2012) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 710 (1), pp. 201-206. Cited 237 times.
doi: 10.1016/j.physletb.2012.02.084
[View at Publisher](#)
-
- 31 Celis, A., Ilisie, V., Pich, A.
LHC constraints on two-Higgs doublet models
(2013) *Journal of High Energy Physics*, 2013 (7), art. no. 053. Cited 93 times.
doi: 10.1007/JHEP07(2013)053
[View at Publisher](#)
-
- 32 Grinstein, B., Uttayarat, P.
Carving out parameter space in type-II two Higgs doublets model
(2013) *Journal of High Energy Physics*, 2013 (6), art. no. 094. Cited 53 times.
doi: 10.1007/JHEP06(2013)094
[View at Publisher](#)
-
- 33 Grinstein, B., Uttayarat, P.
Carving out parameter space in type-II two Higgs doublets model
(2013) *Journal of High Energy Physics*, 2013 (6), art. no. 094. Cited 53 times.
doi: 10.1007/JHEP06(2013)094
[View at Publisher](#)
-
- 34 Coleppa, B., Kling, F., Su, S.
Constraining type II 2HDM in light of LHC Higgs searches
(2014) *Journal of High Energy Physics*, 2014 (1), art. no. 161. Cited 65 times.
doi: 10.1007/JHEP01(2014)161
[View at Publisher](#)
-
- 35 Chen, C.-Y., Dawson, S., Sher, M.
Heavy Higgs searches and constraints on two Higgs doublet models
(2013) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 88 (1), art. no. 015018. Cited 59 times.
<http://oai.aps.org.ezlib.iium.edu.my/filefetch?identifier=10.1103/PhysRevD.88.015018&component=fulltext&description=markup&format=xml>
doi: 10.1103/PhysRevD.88.015018
[View at Publisher](#)
-
- 36 Chen, C.-Y., Dawson, S., Sher, M.
Heavy Higgs searches and constraints on two Higgs doublet models
(2013) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 88 (1), art. no. 015018. Cited 59 times.
<http://oai.aps.org.ezlib.iium.edu.my/filefetch?identifier=10.1103/PhysRevD.88.015018&component=fulltext&description=markup&format=xml>
doi: 10.1103/PhysRevD.88.015018
[View at Publisher](#)
-
- 37 *Searching for signs of the second Higgs doublet*. Cited 6 times.
N. Craig, J. Galloway and S. Thomas[]

- 38 Wang, L., Han, X.-F.
Status of the aligned two-Higgs-doublet model confronted with the Higgs data

(2014) *Journal of High Energy Physics*, 2014 (4), art. no. 128. Cited 22 times.
doi: 10.1007/JHEP04(2014)128

[View at Publisher](#)

- 39 Baglio, J., Eberhardt, O., Nierste, U., Wiebusch, M.
Benchmarks for Higgs boson pair production and heavy Higgs boson searches in the two-Higgs-doublet model of type II

(2014) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 90 (1), art. no. 015008. Cited 58 times.

<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.90.015008/apsxml>
doi: 10.1103/PhysRevD.90.015008

[View at Publisher](#)

- 40 Dumont, B., Gunion, J.F., Jiang, Y., Kraml, S.
Constraints on and future prospects for two-Higgs-doublet models in light of the LHC Higgs signal

(2014) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 90 (3), art. no. 035021. Cited 66 times.

