Journal publications of the CMS team

2026

Analysis of the C\!Pstructure of the Yukawa coupling between the Higgs boson and tau leptons in proton-proton collisions at \sqrt{s}= 13.6 TeV

Exploring Higgs EFT in ttHH at High Luminosity LHC, R. D'Elia Matheus, Oscar J. P. Eboli, R. Rahaman, A. Savoy Navarro, JHEP07(2026)156

High-level hadronic tau lepton triggers of the CMS experiment in proton-proton collisions at √(s) = 13.6 TeV, CMS. Collab., TAU-24-002, JINST 21 P04002

2025

Identification of tau leptons using a convolutional neural network with domain adaptation, CMS. Collab., TAU-24-001, JINST 20 P12032

Operation and performance of the CMS silicon strip tracker with proton-proton collisions at the CERN LHC, CMS Collab., CMS TRK-20-002, JINST 20 (2025) P08027

Search for heavy long-lived charged particles with large ionization energy loss in proton-proton collisions at √s = 13 TeV, CMS Collab., CMS EXO-18-002, JHEP 04 (2025) 109

Dark sector searches with the CMS experiment, CMS Collab. CMS EXO-23-005. Volume 1115, 17 April 2025, Pages 448-569 Physics Reports

2024

Searching for exotic Higgs bosons from top quark decays at the HL-LHC, G. Bhattacharyya, …, G. Saha, … et al., Eur.Phys.J.C 84 (2024) 9, 927

Measurement of the tau lepton polarization in Z boson decays, CMS Collab., JHEP 01 (2024) 101, CERN Courier, CERN highlights in 2023 (video)

2022 - 2023

Single-top quark physics at the LHC: from precision measurements to rare processes and top quark properties, Jérémy Andrea, Nicolas Chanon, Universe 2023, 9, 439, https://www.mdpi.com/2218-1997/9/10/439, included in https://www.mdpi.com/books/reprint/9016-top-quark-at-the-new-physics-frontier

Probing displaced top quark signature at the LHC Run 3, Jeremy Andrea, Daniel Bloch, Eric Conte, Douja Darej, Robin Ducrocq, Emery Nibigira, Eur. Phys. J. C 83 (2023) 299, https://link.springer.com/article/10.1140/epjc/s10052-023-11470-6, https://arxiv.org/abs/2212.06678

A portrait of the Higgs boson by the CMS experiment ten years after the discovery, CMS Collab., Nature 607, 60–68 (2022), https://doi.org/10.1038/s41586-022-04892-x

Identification of hadronic tau lepton decays using a deep neural network, CMS Collab., JINST 17 (2022) P07023, https://doi.org/10.1088/1748-0221/17/07/P07023, Physics Briefing

Design and commissioning of the first two CYRCé extension beamlines, E.Bouquerel, E.Traykov, C.Maazouzi, M.Rousseau, M.Pellicioli, T.Adam, P.Graehling, C.Mathieu, G.Heitz, M.Krauth, D.Oster, T.Foehrenbacher, C.Ruescas, J.Schuler, U.Goerlach, C.Haas, NIM A 1024 (2022) 166034. https://doi.org/10.1016/j.nima.2021.166034

Comparative evaluation of analogue front-end designs for the CMS Inner Tracker at the High Luminosity LHC, the Tracker Group of the CMS Collab., arXiv:2105.00070 [physics.ins-det]. Submitted to JINST. https://doi.org/10.48550/arXiv.2105.00070

Analysis of the CP structure of the Yukawa coupling between the Higgs boson and tau leptons in proton-proton collisions at √s=13 TeV, CMS Collab., JHEP 06 (2022) 012, https://doi.org/10.1007/JHEP06%282022%29012, CERN News, Physics Briefing

2017 – 2021

Radiation effects in the LHC experiments : Impact on detector performance and operation, Ian Dawson (ed.), …, J.L. Agram, E. Chabert et al., CERN Yellow Rep. Monogr. Vol 1 (2021). https://doi.org/10.23731/CYRM-2021-001

