Bibliographie de thèse

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Références

[1] G. AAD & coll. « Combined measurement of the Higgs boson mass in pp collisions at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS Experiments ». *Physical Review Letters* **114**.19 (mai 2015). DOI : 10.1103/physrevlett.114.191803. URL : http://dx.doi.org/10.1103/PhysRevLett.114.191803.

[2] G. AAD & coll. « 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 ». *Journal of High Energy Physics* **08** (août 2016). DOI : 10.1007/jhep08(2016)045. URL : http://dx.doi.org/10.1007/JHEP08(2016)045.

[3] M. ABADI & coll. TENSORFLOW *: Large-scale machine learning on heterogeneous distributed systems*. Software available from tensorflow.org. 2015. URL : https://www.tensorflow.org/.

[4] P. A. R. ADE & coll. « Planck 2013 results. I. Overview of products and scientific results ». *Astronomy & Astrophysics* **571** (oct. 2014). DOI : 10.1051/0004-6361/201321529. URL : http://dx.doi.org/10.1051/0004-6361/201321529.

[5] S. ALIOLI & coll. « A general framework for implementing NLO calculations in shower Monte Carlo programs : the POWHEG BOX ». *Journal of High Energy Physics* **06** (2010). DOI : 10.1007/jhep06(2010)043. arXiv : 1002.2581 [hep-ph].

[6] J. ALLISON & coll. « GEANT4 developments and applications ». *IEEE Transactions on Nuclear Science* **53**.1 (fév. 2006), p. 270-278. DOI : 10.1109/tns.2006.869826.

[7] J. ALWALL & coll. « MADGRAPH 5 : Going Beyond ». *Journal of High Energy Physics* **06** (2011). DOI : 10.1007/jhep06(2011)128. arXiv : 1106.0522 [hep-ph].

[8] B. ANDERSSON & coll. « Parton fragmentation and string dynamics » (avr. 1983). URL : http://cds.cern.ch/record/143980.

[9] J. ANDREJKOVIC & coll. « Data-driven background estimation of fake-tau backgrounds in di-tau final states with 2016 and 2017 data ». *CMS analysis Note* (oct. 2018).

[10] P. ARCE & coll. « The network of photodetectors and diode lasers of the CMS Link alignment system ». *Nuclear Instruments and Methods in Physics Research* **A896** (2018), p. 1-23. DOI : 10.1016/j.nima.2018.04.004. URL : http://cds.cern.ch/record/2637152.

[11] G. ARNISON & coll. « Experimental observation of isolated large transverse energy electrons with associated missing energy at $\sqrt{s} = 540$ GeV ». *Physics Letters* **B122**.1 (1983), p. 103-116. DOI : https://doi.org/10.1016/0370-2693(83)91177-2. URL : http://www.sciencedirect.com/science/article/pii/0370269383911772.

[12] G. ARNISON & coll. « Experimental observation of lepton pairs of invariant mass around 95 GeV$\cdot c^{-2}$ at the CERN SPS collider ». *Physics Letters* **B126**.5 (1983), p. 398-410. DOI : https://doi.org/10.1016/0370-2693(83)90188-0. URL : http://www.sciencedirect.com/science/article/pii/0370269383901880.

[13] G. ARNISON & coll. « Further evidence for charged intermediate vector bosons at the SPS collider ». *Physics Letters* **B129**.3 (1983), p. 273-282. DOI : https://doi.org/10.1016/0370-2693(83)90860-2. URL : http://www.sciencedirect.com/science/article/pii/0370269383908602.

[14] P. BAGNAIA & coll. « Evidence for $Z^0 \to e^+e^-$ at the CERN pp collider ». *Physics Letters* **B129**.1 (1983), p. 130-140. DOI : https://doi.org/10.1016/0370-2693(83)90744-X. URL : http://www.sciencedirect.com/science/article/pii/037026938390744X.

[15] R. D. Ball & coll. « Parton distributions for the LHC Run II ». *Journal of High Energy Physics* **2015**.4 (avr. 2015). DOI : 10.1007/jhep04(2015)040. URL : http://dx.doi.org/10.1007/JHEP04(2015)040.

[16] M. Banner & coll. « Observation of single isolated electrons of high transverse momentum in events with missing transverse energy at the CERN pp collider ». *Physics Letters* **B122**.5 (1983), p. 476-485. DOI : https://doi.org/10.1016/0370-2693(83)91605-2. URL : http://www.sciencedirect.com/science/article/pii/0370269383916052.

[17] D. Barney. *Sketchup images highlighting the sub-detectors*. CMS Document Database. Nov. 2013. URL : https://cms-docdb.cern.ch/cgi-bin/PublicDocDB/ShowDocument?docid=11982.

[18] P. Bärtschi & coll. « Reconstruction of τ lepton pair invariant mass using an artificial neural network ». *Nuclear Instruments and Methods in Physics Research* **A929** (2019), p. 29-33. DOI : https://doi.org/10.1016/j.nima.2019.03.029. URL : http://www.sciencedirect.com/science/article/pii/S0168900219303377.

[19] G. Bellini, I. Bigi & P. Dornan. « Lifetimes of charm and beauty hadrons ». *Physics Reports* **289**.1 (1997), p. 1-155. DOI : https://doi.org/10.1016/S0370-1573(97)00005-7. URL : http://www.sciencedirect.com/science/article/pii/S0370157397000057.

[20] J. Bellm & coll. « HERWIG 7.0/HERWIG++ 3.0 release note ». *European Physical Journal* **C76**.196 (avr. 2016). DOI : 10.1140/epjc/s10052-016-4018-8.

[21] M. Benedikt & coll. « The LHC Injector Chain ». *LHC Design Report*. **3**. CERN Yellow Reports : Monographs. Geneva : CERN, 2004. DOI : 10.5170/CERN-2004-003-V-3. URL : https://cds.cern.ch/record/823808.

[22] C. Bernet. « Caractérisation des détecteurs Micromégas et mesure de la polarisation des gluons sur COMPASS ». Thèse de doct. Paris 7 - Denis Diderot, mai 2004. URL : http://cds.cern.ch/record/1482660.

