Combined measurements of Higgs boson couplings in proton- proton collisions at v s=13TeV

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Abstract

Combined measurements of the production and decay rates of the Higgs boson, as well as its couplings to vector bosons and fermions, are presented. The analysis uses the LHC proton-proton collision data set recorded with the CMS detector in 2016 at fb-1. The combination is based on analyses targeting the five main Higgs boson production mechanisms (gluon fusion, vector boson fusion, and associated production with a W or Z boson, or a top quark-antiquark pair) and the following decay modes: H, ZZ, WW, , bb, and . Searches for invisible Higgs boson decays are also considered. The best-fit ratio of the signal yield to the standard model expectation is measured to be =1.17 +/- 0.10, assuming a Higgs boson mass of 125.09. Additional results are given for various assumptions on the scaling behavior of the production and decay modes, including generic parametrizations based on ratios of cross sections and branching fractions or couplings. The results are compatible with the standard model predictions in all parametrizations considered. In addition, constraints are placed on various two Higgs doublet models.

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KeyWords Plus: ELECTROWEAK SYMMETRY-BREAKING; BROKEN SYMMETRIES; QCD CORRECTIONS; STANDARD MODEL; SUPERSYMMETRY; MASS; RENORMALIZATION; PARTICLES; HIERARCHY; SEARCH

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1. **Search for charged Higgs bosons produced in association with a top quark and decaying via H-+/- -> tau nu using pp collision data recorded at root s=13 TeV by the ATLAS detector** Times Cited: 48
   By: Aaboud, M.; Aad, G.; Abbott, B.; et al.
   Group Author(s): ATLAS Collaboration
   PHYSICS LETTERS B Volume: 759 Pages: 555-574 Published: AUG 10 2016

2. **Measurements of the Higgs boson production and decay rates and coupling strengths using pp collision data at root s=7 and 8 TeV in the ATLAS experiment** Times Cited: 180
   By: Aad, G.; Abbott, B.; Abdallah, J.; et al.
   Group Author(s): ATLAS Collaboration
   EUROPEAN PHYSICAL JOURNAL C Volume: 76 Issue: 1 Article Number: 6 Published: JAN 5 2016

3. **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 radic(s)=7 and 8 TeV** Times Cited: 144
   By: Aad, G.; Abbott, B.; Abdallah, J.; et al.
   Journal of High Energy Physics Volume: 2016 Issue: 8 Pages: 045 (113 pp.) Published: Aug. 2016

4. **Constraints on new phenomena via Higgs boson couplings and invisible decays with the ATLAS detector** Times Cited: 173
   By: Aad, G.; Abbott, B.; Abdallah, J.; et al.
   Group Author(s): ATLAS Collaboration
   JOURNAL OF HIGH ENERGY PHYSICS Issue: 11 Article Number: 206 Published: NOV 30 2015

5. **Combined Measurement of the Higgs Boson Mass in pp Collisions at root s=7 and 8 TeV with the ATLAS and CMS Experiments** Times Cited: 790
   By: Aad, G.; Abbott, B.; Abdallah, J.; et al.
   PHYSICAL REVIEW LETTERS Volume: 114 Issue: 19 Article Number: 191803 Published: MAY 14 2015

6. **Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC** Times Cited: 4,581

By: Aad, G.; Abajyan, T.; Abbott, B.; et al.
Group Author(s): ATLAS Collaboration
PHYSICS LETTERS B Volume: 716 Issue: 1 Pages: 1-29 Published: SEP 17 2012

7. **NNLO computational techniques: The cases H -> gamma gamma and H -> gg** Times Cited: 111
By: Actis, Stefano; Passarino, Giampiero; Sturm, Christian; et al.
NUCLEAR PHYSICS B Volume: 811 Issue: 1-2 Pages: 182-273 Published: APR 11 2009

8. **A general framework for implementing NLO calculations in shower Monte Carlo programs: the POWHEG BOX** Times Cited: 1,097
By: Alioli, Simone; Nason, Paolo; Oleari, Carlo; et al.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 6 Article Number: 043 Published: JUN 2010

9. **The automated computation of tree-level and next-to-leading order differential cross sections, and their matching to parton shower simulations** Times Cited: 2,566
By: Alwall, J.; Frederix, R.; Frixione, S.; et al.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 7 Article Number: 079 Published: JUL 17 2014

10. Title: [not available] Times Cited: 4
By: ANASTASIOU C
PHYSREVLETT Volume: 114 Published: 2001

11. **High precision determination of the gluon fusion Higgs boson cross-section at the LHC** Times Cited: 136
By: Anastasiou, Charalampos; Duhr, Claude; Dulat, Falko; et al.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 5 Article Number: 058 Published: MAY 10 2016

12. **The RooStats project** Times Cited: 1
By: [Anonymous].
PoS(ACAT2010)057 Published: 2010
Publisher: SISSA

13. **Electroweak symmetry breaking from dimensional deconstruction** Times Cited: 942
By: Arkani-Hamed, N; Cohen, AG; Georgi, H
PHYSICS LETTERS B Volume: 513 Issue: 1-2 Pages: 232-240 Published: JUL 26 2001