The CMS Phase-1 pixel detector upgrade, CMS Tracker Collab., JINST 16 (2021) P02027. https://iopscience.iop.org/article/10.1088/1748-0221/16/02/P02027

Measurement of the Higgs boson production rate in association with top quarks in final states with electrons, muons, and hadronically decaying tau leptons at √s=13 TeV, CMS Collab., Eur. Phys. J. C 81 (2021) 378

Searching for long-lived particles beyond the Standard Model at the Large Hadron Collider, J. Alimena, …, E. Conte et al., J. Phys. G : Nucl. Part. Phys. 47 (2020) 090501

Beam test performance of prototype silicon detectors for the Outer Tracker for the Phase-2 Upgrade of CMS, CMS Tracker Collab., JINST 15 (2020) P03014

Dark Matter benchmark models for early LHC Run-2 Searches : Report of the ATLAS/CMS Dark Matter Forum, D. Abercrombie, …, J. Andrea, M. Buttignol et al., Physics of the Dark Universe, 27 100371 (2020)

LHC constraints and potential on resonant monotop production, G. Cacciapaglia, E. Conte, A. Deandrea, B. Fuks, H.-S. Shao, Eur. Phys. J. C 79 (2019) 174

A study of the radiation tolerance of poly-crystalline and single-crystalline CVD diamond to 800 MeV and 24 GeV protons, L. Bani, …, J.-M. Brom et al., RD42 Collab., J. of Phys. D-Applied Phys., 52 46 (2019)

The DAQ and control system for the CMS Phase-1 pixel detector upgrade, CMS Tracker Collab., JINST 14 (2019) P10017

Confronting new physics theories to LHC data with MadAnalysis 5, Eric Conte and Benjamin Fuks, Int. J. Mod. Phys. A33 (2018) 1830027, arXiv:1808.00480 (Sep. 2018)

Observation of Higgs boson decay to bottom quarks, CMS Collab., Phys. Rev. Lett. 121 (2018) 121801

Performance of reconstruction and identification of τ leptons decaying to hadrons and ν_τ in pp collisions at √s = 13 TeV, CMS Collab., JINST 13 (2018) P10005. https://doi.org/10.1088/1748-0221/13/10/P10005

Observation of ttH production, CMS Collab., Phys. Rev. Lett. 120 (2018) 231801

Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying τ leptons at √s = 13 TeV, CMS Collab., JHEP 08 (2018) 066

Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV, CMS Collab., JINST 13 (2018) P05011. https://doi.org/10.1088/1748-0221/13/05/P05011

Search for top squarks and dark matter particles in opposite-charge dilepton final states at √s = 13 TeV, CMS Collab., Phys. Rev. D97 (2018) 032009

Test beam demonstration of silicon microstrip modules with pT discrimination for the future CMS tracking detector, CMS Tracker Collab., JINST 13 (2018) P03003

Measurement of the associated production of a single top quark and a Z boson in pp collisions at √s = 13 TeV, CMS Collab., Phys. Lett. B779 (2018) 358

Thick CVD diamond films grown on high-quality type IIa HPHT diamond substrates from New Diamond Technology, A. Tallaire, …, J.-M. Brom et al., Diamond and Related Materials 77 (2017) 146

Particle-flow reconstruction and global event description with the CMS detector, CMS Collab., JINST 12 (2017) P10003

Search for top squark pair production in pp collisions at √s = 13 TeV using single lepton events, CMS Collab., JHEP 10 (2017) 019

Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at √s = 8 TeV, CMS Collab., JHEP 07 (2017) 003.

Searches for pair production of third-generation squarks in √s = 13 TeV pp collisions, CMS Collab., Eur. Phys. J. C 77 (2017) 327.