[23] C. Bernet. « Reconstruction du flux de particules et mise en évidence de la désintégration du boson de Higgs en paire de τ avec CMS ». Thèse d'HDR (2017). URL : https://drive.google.com/open?id=0B3nnTYQibadjVkVvUi03cGRiYlk.

[24] H. A. Bethe. « Molière's Theory of Multiple Scattering ». *Physical Review* **89** (6 mar. 1953). DOI : 10.1103/PhysRev.89.1256. URL : https://link.aps.org/doi/10.1103/PhysRev.89.1256.

[25] L. Bianchini & coll. « Reconstruction of the Higgs mass in $H \to \tau\tau$ Events by Dynamical Likelihood techniques ». *Journal of Physics : Conference Series* **513**.2 (juin 2014). DOI : 10.1088/1742-6596/513/2/022035. URL : https://doi.org/10.1088%2F1742-6596%2F513%2F2%2F022035.

[26] P. Bolzoni & coll. « Vector boson fusion at next-to-next-to-leading order in QCD : Standard model Higgs boson and beyond ». *Physical Review* **D85** (3 fév. 2012). DOI : 10.1103/PhysRevD.85.035002. URL : https://link.aps.org/doi/10.1103/PhysRevD.85.035002.

[27] P. S. L. Booth. « The DELPHI Experiment ». *Philosophical Transactions : Physical Sciences and Engineering* **336**.1642 (1991), p. 213-222. URL : http://www.jstor.org/stable/53784.

[28] O. S. Brüning & coll. « The LHC Infrastructure and General Services ». *LHC Design Report*. **2**. CERN Yellow Reports : Monographs. Geneva : CERN, 2004. DOI : 10.5170/CERN-2004-003-V-2. URL : https://cds.cern.ch/record/815187.

[29] O. S. Brüning & coll. « The LHC Main Ring ». *LHC Design Report*. **1**. CERN Yellow Reports : Monographs. Geneva : CERN, 2004. DOI : 10.5170/CERN-2004-003-V-1. URL : https://cds.cern.ch/record/782076.

[30] A. Buckley & coll. « General-purpose event generators for LHC physics ». *Physics Reports* **504** (jan. 2011). DOI : 10.1016/j.physrep.2011.03.005. URL : http://cds.cern.ch/record/1322340.

[31] B. Bullock, K. Hagiwara & A. Martin. « Tau polarization and its correlations as a probe of new physics ». *Nuclear Physics* **B395**.3 (1993), p. 499-533. doi : https://doi.org/10.1016/0550-3213(93)90045-Q. url : http://www.sciencedirect.com/science/article/pii/055032139390045Q.

[32] N. Cabibbo. « Unitary Symmetry and Leptonic Decays ». *Physical Review Letters* **10** (12 juin 1963), p. 531-533. doi : 10.1103/PhysRevLett.10.531. url : https://link.aps.org/doi/10.1103/PhysRevLett.10.531.

[33] N. Cabibbo. « Unitary Symmetry and Nonleptonic Decays ». *Physical Review Letters* **12** (2 jan. 1964), p. 62-63. doi : 10.1103/PhysRevLett.12.62. url : https://link.aps.org/doi/10.1103/PhysRevLett.12.62.

[34] M. Cacciari & G. P. Salam. « Dispelling the N^3 myth for the k_T jet-finder ». *Physics Letters* **B641**.1 (sept. 2006), p. 57-61. doi : 10.1016/j.physletb.2006.08.037. url : http://dx.doi.org/10.1016/j.physletb.2006.08.037.

[35] M. Cacciari & G. P. Salam. « Pileup subtraction using jet areas ». *Physics Letters* **B659** (jan. 2008), p. 119-126. doi : 10.1016/j.physletb.2007.09.077. url : http://dx.doi.org/10.1016/j.physletb.2007.09.077.

[36] M. Cacciari, G. P. Salam & G. Soyez. « fastjet user manual ». *European Physical Journal* **C72** (nov. 2012). doi : 10.1140/epjc/s10052-012-1896-2. arXiv : 1111.6097 [hep-ph].

[37] M. Cacciari, G. P. Salam & G. Soyez. « The Anti-k_T jet clustering algorithm ». *Journal of High Energy Physics* **04** (avr. 2008). doi : 10.1088/1126-6708/2008/04/063. arXiv : 0802.1189 [hep-ph].

[38] M. Carena & coll. « MSSM Higgs boson searches at the LHC : benchmark scenarios after the discovery of a Higgs-like particle ». *European Physical Journal* **C73**.9 (sept. 2013). doi : 10.1140/epjc/s10052-013-2552-1. url : http://dx.doi.org/10.1140/epjc/s10052-013-2552-1.

[39] CERN. *MapCERN*. url : https://maps.web.cern.ch/.

[40] CERN. *The first touchscreen used at CERN*. url : https://www.youtube.com/watch?v=tQe5dlzScwU.

[41] CERN. *The World Wide Web Project*. 1989. url : http://info.cern.ch/hypertext/WWW/TheProject.html.

[42] F. Chollet & coll. Keras. https://keras.io. 2015.

[43] N. D. Christensen, T. Han & S. Su. « MSSM Higgs Bosons at The LHC ». *Physical Review* **D85** (2012). doi : 10.1103/PhysRevD.85.115018. arXiv : 1203.3207 [hep-ph].

[44] J. H. Christenson & coll. « Evidence for the 2π Decay of the K_2^0 Meson ». *Physical Review Letters* **13** (4 juil. 1964), p. 138-140. doi : 10.1103/PhysRevLett.13.138. url : https://link.aps.org/doi/10.1103/PhysRevLett.13.138.

[45] D. Clowe & coll. « A Direct Empirical Proof of the Existence of Dark Matter ». *Astrophysical Journal* **648**.2 (août 2006). doi : 10.1086/508162. url : http://dx.doi.org/10.1086/508162.

[46] CMS. « The CMS Particle Flow Algorithm ». *EPJ Web of Conferences* **191** (2018). doi : 10.1051/epjconf/201819102016. url : https://cds.cern.ch/record/2678077.

[47] *Dask : Scalable analytics in Python*. url : https://dask.org/.