<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.90.035021/apsxml>
doi: 10.1103/PhysRevD.90.035021

[View at Publisher](#)

- 41 King, S.F., Mühlleitner, M., Nevzorov, R., Walz, K.
Natural NMSSM Higgs bosons

(2013) *Nuclear Physics B*, 870 (2), pp. 323-352. Cited 92 times.
doi: 10.1016/j.nuclphysb.2013.01.020

[View at Publisher](#)

- 42 Cao, J., Ding, F., Han, C., Yang, J.M., Zhu, J.
A light Higgs scalar in the NMSSM confronted with the latest LHC Higgs data

(2013) *Journal of High Energy Physics*, 2013 (11). Cited 42 times.
doi: 10.1007/JHEP11(2013)018

[View at Publisher](#)

- 43 Christensen, N., Han, T., Liu, Z., Su, S.
Low-mass higgs bosons in the NMSSM and their LHC implications

(2013) *Journal of High Energy Physics*, 2013 (8), art. no. 019. Cited 39 times.
doi: 10.1007/JHEP08(2013)019

[View at Publisher](#)

- 44 Cerdeño, D.G., Ghosh, P., Park, C.B.
Probing the two light Higgs scenario in the NMSSM with a low-mass pseudoscalar

(2013) *Journal of High Energy Physics*, 2013 (6), art. no. 031. Cited 29 times.
doi: 10.1007/JHEP06(2013)031

[View at Publisher](#)

- 45 Chalons, G., Domingo, F.
Analysis of the Higgs potentials for two doublets and a singlet
(2012) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 86 (11), art. no. 115024. Cited 13 times.
<http://oai.aps.org.ezlib.iium.edu.my/filefetch?identifier=10.1103/PhysRevD.86.115024&component=fulltext&description=markup&format=xml>
doi: 10.1103/PhysRevD.86.115024
View at Publisher
-

- 46 Ahriche, A., Arhrib, A., Nasri, S.
Higgs phenomenology in the two-singlet model
(2014) *Journal of High Energy Physics*, 2014 (2), art. no. 042. Cited 12 times.
doi: 10.1007/JHEP02(2014)042
View at Publisher
-

- 47 Bernon, J., Gunion, J.F., Haber, H.E., Jiang, Y., Kraml, S.
Scrutinizing the alignment limit in two-Higgs-doublet models: $M_h=125\text{GeV}$
(2015) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 92 (7), art. no. 075004. Cited 37 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.92.075004/apsxml>
doi: 10.1103/PhysRevD.92.075004
View at Publisher
-

- 48 Djouadi, A.
The anatomy of electroweak symmetry breaking. Tome I: The Higgs boson in the Standard Model
(2008) *Physics Reports*, 457 (1-4), pp. 1-216. Cited 555 times.
doi: 10.1016/j.physrep.2007.10.004
View at Publisher
-

- 49 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.
A search for pair production of new light bosons decaying into muons
(2016) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 752, pp. 146-168. Cited 16 times.
<http://www.sciencedirect.com.ezlib.iium.edu.my/science/journal/03702693>
doi: 10.1016/j.physletb.2015.10.067
View at Publisher
-

- 50 The CMS collaboration, Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., (...), Woods, N.
Search for a very light NMSSM Higgs boson produced in decays of the 125 GeV scalar boson and decaying into τ leptons in pp collisions at $\sqrt{s}=8\text{ TeV}$
(2016) *Journal of High Energy Physics*, 2016 (1), art. no. 79, pp. 1-46. Cited 22 times.
<http://link.springer.com.ezlib.iium.edu.my/journal/13130>
doi: 10.1007/JHEP01(2016)079
View at Publisher
-

- 51 V.M. Abazov et al., Search for NMSSM Higgs bosons in the $h \rightarrow aa \rightarrow \dots$ channels using pp^- collisions at $\sqrt{s}=1.96\text{ TeV}$
(2009) *Phys. Rev. Lett.*
103 061801
-