The CMS trigger system, CMS Collab., JINST 12 (2017) P01020

Measurement of the WZ production cross section in pp collisions at √s = 13 TeV, CMS Collab., Phys. Lett. B 766 (2017) 268

2011 – 2016

A comprehensive approach to dark matter studies : exploration of simplified top-philic models, C. Arina, …, E. Conte, B. Fuks, J. Guo et al., JHEP 11 (2016) 111

Investigating light NMSSM pseudoscalar states with boosted ditau tagging, E. Conte, B. Fuks, J. Guo et al., JHEP 05 (2016) 100

Measurement of the t-tbar production cross section in the eμ channel in proton-proton collisions at √s = 7 and 8 TeV, CMS Collab., JHEP 08 (2016) 029

Search for direct pair production of scalar top quarks in the single- and dilepton channels in proton-proton collisions at √s = 8 TeV, CMS Collab., JHEP 07 (2016) 027, Erratum : JHEP 09 (2016) 056

Measurements of ttbar spin correlations and top quark polarization using dilepton final states in pp collisions at √s= 8 TeV, CMS Collab., Phys. Rev. D 93, 052007 (2016)

Measurement of the top quark pair production cross section in proton-proton collisions at √s = 13 TeV, CMS Collab., Phys. Rev. Lett. 116, 052002 (2016)

Measurement of the top quark mass using proton-proton data at √s = 7 and 8 TeV, CMS Collab., Phys. Rev. D 93, 072004 (2016)

Measurement of differential cross sections for Higgs boson production in the diphoton decay channel in pp collisions at √s = 8 TeV, CMS Collab., Eur. Phys. J. C 76 (2016) 13

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, CMS Collab., Eur. Phys. J. C 75 (2015) 212

Search for monotop signatures in proton-proton collisions at √s = 8 TeV, CMS Collab., Phys. Rev. Lett. 114, 101801 (2015)

Discovery potential for T′→tZ in the trilepton channel at the LHC, Lorenzo Basso, Jérémy Andrea, JHEP 02 (2015) 032

Toward a public analysis database for LHC new physics searches using MADANALYSIS 5, B. Dumont, B. Fuks, …, E. Conte et al., Eur. Phys. J. C 75 (2015) 56

Search for the associated production of the Higgs boson with a top-quark pair, CMS Collab. JHEP 09 (2014) 087

Alignment of the CMS tracker with LHC and cosmic ray data, CMS Collab., JINST 9 (2014) P06009

Description and performance of track and primary-vertex reconstruction with the CMS tracker, CMS Collab., JINST 9 (2014) 10, P10009

Measurements of the ttbar charge asymmetry using the dilepton decay channel in pp collisions at √s = 7 TeV, CMS Collab., JHEP 04 (2014) 191

Evidence for the direct decay of the 125-GeV Higgs boson to fermions, CMS Collab., Nature Phys. 10 (2014)

Measurement of the ttbar production cross section in the dilepton channel in pp collisions at √s = 8 TeV, CMS Collab., JHEP 02 (2014) 024

Monotop phenomenology at the Large Hadron Collider, J-L. Agram, J. Andrea, M. Buttignol, E. Conte, B. Fuks, Phys. Rev. D 89, 014028 (2014)

Designing and recasting LHC analyses with MadAnalysis 5, E. Conte, B. Dumont, B. Fuks and C. Wymant, , Eur. Phys. J. C74 (2014) 3103

MadAnalysis 5, a user-friendly framework for collider phenomenology, E. Conte, B. Fuks and G. Serret, Comput. Phys. Commun. 184 (2013) 222

Search for top-squark pair production in the single-lepton final state in pp collisions at √s = 8 TeV, CMS Collab., Eur. Phys. J. C 73 (2013) 2677

Probing top anomalous couplings at the LHC with trilepton signatures in the single top mode, J-L. Agram, J. Andrea, E. Conte, B. Fuks, D. Gelé, P. Lansonneur, Phys. Lett. B 725 (2013) 123-126