[48] A. Davidson & K. C. Wali. « Family mass hierarchy from universal seesaw mechanism ». *Physical Review Letters* **60** (18 mai 1988), p. 1813-1816. doi : 10.1103/PhysRevLett.60.1813. url : https://link.aps.org/doi/10.1103/PhysRevLett.60.1813.

[49] S. Dawson, A. Djouadi & M. Spira. « QCD Corrections to Supersymmetric Higgs Boson Production : The Role of Squark Loops ». *Physical Review Letters* **77**.1 (juil. 1996), p. 16-19. doi : 10.1103/physrevlett.77.16. url : http://dx.doi.org/10.1103/PhysRevLett.77.16.

[50] DELPHI, OPAL, ALEPH, LEP Working Group for Higgs Boson Searches, L3. « Search for neutral MSSM Higgs bosons at LEP ». *European Physical Journal* **C47** (2006), p. 547-587. DOI : 10.1140/epjc/s2006-02569-7. arXiv : hep-ex/0602042 [hep-ex].

[51] A. Djouadi & coll. « The post-Higgs MSSM scenario : Habemus MSSM ? » *European Physical Journal* **C 73**.12 (19 juil. 2013). DOI : 10.1140/epjc/s10052-013-2650-0. arXiv : 1307.5205v1 [hep-ph].

[52] A. Dominguez & coll. *CMS Technical Design Report for the Pixel Detector Upgrade*. Rapp. tech. Sept. 2012. URL : https://cds.cern.ch/record/1481838.

[53] P. J. Dornan. « The ALEPH Experiment ». *Philosophical Transactions : Physical Sciences and Engineering* **336**.1642 (1991), p. 201-211. URL : http://www.jstor.org/stable/53783.

[54] S. Dürr & coll. « Ab Initio Determination of Light Hadron Masses ». *Science* **322**.5905 (nov. 2008), p. 1224-1227. DOI : 10.1126/science.1163233.

[55] F. Englert & R. Brout. « Broken symmetry and the mass of gauge vector mesons ». *Physical Review Letters* **13**.9 (9 août 1964), p. 321-323. DOI : 10.1103/PhysRevLett.13.321. URL : https://link.aps.org/doi/10.1103/PhysRevLett.13.321.

[56] J. de Favereau & coll. « Delphes 3 : a modular framework for fast simulation of a generic collider experiment ». *Journal of High Energy Physics* **2** (fév. 2014). DOI : 10.1007/jhep02(2014)057. URL : http://dx.doi.org/10.1007/JHEP02(2014)057.

[57] S. Frixione, P. Nason & B. R. Webber. « Matching NLO QCD and parton showers in heavy flavour production ». *Journal of High Energy Physics* **8** (août 2003). DOI : 10.1088/1126-6708/2003/08/007. URL : http://dx.doi.org/10.1088/1126-6708/2003/08/007.

[58] J. Gao, L. Harland-Lang & J. Rojo. « The structure of the proton in the LHC precision era ». *Physics Reports* **742** (mai 2018). DOI : 10.1016/j.physrep.2018.03.002. URL : http://dx.doi.org/10.1016/j.physrep.2018.03.002.

[59] M. Gell-Mann, P. Ramond & R. Slansky. « Complex Spinors and Unified Theories » (1979). URL : http://cds.cern.ch/record/133618.

[60] S. L. Glashow. « Partial-symmetries of weak interactions ». *Nuclear Physics* **22**.4 (1961), p. 579-588. DOI : https://doi.org/10.1016/0029-5582(61)90469-2.

[61] V. Gori. « The CMS High Level Trigger ». *International Journal of Modern Physics : Conference Series* **31** (mar. 2014). DOI : 10.1142/S201019451460297X. URL : https://cds.cern.ch/record/1666961.

[62] D. Guest & coll. « Jet flavor classification in high-energy physics with deep neural networks ». *Physical Review* **D94**.11 (déc. 2016). DOI : 10.1103/physrevd.94.112002. URL : http://dx.doi.org/10.1103/PhysRevD.94.112002.

[63] J. F. Gunion & coll. *Errata for "The Higgs Hunter's Guide"*. Rapp. tech. hep-ph/9302272. Fév. 1993. URL : https://cds.cern.ch/record/559892.

[64] J. F. Gunion & coll. *The Higgs hunter's guide*. T. **80**. Upton, NY : Brookhaven Nat. Lab., 1989. URL : https://cds.cern.ch/record/425736.

[65] G. S. Guralnik, C. R. Hagen & T. W. B. Kibble. « Global Conservation Laws and Massless Particles ». *Physical Review Letters* **13**.20 (20 nov. 1964), p. 585-587. DOI : 10.1103/PhysRevLett.13.585. URL : https://link.aps.org/doi/10.1103/PhysRevLett.13.585.

[66] F. J. Hasert & coll. « Observation of neutrino-like interactions without muon or electron in the Gargamelle neutrino experiment ». *Nuclear Physics* **B73**.1 (1974), p. 1-22. DOI : 10.1016/0550-3213(74)90038-8. URL : http://cds.cern.ch/record/203096.

[67] F. J. Hasert & coll. « Search for elastic muon neutrino electron scattering ». *Physics Letters* **B46**.1 (1973), p. 121-124. DOI : 10.1016/0370-2693(73)90494-2. URL : http://cds.cern.ch/record/243640.

[68] F. Hasert & coll. « Observation of neutrino-like interactions without muon or electron in the gargamelle neutrino experiment ». *Physics Letters* **B46**.1 (1973), p. 138-140. DOI : 10.1016/0370-2693(73)90499-1. URL : http://www.sciencedirect.com/science/article/pii/0370269373904991.

[69] P. W. Higgs. « Broken symmetries and the masses of gauge bosons ». *Physics Letters* **13**.16 (oct. 1964). DOI : 10.1103/physrevlett.13.508.

[70] P. W. Higgs. « Broken symmetries, massless particles and gauge fields ». *Physics Letters* **12**.2 (sept. 1964). DOI : 10.1016/0031-9163(64)91136-9. URL : https://cds.cern.ch/record/641590.