- 52 Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., AbouZeid, O.S., (...), Zwalinski, L.
Search for higgs bosons decaying to aa in the $\mu\mu\tau$ final state in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS experiment
(2015) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 92 (5), pp. 052002-1-052002-24. Cited 8 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.92.052002/apsxml>
doi: 10.1103/PhysRevD.92.052002
View at Publisher
-
- 53 Chatrchyan, S., Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Bergauer, T., Dragicevic, M., (...), Swanson, J.
Search for a light pseudoscalar Higgs boson in the dimuon decay channel in pp collisions at $\sqrt{s}=7$ TeV
(2012) *Physical Review Letters*, 109 (12), art. no. 121801. Cited 40 times.
<http://oai.aps.org.ezlib.iium.edu.my/filefetch?identifier=10.1103/PhysRevLett.109.121801&component=fulltext&description=markup&format=xml>
doi: 10.1103/PhysRevLett.109.121801
View at Publisher
-
- 54 Khachatryan, V., Sirunyan, A.M., Tumasyan, A., Adam, W., Asilar, E., Bergauer, T., Brandstetter, J., (...), Woods, N.
Search for a low-mass pseudoscalar Higgs boson produced in association with a $b\bar{b}$ pair in pp collisions at $\sqrt{s}=8$ TeV
(2016) *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, 758, pp. 296-320. Cited 10 times.
<http://www.sciencedirect.com.ezlib.iium.edu.my/science/journal/03702693>
doi: 10.1016/j.physletb.2016.05.003
View at Publisher
-
- 55 *The CMS experiment at the CERN LHC*. Cited 88 times.
CMS collaboration2008 JINST 3 S08004
-
- 56 Alwall, J., Herquet, M., Maltoni, F., Mattelaerc, O., Stelzer, T.
MadGraph 5: Going beyond
(2011) *Journal of High Energy Physics*, 2011 (6), art. no. 128. Cited 1441 times.
doi: 10.1007/JHEP06(2011)128
View at Publisher
-
- 57 Sjöstrand, T., Mrenna, S., Skands, P.
PYTHIA 6.4 physics and manual
(2006) *Journal of High Energy Physics*, 2006 (5), art. no. 026. Cited 5018 times.
doi: 10.1088/1126-6708/2006/05/026
View at Publisher
-
- 58 TAUOLA the library for τ lepton decay and KKMC/KORALB/KORALZ/.. status report
(2001) *Nucl. Phys. Proc. Suppl.*
Z. Was96
-

- 59 Alioli, S., Nason, P., Oleari, C., Re, E.
NLO single-top production matched with shower in POWHEG: S- and t-channel contributions

(2009) *Journal of High Energy Physics*, 2009 (9), art. no. 111. Cited 168 times.
doi: 10.1088/1126-6708/2009/09/111

[View at Publisher](#)

- 60 Alioli, S., Nason, P., Oleari, C., Re, E.
Erratum: NLO single-top production matched with shower in POWHEG: S- and t-channel contributions (JHEP09 (2009) (111))

(2010) *Journal of High Energy Physics*, 2010 (2), art. no. 011. Cited 49 times.
doi: 10.1007/JHEP02(2010)011

[View at Publisher](#)

- 61 Alioli, S., Nason, P., Oleari, C., Re, E.
A general framework for implementing NLO calculations in shower Monte Carlo programs: The POWHEG BOX

(2010) *Journal of High Energy Physics*, 2010 (6), art. no. 043. Cited 834 times.
doi: 10.1007/JHEP06(2010)043

[View at Publisher](#)

- 62 Re, E.
Single-top Wt-channel production matched with parton showers using the POWHEG method

(2011) *European Physical Journal C*, 71 (2). Cited 148 times.
<http://link.springer-ny.com.ezlib.iium.edu.my/link/service/journals/10052/index.htm>
doi: 10.1140/epjc/s10052-011-1547-z

[View at Publisher](#)

- 63 Frixione, S., Nason, P., Oleari, C.
Matching NLO QCD computations with parton shower simulations: The POWHEG method

(2007) *Journal of High Energy Physics*, 2007 (11), art. no. 070. Cited 980 times.
doi: 10.1088/1126-6708/2007/11/070

[View at Publisher](#)

- 64 Pumplin, J., Stump, D.R., Huston, J., Lai, H.-L., Nadolsky, P., Tung, W.-K.
New generation of parton distributions with uncertainties from global QCD analysis

(2002) *Journal of High Energy Physics*, 6 (7), pp. 325-371. Cited 2138 times.