Observation of a new boson with mass near 125 GeV in pp collisions at √s = 7 and 8 TeV, CMS Collab., JHEP 06 (2013) 081

Measurement of the top-antitop production cross section in the tau+jets channel in pp collisions at √s = 7 TeV, CMS Collab., Eur.Phys.J. C73 (2013) 2386; https://link.springer.com/article/10.1140/epjc/s10052-013-2386-x

A New Boson with a Mass of 125 GeV Observed with the CMS Experiment at the Large Hadron Collider, CMS Collab., Science 338, 1569 (21 December 2012) in Breakthrough of the Year : The Discovery of the Higgs Boson, Science magazine

Identification of b-quark jets with the CMS experiment, CMS Collab., 2013 JINST 8 P04013; https://iopscience.iop.org/article/10.1088/1748-0221/8/04/P04013

Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC, CMS Collab., Phys.Lett. B716 (2012) 30-61; https://www.sciencedirect.com/science/article/pii/S0370269312008581

Measurement of the top quark mass in the dilepton channel in pp collisions at √s = 7 TeV, CMS Collab., JHEP 07 (2011) 049

Measurement of the ttbar production cross section in the dilepton channel in pp collisions at √s = 7 TeV, CMS Collab., JHEP 11 (2012) 067

Combined results of searches for the standard model Higgs boson in pp collisions at √s = 7 TeV, CMS Collab., Phys. Lett. B 710 (2012) 26-48

Monotops at the LHC, J. Andrea, B. Fuks and F. Maltoni, Phys. Rev. D 84 (2011) 074025

Measurement of the ttbar production cross section and the top quark mass in the dilepton channel in pp collisions at √s = 7 TeV, CMS Collab., JHEP 07 (2011) 049

First Measurement of the Cross Section for Top-Quark Pair Production in Proton-Proton Collisions at √s = 7 TeV, CMS Collab., Phys. Lett. B 695 (2011) 424-443; https://www.sciencedirect.com/science/article/pii/S037026931001333X

before 2011

CMS Tracking Performance Results from Early LHC Operations, CMS Collab., Eur. Phys. J. C 70 (2010) 1165

Commissioning of the CMS Experiment and the Cosmic Run at Four Tesla, CMS Collab., 2010 JINST 5 T03001

Commissioning and Performance of the CMS Silicon Strip Tracker with Cosmic Ray Muons, CMS Collab., 2010 JINST 5 T03008; https://iopscience.iop.org/article/10.1088/1748-0221/5/03/T03008

Commissioning of the CMS High-Level Trigger with Cosmic Rays, CMS Collab., 2010 JINST 5 T03005

Alignment of the CMS silicon strip tracker during stand-alone commissioning, CMS Tracker Collab., 2009 JINST 4 T07001

Performance studies of the CMS Strip Tracker before installation, CMS Tracker Collab., 2009 JINST 4 P06009

Stand-alone cosmic muon reconstruction before installation of the CMS silicon strip tracker, CMS Tracker Collab., 2009 JINST 4 P05004

The CMS experiment at the CERN LHC, the CMS Collaboration, S. Chatrchyan et al., 2008 JINST 3 S08004; https://iopscience.iop.org/article/10.1088/1748-0221/3/08/S08004/meta

The CMS tracker operation and performance at the Magnet Test and Cosmic Challenge, CMS Tracker Collab., 2008 JINST 3 P07006

CMS physics technical design report : Addendum on high density QCD with heavy ions, CMS Collab., David G. d'Enterria (Ed.) et al., J. Phys. G : Nucl. Part. Phys. 34 2307-2455, 2007

CMS Physics Technical Design Report, Volume II : Physics Performance, J. Phys. G : Nucl. Part. Phys. 34, 995-1579, 2007

The effect of highly ionising particles on the CMS silicon strip tracker, CMS Tracker Collab., Nucl. Instrum. Meth. A 543 (2005) 463-482

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