[71] M. Kobayashi & T. Maskawa. « CP-Violation in the Renormalizable Theory of Weak Interaction ». *Progress of Theoretical Physics* **49**.2 (fév. 1973), p. 652-657. DOI : 10.1143/PTP.49.652. eprint : https://academic.oup.com/ptp/article-pdf/49/2/652/5257692/49-2-652.pdf. URL : https://doi.org/10.1143/PTP.49.652.

[72] A. J. Larkoski. « An Unorthodox Introduction to QCD » (2017). arXiv : 1709.06195 [hep-ph].

[73] LHC Higgs Cross Section Working Group. « Differential Distributions ». *Handbook of LHC Higgs Cross Sections*. **2**. CERN Yellow Reports : Monographs. Geneva : CERN, 2012. DOI : 10.5170/CERN-2012-002. URL : https://cds.cern.ch/record/1416519.

[74] LHC Higgs Cross Section Working Group. « Inclusive Observables ». *Handbook of LHC Higgs Cross Sections*. **1**. CERN Yellow Reports : Monographs. Geneva : CERN, 2011. DOI : 10.5170/CERN-2011-002. URL : https://cds.cern.ch/record/1318996.

[75] LHC Higgs Cross Section Working Group. « Deciphering the Nature of the Higgs Sector ». *Handbook of LHC Higgs Cross Sections*. **4**. CERN Yellow Reports : Monographs. Geneva : CERN, oct. 2016. DOI : 10.23731/CYRM-2017-002. URL : http://cds.cern.ch/record/2227475.

[76] LHC Higgs Cross Section Working Group. « Higgs Properties ». *Handbook of LHC Higgs Cross Sections*. **3**. CERN Yellow Reports : Monographs. Geneva : CERN, 2013. DOI : 10.5170/CERN-2013-004. URL : https://cds.cern.ch/record/1559921.

[77] *Long term LHC schedule*. URL : https://lhc-commissioning.web.cern.ch/.

[78] Z. Maki, M. Nakagawa & S. Sakata. « Remarks on the Unified Model of Elementary Particles ». *Progress of Theoretical Physics* **28**.5 (nov. 1962), p. 870-880. DOI : 10.1143/PTP.28.870. eprint : https://academic.oup.com/ptp/article-pdf/28/5/870/5258750/28-5-870.pdf. URL : https://doi.org/10.1143/PTP.28.870.

[79] S. P. Martin. « A Supersymmetry primer ». *Advanced Series on Directions in High Energy Physics* (juil. 1998), p. 1-98. DOI : 10.1142/9789812839657_0001. URL : http://dx.doi.org/10.1142/9789812839657_0001.

[80] S. Mele. « The Measurement of the Number of Light Neutrino Species at LEP ». *Advanced Series on Directions in High Energy Physics* **23** (2015), p. 89-106. DOI : 10.1142/9789814644150_0004. URL : http://cds.cern.ch/record/2103251.

[81] A. Mertens. « New features in Delphes 3 ». *Journal of Physics : Conference Series* **608**.1 (2015). Sous la dir. de L. Fiala, M. Lokajicek & N. Tumova. DOI : 10.1088/1742-6596/608/1/012045.

[82] A. Michelini. « OPAL Detector Performance ». *Philosophical Transactions : Physical Sciences and Engineering* **336**.1642 (1991), p. 237-246. URL : http://www.jstor.org/stable/53786.

[83] R. N. Mohapatra & G. Senjanović. « Neutrino Mass and Spontaneous Parity Nonconservation ». *Physical Review Letters* **44** (14 avr. 1980), p. 912-915. DOI : 10.1103/PhysRevLett.44.912. URL : https://link.aps.org/doi/10.1103/PhysRevLett.44.912.

[84] R. N. Mohapatra & G. Senjanović. « Neutrino masses and mixings in gauge models with spontaneous parity violation ». *Physical Review* **D23** (1 jan. 1981), p. 165-180. DOI : 10.1103/PhysRevD.23.165. URL : https://link.aps.org/doi/10.1103/PhysRevD.23.165.

[85] Y. Nagashima. *Beyond the Standard Model of Elementary Particle Physics*. Weinheim : Wiley-VCH, juin 2014. URL : http://cds.cern.ch/record/1620277.

[86] Y. Nagashima. « Foundations of the Standard Model ». *Elementary Particle Physics*. **2**. Weinheim : Wiley-VCH, 2013.

[87] Y. Nagashima. « Quantum Field Theory and Particles ». *Elementary Particle Physics*. **1**. Weinheim : Wiley-VCH, 2010.

[88] S. H. Neddermeyer & C. D. Anderson. « Note on the Nature of Cosmic-Ray Particles ». *Physical Review* **51** (10 mai 1937), p. 884-886. DOI : 10.1103/PhysRev.51.884. URL : https://link.aps.org/doi/10.1103/PhysRev.51.884.

[89] B. P. Nigam, M. K. Sundaresan & T.-Y. Wu. « Theory of Multiple Scattering : Second Born Approximation and Corrections to Molière's Work ». *Physical Review* **115** (3 août 1959). DOI : 10.1103/PhysRev.115.491. URL : https://link.aps.org/doi/10.1103/PhysRev.115.491.

[90] OPAL, DELPHI, LEP Working Group for Higgs boson searches, ALEPH, L3. « Search for the standard model Higgs boson at LEP ». *Physics Letters* **B565** (2003), p. 61-75. DOI : 10.1016/S0370-2693(03)00614-2. arXiv : hep-ex/0306033 [hep-ex].

[91] Particle Data Group. « Review of Particle Physics ». *Chinese Physics* **C38** (août 2014). DOI : 10.1088/1674-1137/38/9/090001.

[92] Particle Data Group. « Review of Particle Physics ». *Chinese Physics* **C40** (oct. 2016). DOI : 10.1088/1674-1137/40/10/100001.

[93] Particle Data Group. « Review of Particle Physics ». *Physical Review* **D98** (août 2018). DOI : 10.1103/PhysRevD.98.030001.

[94] S. Raychaudhuri & D. P. Roy. « Charged Higgs boson search at the Fermilab Tevatron upgrade using τ polarization ». *Physical Review* **D52**.3 (3 août 1995), p. 1556-1564. DOI : 10.1103/PhysRevD.52.1556. URL : https://link.aps.org/doi/10.1103/PhysRevD.52.1556.