- 65 S. Agostinelli et al., GEANT4: A simulation toolkit
(2003) *Nucl. Instrum. Meth. A*
506 250

- 66 Allison, J., Amako, K., Apostolakis, J., Araujo, H., Dubois, P.A., Asai, M., Barrand, G., (...), Peigentili, M.
Geant4 developments and applications

(2006) *IEEE Transactions on Nuclear Science*, 53 (1), pp. 270-278. Cited 2740 times.
doi: 10.1109/TNS.2006.869826

[View at Publisher](#)

-
- 67 Particle-flow event reconstruction in CMS and performance for jets, taus and MET (2009) *CMS-PAS-PFT-09-001*
-
- 68 Commissioning of the Particle-flow Event Reconstruction with the first LHC collisions recorded in the CMS detector (2010) *CMS-PAS-PFT-10-001*
-
- 69 Rose, K.
Deterministic annealing for clustering, compression, classification, regression, and related optimization problems
(1998) *Proceedings of the IEEE*, 86 (11), pp. 2210-2239. Cited 481 times.
doi: 10.1109/5.726788
[View at Publisher](#)
-
- 70 Waltenberger, W., Frühwirth, R., Vanlaer, P.
Adaptive vertex fitting
(2007) *Journal of Physics G: Nuclear and Particle Physics*, 34 (12), pp. N343-N356. Cited 22 times.
doi: 10.1088/0954-3899/34/12/N01
[View at Publisher](#)
-
- 71 *Performance of CMS muon reconstruction in pp collision events at $\sqrt{s}=7$ TeV*. Cited 17 times.
CMS collaboration2012 JINST 7 P10002 [\[\]](#)
-
- 72 *TMVA - toolkit for multivariate data analysis*. Cited 11 times.
A. Höcker et al. [\[\]](#)
-
- 73 *Performance of electron reconstruction and selection with the CMS detector in proton-proton collisions at $\sqrt{s}=8$ TeV*. Cited 17 times.
CMS collaboration2015 JINST 10 P06005 [\[\]](#)
-
- 74 Cacciari, M., Salam, G.P., Soyez, G.
The anti- k_r jet clustering algorithm
(2008) *Journal of High Energy Physics*, 2008 (4), art. no. 063. Cited 2310 times.
doi: 10.1088/1126-6708/2008/04/063
[View at Publisher](#)
-
- 75 *Determination of jet energy calibration and transverse momentum resolution in CMS*. Cited 41 times.
CMS collaboration2011 JINST 6 P11002 [\[\]](#)
-
- 76 *Identification of b-quark jets with the CMS experiment*. Cited 23 times.
CMS collaboration2013 JINST 8 P04013 [\[\]](#)
-
- 77 *Reconstruction and identification of τ lepton decays to hadrons and ν_τ at CMS*. Cited 4 times.
CMS collaboration2016 JINST 11 P01019 [\[\]](#)
-

□ 78 *Missing transverse energy performance of the CMS detector*. Cited 6 times.
CMS collaboration2011 JINST 6 P09001 □

□ 79 A. Apresyan, Performance of MET reconstruction in CMS
(2015) *J. Phys. Conf. Ser.*
587 012006

□ 80 Ferreira, P.M., Santos, R., Gunion, J.F., Haber, H.E.
Probing wrong-sign Yukawa couplings at the LHC and a future linear collider
(2014) *Physical Review D - Particles, Fields, Gravitation and Cosmology*, 89 (11), art. no. 115003. Cited 54 times.
<http://harvest.aps.org.ezlib.iium.edu.my/bagit/articles/10.1103/PhysRevD.89.115003/apsxml>
doi: 10.1103/PhysRevD.89.115003
[View at Publisher](#)

© Copyright 2017 Elsevier B.V., All rights reserved.

< Back to results | 1 of 3 Next >

^ 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™