14. **The hierarchy problem and new dimensions at a millimeter** Times Cited: 4,846
By: Arkani-Hamed, N; Dimopoulos, S; Dvali, G
PHYSICS LETTERS B Volume: 429 Issue: 3-4 Pages: 263-272 Published: JUN 18 1998

15. **PATTERNS OF DEVIATION FROM THE STANDARD MODEL** Times Cited: 193
By: ARZT, C; EINHORN, MB; WUDKA, J
NUCLEAR PHYSICS B Volume: 433 Issue: 1 Pages: 41-66 Published: JAN 2 1995

16. **Procedure for the LHC Higgs boson search combination in Summer 2011** Times Cited: 12
Group Author(s): ATLAS, CMS collaborations and the LHC Higgs Combination Group
CMS-NOTE-2011-005 Published: 2011
ATL-PHYS-PUB-2011-11 INSPIRE

17. **Search for additional heavy neutral Higgs and gauge bosons in the ditau final state produced in 36 fb of pp collisions at p s = 13 TeV with the ATLAS detector** Times Cited: 60
Group Author(s): ATLAS collaboration
JHEP Volume: 01 Pages: 055 Published: 2018
arXiv:1709.07242 INSPIRE

18. **Higgs production via gluon fusion in the POWHEG approach in the SM and in the MSSM** Times Cited: 114
By: Bagnaschi, E.; Degrassi, G.; Slavich, P.; et al.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 2 Article Number: 088 Published: FEB 2012

19. **Effects of genuine dimension-six Higgs operators** Times Cited: 111
By: Barger, V; Han, T; Langacker, P; et al.
PHYSICAL REVIEW D Volume: 67 Issue: 11 Article Number: 115001 Published: JUN 1 2003

20. **FITTING USING FINITE MONTE-CARLO SAMPLES** Times Cited: 205
By: BARLOW, R; BEESTON, C
COMPUTER PHYSICS COMMUNICATIONS Volume: 77 Issue: 2 Pages: 219-228 Published: OCT 1993

21. **NLO QCD corrections to t(t)over-bar-H production in hadron collisions** Times Cited: 267
By: Beenakker, W; Dittmaier, S; Kramer, M; et al.
NUCLEAR PHYSICS B Volume: 653 Issue: 1-2 Pages: 151-203 Published: MAR 10 2003

22. **Higgs radiation off top quarks at the Tevatron and the LHC** Times Cited: 247
By: Beenakker, W; Dittmaier, S; Kramer, M; et al.

PHYSICAL REVIEW LETTERS Volume: 87 Issue: 20 Article Number: 201805 Published: NOV 12 2001

23. **The MSSM invisible Higgs in the light of dark matter and g-2** — Times Cited: 63
By: Belanger, G; Boudjema, F; Cottrant, A; et al.
PHYSICS LETTERS B Volume: 519 Issue: 1-2 Pages: 93-102 Published: OCT 25 2001

24. **Vector boson fusion at next-to-next-to-leading order in QCD: Standard model Higgs boson and beyond** — Times Cited: 51
By: Bolzoni, Paolo; Maltoni, Fabio; Moch, Sven-Olaf; et al.
PHYSICAL REVIEW D Volume: 85 Issue: 3 Article Number: 035002 Published: FEB 2 2012

25. **Higgs Boson Production via Vector-Boson Fusion at Next-to-Next-to-Leading Order in QCD** — Times Cited: 164
By: Bolzoni, Paolo; Maltoni, Fabio; Moch, Sven-Olaf; et al.
PHYSICAL REVIEW LETTERS Volume: 105 Issue: 1 Article Number: 011801 Published: JUL 2 2010

26. **Neutrino mass and invisible Higgs decays at the LHC** — Times Cited: 17
By: Bonilla, Cesar; Romao, Jorge C.; Valle, Jose W. F.
PHYSICAL REVIEW D Volume: 91 Issue: 11 Article Number: 113015 Published: JUN 26 2015

27. **Higgs boson signal at complete tree level in the SM extension by dimension-six operators** — Times Cited: 29
By: Boos, E.; Bunichev, V.; Dubinin, M.; et al.
PHYSICAL REVIEW D Volume: 89 Issue: 3 Article Number: 035001 Published: FEB 4 2014

28. **Higgs boson decay into four leptons at NLOPS electroweak accuracy** — Times Cited: 10
By: Boselli, Stefano; Calame, Carlo M. Carloni; Montagna, Guido; et al.
JOURNAL OF HIGH ENERGY PHYSICS Issue: 6 Article Number: 023 Published: JUN 4 2015

29. **Theory and phenomenology of two-Higgs-doublet models** — Times Cited: 1,021
By: Branco, G. C.; Ferreira, P. M.; Lavoura, L.; et al.
PHYSICS REPORTS-REVIEW SECTION OF PHYSICS LETTERS Volume: 516 Issue: 1-2 Pages: 1-102 Published: JUL 2012

30. **Precise predictions for the Higgs-boson decay H -> WW/ZZ -> 4 leptons** — Times Cited: 161
By: Bredenstein, A.; Denner, A.; Dittmaier, S.; et al.
PHYSICAL REVIEW D Volume: 74 Issue: 1 Article Number: 013004 Published: JUL 2006

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