[95] G. Ridolfi, G. Ross & F. Zwirner. « Supersymmetry ». *Large Hadron Collider Workshop Proceedings*. **II**. CERN. Geneva : CERN, oct. 1990, p. 606-683.

[96] J. Rojo & coll. « The PDF4LHC report on PDFs and LHC data : results from Run I and preparation for Run II ». *Journal of Physics* **G42**.10 (sept. 2015). DOI : 10.1088/0954-3899/42/10/103103. URL : https://doi.org/10.1088%2F0954-3899%2F42%2F10%2F103103.

[97] T. Sakuma. *3D SketchUp images of the CMS detector*. CMS Document Database. Sept. 2018. URL : https://cms-docdb.cern.ch/cgi-bin/PublicDocDB/ShowDocument?docid=13631.

[98] G. P. Salam. *Elements of QCD for hadron colliders*. 2010. arXiv : 1011.5131 [hep-ph]. URL : https://arxiv.org/pdf/1011.5131.pdf.

[99] G. P. Salam. « Towards jetography ». *European Physical Journal* **C67**.3-4 (mai 2010), p. 637-686. DOI : 10.1140/epjc/s10052-010-1314-6. URL : http://dx.doi.org/10.1140/epjc/s10052-010-1314-6.

[100] G. P. Salam & G. Soyez. « A practical seedless infrared-safe cone jet algorithm ». *Journal of High Energy Physics* **05** (mai 2007). DOI : 10.1088/1126-6708/2007/05/086. URL : http://dx.doi.org/10.1088/1126-6708/2007/05/086.

[101] W. Sarle. « Neural Networks and Statistical Models ». 1994.

[102] A. Schälicke & coll. « An event generator for particle production in high-energy collisions ». *Progress in Particle and Nuclear Physics* **53**.1 (2004), p. 329-338. DOI : https://doi.org/10.1016/j.ppnp.2004.02.031. URL : http://www.sciencedirect.com/science/article/pii/S014664100400047X.

[103] J. Schechter & J. W. F. Valle. « Neutrino masses in $SU(2) \times U(1)$ theories ». *Physical Review* **D22** (9 nov. 1980), p. 2227-2235. DOI : 10.1103/PhysRevD.22.2227. URL : https://link.aps.org/doi/10.1103/PhysRevD.22.2227.

[104] *Site internet du CERN*. URL : https://home.cern/.

[105] T. Sjöstrand, S. Mrenna & P. Skands. « pythia 6.4 physics and manual ». *Journal of High Energy Physics* **05** (mai 2006). doi : 10.1088/1126-6708/2006/05/026. url : http://dx.doi.org/10.1088/1126-6708/2006/05/026.

[106] T. Sjöstrand & coll. « An Introduction to pythia 8.2 ». *Computer Physics Communications* **191** (2015), p. 159-177. doi : 10.1016/j.cpc.2015.01.024. arXiv : 1410.3012 [hep-ph].

[107] T. Speer & coll. *Track Reconstruction in the CMS Tracker*. Rapp. tech. CMS-CR-2005-014. Geneva : CERN, juil. 2005. doi : 10.1016/j.nima.2005.11.207. url : http://cds.cern.ch/record/884424.

[108] D. P. Stickland. « The L3 Experiment ». *Philosophical Transactions : Physical Sciences and Engineering* **336**.1642 (1991), p. 223-236. url : http://www.jstor.org/stable/53785.

[109] The ALICE Collaboration. « The ALICE experiment at the CERN LHC. A Large Ion Collider Experiment ». *Journal of Instrumentation* **3**.S08002 (2008). doi : 10.1088/1748-0221/3/08/S08002. url : http://cds.cern.ch/record/1129812.

[110] The ATLAS Collaboration. « Search for additional heavy neutral Higgs and gauge bosons in the ditau final state produced in 36 fb^{-1} of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector ». *Journal of High Energy Physics* **2018**.1 (jan. 2018). doi : 10.1007/jhep01(2018)055. url : http://dx.doi.org/10.1007/JHEP01(2018)055.

[111] The ATLAS Collaboration. « Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC ». *Physics Letters* **B716**.1 (2012), p. 1-29. doi : https://doi.org/10.1016/j.physletb.2012.08.020. url : http://www.sciencedirect.com/science/article/pii/S037026931200857X.

[112] The ATLAS Collaboration. « Search for the neutral Higgs bosons of the Minimal Supersymmetric Standard Model in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector ». *Journal of High Energy Physics* **02** (2013). doi : 10.1007/JHEP02(2013)095. arXiv : 1211.6956 [hep-ex].

[113] The ATLAS Collaboration. « Search for heavy Higgs bosons decaying into two tau leptons with the ATLAS detector using pp collisions at $\sqrt{s} = 13$ TeV » (2020). arXiv : 2002.12223 [hep-ex].

[114] The ATLAS Collaboration. « The ATLAS Experiment at the CERN Large Hadron Collider ». *Journal of Instrumentation* **3**.S08003 (2008). doi : 10.1088/1748-0221/3/08/S08003. url : http://cds.cern.ch/record/1129811.

[115] The ATLAS Collaboration, The CMS Collaboration, The LHC Higgs Combination Group. *Procedure for the LHC Higgs boson search combination in Summer 2011*. Rapp. tech. CMS-NOTE-2011-005. ATL-PHYS-PUB-2011-11. Geneva : CERN, août 2011. url : https://cds.cern.ch/record/1379837.

[116] The CDF Collaboration. « Search for Higgs bosons predicted in two-Higgs-doublet models via decays to tau lepton pairs in 1,96 TeV $p\bar{p}$ collisions ». *Physical Review Letters* **103** (2009). doi : 10.1103/PhysRevLett.103.201801. arXiv : 0906.1014 [hep-ex].

[117] The CDF Collaboration. « Observation of top quark production in $p\bar{p}$ collisions with the collider detector at Fermilab ». *Physical Review Letters* **74**.14 (avr. 1995), p. 2626-2631. doi : 10.1103/physrevlett.74.2626. url : http://dx.doi.org/10.1103/PhysRevLett.74.2626.

[118] The CMS Collaboration. « Precise mapping of the magnetic field in the CMS barrel yoke using cosmic rays ». *Journal of Instrumentation* **5** (mar. 2010). doi : 10.1088/1748-0221/5/03/t03021. url : http://dx.doi.org/10.1088/1748-0221/5/03/T03021.

[119] The CMS Collaboration. « Detector Performance and Software ». *CMS Physics : Technical Design Report*. **1**. Technical Design Report CMS. Geneva : CERN, 2006. url : http://cds.cern.ch/record/922757.

[120] The CMS Collaboration. *CMS TriDAS project : Technical Design Report*. T. **1**. Technical Design Report CMS. Geneva : CERN. url : http://cds.cern.ch/record/706847.

[121] The CMS Collaboration. « Calibration of hadron calorimeter using isolated charged hadrons » (mai 2017). URL : https://cds.cern.ch/record/2263758.

[122] The CMS Collaboration. « Description and performance of track and primary-vertex reconstruction with the CMS tracker ». *Journal of Instrumentation* **9** (mai 2014). DOI : 10.1088/1748-0221/9/10/P10009. URL : http://cds.cern.ch/record/1704291.

[123] The CMS Collaboration. « Evidence for the 125 GeV Higgs boson decaying to a pair of τ leptons ». *Journal of High Energy Physics* **05** (20 jan. 2014). DOI : 10.1007/JHEP05(2014)104. arXiv : 1401.5041v2 [hep-ex].

[124] The CMS Collaboration. « Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC ». *Physics Letters* **B716**.1 (2012), p. 30-61. DOI : https://doi.org/10.1016/j.physletb.2012.08.021. URL : http://www.sciencedirect.com/science/article/pii/S0370269312008581.

[125] The CMS Collaboration. « Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s} = 7$ and 8 TeV ». *Journal of High Energy Physics* **06** (juin 2013). DOI : 10.1007/jhep06(2013)081.

[126] The CMS Collaboration. « Search for a Higgs boson decaying into a b-quark pair and produced in association with b quarks in proton-proton collisions at 7 TeV ». *Physics Letters* **B722** (2013), p. 207-232. DOI : 10.1016/j.physletb.2013.04.017. arXiv : 1302.2892 [hep-ex].

[127] The CMS Collaboration. « Search for neutral Higgs bosons decaying to tau pairs in pp collisions at $\sqrt{s} = 7$ TeV ». *Physics Letters* **B713** (2012), p. 68-90. DOI : 10.1016/j.physletb.2012.05.028. arXiv : 1202.4083 [hep-ex].

[128] The CMS Collaboration. « The performance of the CMS muon detector in proton-proton collisions at $\sqrt{s} = 7$ TeV at the LHC ». *Journal of Instrumentation* **8** (juin 2013). DOI : 10.1088/1748-0221/8/11/P11002. URL : https://cds.cern.ch/record/1558674.

[129] The CMS Collaboration. *Performance of the CMS electromagnetic calorimeter during the LHC Run II and its role in precision physics measurements*. Rapp. tech. Geneva : CERN, août 2018. DOI : 10.22323/1.321.0084. URL : https://cds.cern.ch/record/2637093.

[130] The CMS Collaboration. *CMS TriDAS project : Technical Design Report*. T. **2**. Technical Design Report CMS. Geneva : CERN, 2002. URL : http://cds.cern.ch/record/578006.

[131] The CMS Collaboration. « CMS ECAL first results with 2016 data » (juin 2016). URL : http://cds.cern.ch/record/2194169.

[132] The CMS Collaboration. « CMS ECAL Response to Laser Light » (mar. 2019). URL : https://cds.cern.ch/record/2668200.

[133] The CMS Collaboration. *CMS Luminosity – Public Results*. URL : https://twiki.cern.ch/twiki/bin/view/CMSPublic/LumiPublicResults.

[134] The CMS Collaboration. *CMS luminosity measurement for the 2017 data-taking period at* $\sqrt{s} =$ 13 TeV. Rapp. tech. CMS-PAS-LUM-17-004. Geneva : CERN, 2018. URL : http://cds.cern.ch/record/2621960.

[135] The CMS Collaboration. *CMS luminosity measurement for the 2018 data-taking period at* $\sqrt{s} =$ 13 TeV. Rapp. tech. CMS-PAS-LUM-18-002. Geneva : CERN, 2019. URL : http://cds.cern.ch/record/2676164.

[136] The CMS Collaboration. *CMS Luminosity Measurements for the 2016 Data Taking Period*. Rapp. tech. CMS-PAS-LUM-17-001. Geneva : CERN, 2017. URL : http://cds.cern.ch/record/2257069.

[137] The CMS Collaboration. « First results from the CMS SiPM-based hadronic endcap calorimeter ». Geneva, août 2018. DOI : 10.1088/1742-6596/1162/1/012009. URL : https://cds.cern.ch/record/2636475.

[138] The CMS Collaboration. *CMS : letter of intent by the CMS Collaboration for a general purpose detector at LHC*. Rapp. tech. CERN-LHCC-92-003. LHCC-I-1. Geneva : CERN, 1992. URL : https://cds.cern.ch/record/290808.

[139] The CMS Collaboration. « Determination of jet energy calibration and transverse momentum resolution in CMS ». *Journal of Instrumentation* **6**.11 (nov. 2011). DOI : 10.1088/1748-0221/6/11/p11002. URL : http://dx.doi.org/10.1088/1748-0221/6/11/P11002.

[140] The CMS Collaboration. *CMS electromagnetic calorimeter calibration and timing performance during LHC Run I and future prospects*. Rapp. tech. Geneva : CERN, nov. 2014. URL : https://cds.cern.ch/record/1975982.

[141] The CMS Collaboration. « ECAL 2016 refined calibration and Run2 summary plots » (avr. 2020). URL : https://cds.cern.ch/record/2717925.

[142] The CMS Collaboration. « Energy calibration and resolution of the CMS electromagnetic calorimeter in pp collisions at $\sqrt{s} = 7\,\text{TeV}$ ». *Journal of Instrumentation* **8** (juin 2013). DOI : 10.1088/1748-0221/8/09/P09009. URL : https://cds.cern.ch/record/1554142.

[143] The CMS Collaboration. *Overview of the CMS electromagnetic calorimeter*. Rapp. tech. Geneva : CERN, 1999. DOI : 10.1016/S0920-5632(99)00544-7. URL : https://cds.cern.ch/record/421977.

[144] The CMS Collaboration. « HCAL Calibration in 2016 » (mai 2017). URL : https://cds.cern.ch/record/2263759.

[145] The CMS Collaboration. « HCAL Calibration Status in Summer 2017 » (mai 2017). URL : https://cds.cern.ch/record/2281146.

[146] The CMS Collaboration. « HCAL Energy Reconstruction Performance » (nov. 2016). URL : https://cds.cern.ch/record/2235509.

[147] The CMS Collaboration. « HCAL Out Of Time Pileup Subtraction and Energy Reconstruction » (mai 2018). URL : https://cds.cern.ch/record/2320408.

[148] The CMS Collaboration. « The CMS detector magnet ». *IEEE Transactions on Applied Superconductivity* **10**.1 (2000). DOI : 10.1109/77.828255. URL : http://cds.cern.ch/record/438917.

[149] The CMS Collaboration. « HF and HEP17 : phase1 upgrade performances » (oct. 2017). URL : https://cds.cern.ch/record/2288359.

[150] The CMS Collaboration. « Identification of b-quark jets with the CMS experiment ». *Journal of Instrumentation* **8**.04 (avr. 2013). DOI : 10.1088/1748-0221/8/04/p04013. URL : http://dx.doi.org/10.1088/1748-0221/8/04/P04013.

[151] The CMS Collaboration. « Jet energy scale and resolution performance with 13 TeV data collected by CMS in 2016 » (juin 2018). URL : http://cds.cern.ch/record/2622157.

[152] The CMS Collaboration. « Jet energy scale and resolution performance with 13 TeV data collected by CMS in 2016-2018 » (avr. 2020). URL : https://cds.cern.ch/record/2715872.

[153] The CMS Collaboration. « Search for neutral MSSM Higgs bosons decaying to a pair of tau leptons in pp collisions ». *Journal of High Energy Physics* **10** (oct. 2014). DOI : 10.1007/jhep10(2014)160. URL : http://dx.doi.org/10.1007/JHEP10(2014)160.

[154] The CMS Collaboration. « Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV ». *Journal of Instrumentation* **12**.02 (fév. 2017). DOI : 10.1088/1748-0221/12/02/p02014. URL : https://doi.org/10.1088%2F1748-0221%2F12%2F02%2Fp02014.

[155] The CMS Collaboration. « Event generator tunes obtained from underlying event and multiparton scattering measurements ». *European Physical Journal* **C76**.3 (2016). DOI : 10.1140/epjc/s10052-016-3988-x. arXiv : 1512.00815 [hep-ex].

[156] The CMS Collaboration. « Performance of photon reconstruction and identification with the CMS detector in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$ ». *Journal of Instrumentation* **10** (fév. 2015). DOI : 10.1088/1748-0221/10/08/P08010. URL : https://cds.cern.ch/record/1988093.

[157] The CMS Collaboration. « Reconstruction and identification of tau lepton decays to hadrons and tau neutrino at CMS ». *Journal of Instrumentation* **11**.1 (2016). DOI : 10.1088/1748-0221/11/01/P01019. arXiv : 1510.07488 [physics.ins-det].

[158] The CMS Collaboration. « Search for neutral MSSM Higgs bosons decaying into a pair of bottom quarks ». *Journal of High Energy Physics* **11** (2015). DOI : 10.1007/JHEP11(2015)071. arXiv : 1506.08329 [hep-ex].

[159] The CMS Collaboration. « Search for neutral MSSM Higgs bosons decaying to $\mu^+\mu^-$ in pp collisions at $\sqrt{s} = 7$ and 8 TeV ». *Physics Letters* **B752** (2016), p. 221-246. DOI : 10.1016/j.physletb.2015.11.042. arXiv : 1508.01437 [hep-ex].

[160] The CMS Collaboration. « The CMS trigger system ». *Journal of Instrumentation* **12** (sept. 2016). DOI : 10.1088/1748-0221/12/01/P01020. URL : https://cds.cern.ch/record/2212926.

[161] The CMS Collaboration. « CMS set of posters (En & Fr) updated 2019 » (mar. 2020). URL : https://cds.cern.ch/record/2712624.

[162] The CMS Collaboration. « Noise in Phase 1 HF detector in 2017 » (mai 2017). URL : https://cds.cern.ch/record/2281147.

[163] The CMS Collaboration. *Performance of missing transverse momentum in pp collisions at* $\sqrt{s} =$ 13 TeV *using the CMS detector*. Rapp. tech. Geneva : CERN, 2018. URL : https://cds.cern.ch/record/2628600.

[164] The CMS Collaboration. *Performance of quark/gluon discrimination in* 8 TeV *pp data*. Rapp. tech. CMS-PAS-JME-13-002. Geneva : CERN, 2013. URL : http://cds.cern.ch/record/1599732.

[165] The CMS Collaboration. « Results related to the Phase1 HE upgrade » (mai 2018). URL : https://cds.cern.ch/record/2320857.

[166] The CMS Collaboration. « « ZOOOM » : Drawings of the CMS detector with SketchUp » (juin 2012). URL : https://cds.cern.ch/record/2629326.

[167] The CMS Collaboration. « An embedding technique to determine $\tau\tau$ backgrounds in proton-proton collision data ». *Journal of Instrumentation* **14**.06 (juin 2019). DOI : 10.1088/1748-0221/14/06/p06032.

[168] The CMS Collaboration. « Particle-flow reconstruction and global event description with the CMS detector ». *Journal of Instrumentation* **12**.10 (juin 2017). DOI : 10.1088/1748-0221/12/10/P10003. arXiv : 1706.04965v2 [physics.ins-det]. URL : http://stacks.iop.org/1748-0221/12/i=10/a=P10003.

[169] The CMS Collaboration. « Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at $\sqrt{s} = 13$ TeV ». *Journal of Instrumentation* **13** (avr. 2018). DOI : 10.1088/1748-0221/13/06/P06015. URL : https://cds.cern.ch/record/2313130.

[170] The CMS Collaboration. « Search for additional neutral MSSM Higgs bosons in the di-tau final state in pp collisions at $\sqrt{s} = 13$ TeV ». *Journal of High Energy Physics* **09**.007 (sept. 2018). DOI : 10.1007/JHEP09(2018)007.

[171] The CMS Collaboration. « Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV ». *Journal of Instrumentation* **13**.05 (mai 2018). DOI : 10.1088/1748-0221/13/05/p05011. URL : http://dx.doi.org/10.1088/1748-0221/13/05/P05011.

[172] The CMS Collaboration. « Extraction and validation of a new set of CMS PYTHIA 8 tunes from underlying-event measurements ». *European Physical Journal* **C80** (mar. 2019). DOI : 10.1140/epjc/s10052-019-7499-4. URL : https://cds.cern.ch/record/2669320.

[173] The CMS Collaboration. « Measurement of differential cross sections for inclusive isolated-photon and photon+jets production in proton-proton collisions at $\sqrt{s} = 13$ TeV ». *European Physical Journal* **C79**.20 (juil. 2018). DOI : 10.1140/epjc/s10052-018-6482-9. URL : http://cds.cern.ch/record/2628267.

[174] The CMS Collaboration. « Precision measurement of the structure of the CMS inner tracking system using nuclear interactions ». *Journal of Instrumentation* **13** (juil. 2018). DOI : 10.1088/1748-0221/13/10/P10034. URL : https://cds.cern.ch/record/2629890.

[175] The CMS Collaboration. *The CMS electromagnetic calorimeter project : Technical Design Report*. Technical Design Report CMS. Geneva : CERN, 1997. URL : https://cds.cern.ch/record/349375.

[176] The CMS Collaboration. « The CMS experiment at the CERN LHC. The Compact Muon Solenoid experiment ». *Journal of Instrumentation* **3**.S08004 (2008). DOI : 10.1088/1748-0221/3/08/S08004. URL : http://cds.cern.ch/record/1129810.

[177] The CMS Collaboration. *The CMS hadron calorimeter project : Technical Design Report*. Technical Design Report CMS. Geneva : CERN, 1997. URL : https://cds.cern.ch/record/357153.

[178] The CMS Collaboration. *The CMS magnet project : Technical Design Report*. Technical Design Report CMS. Geneva : CERN, 1997. URL : http://cds.cern.ch/record/331056.

[179] The CMS Collaboration. *The CMS muon project : Technical Design Report*. Technical Design Report CMS. Geneva : CERN, 1997. URL : https://cds.cern.ch/record/343814.

[180] The CMS Collaboration. *The CMS tracker system project : Technical Design Report*. Technical Design Report CMS. Geneva : CERN, 1997. URL : https://cds.cern.ch/record/368412.

[181] The DØ Collaboration. « Observation of the top quark ». *Physical Review Letters* **74**.14 (avr. 1995), p. 2632-2637. DOI : 10.1103/physrevlett.74.2632. URL : http://dx.doi.org/10.1103/PhysRevLett.74.2632.

[182] The DØ Collaboration. « Search for Higgs bosons decaying to $\tau\tau$ pairs in $p\bar{p}$ collisions at $\sqrt{s} = 1{,}96\,\text{TeV}$ ». *Physics Letters* **B707** (2012), p. 323-329. DOI : 10.1016/j.physletb.2011.12.050. arXiv : 1106.4555 [hep-ex].

[183] The DØ Collaboration. « Measurement of the ${B^0}_s$ lifetime in the exclusive decay channel ${B^0}_s \to J/\Psi\phi$ ». *Physical Review Letters* **94** (2005).

[184] The LHCb Collaboration. « The LHCb Detector at the LHC ». *Journal of Instrumentation* **3**.S08005 (2008). DOI : 10.1088/1748-0221/3/08/S08005. URL : http://cds.cern.ch/record/1129809.

[185] The LHCf Collaboration. « The LHCf detector at the CERN Large Hadron Collider ». *Journal of Instrumentation* **3**.S08006 (2008). DOI : 10.1088/1748-0221/3/08/S08006. URL : http://cds.cern.ch/record/1129808.

[186] The MoEDAL Collaboration. *Technical Design Report of the MoEDAL Experiment*. Rapp. tech. CERN-LHCC-2009-006. MoEDAL-TDR-001. Juin 2009. URL : https://cds.cern.ch/record/1181486.

[187] The SNO Collaboration. « Direct Evidence for Neutrino Flavor Transformation from Neutral-Current Interactions in the Sudbury Neutrino Observatory ». *Physical Review Letters* **89** (1 juin 2002). DOI : 10.1103/PhysRevLett.89.011301. URL : https://link.aps.org/doi/10.1103/PhysRevLett.89.011301.

[188] The Super-Kamiokande Collaboration. « Evidence for oscillation of atmospheric neutrinos ». *Physical Review Letters* **81** (8 août 1998), p. 1562-1567. DOI : 10.1103/PhysRevLett.81.1562. URL : https://link.aps.org/doi/10.1103/PhysRevLett.81.1562.

[189] The TOTEM Collaboration. « The TOTEM Experiment at the CERN Large Hadron Collider ». *Journal of Instrumentation* **3**.S08007 (2008). DOI : 10.1088/1748-0221/3/08/S08007. URL : http://cds.cern.ch/record/1129807.

[190] S. Weinberg. « A model of leptons ». *Physical Review Letters* **19** (21 nov. 1967), p. 1264-1266. DOI : 10.1103/PhysRevLett.19.1264. URL : https://link.aps.org/doi/10.1103/PhysRevLett.19.1264.

[191] J.-C. Winter, F. Krauss & G. Soff. « A modified cluster-hadronisation model ». *European Physical Journal* **C36**.3 (août 2004), p. 381-395. DOI : 10.1140/epjc/s2004-01960-8. URL : http://dx.doi.org/10.1140/epjc/s2004-01960-8.

[192] C. S. Wu & coll. « Experimental Test of Parity Conservation in Beta Decay ». *Physical Review* **105** (4 fév. 1957), p. 1413-1415. DOI : 10.1103/PhysRev.105.1413. URL : https://link.aps.org/doi/10.1103/PhysRev.105.1413.