

# Bibliographie de thèse

## Liste des entrées dans le fichier .bib

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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](https://doi.org/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](https://doi.org/10.1007/jhep08(2016)045). URL : [http://dx.doi.org/10.1007/JHEP08\(2016\)045](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](https://doi.org/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), p. 043. DOI : [10.1007/jhep06\(2010\)043](https://doi.org/10.1007/jhep06(2010)043). arXiv : [1002.2581](https://arxiv.org/abs/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](https://doi.org/10.1109/tns.2006.869826).
- [7] J. Alwall & coll. « MADGRAPH 5 : Going Beyond ». *Journal of High Energy Physics* **06** (2011), p. 128. DOI : [10.1007/jhep06\(2011\)128](https://doi.org/10.1007/jhep06(2011)128). arXiv : [1106.0522](https://arxiv.org/abs/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] 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](https://doi.org/10.1016/0370-2693(83)91177-2). URL : <http://www.sciencedirect.com/science/article/pii/0370269383911772>.
- [11] G. Arnison & coll. « Experimental observation of lepton pairs of invariant mass around 95 GeV  $c^{-2}$  at the CERN SPS collider ». *Physics Letters* **B126**.5 (1983), p. 398-410. DOI : [https://doi.org/10.1016/0370-2693\(83\)90188-0](https://doi.org/10.1016/0370-2693(83)90188-0). URL : <http://www.sciencedirect.com/science/article/pii/0370269383901880>.
- [12] 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](https://doi.org/10.1016/0370-2693(83)90860-2). URL : <http://www.sciencedirect.com/science/article/pii/0370269383908602>.
- [13] P. Bagnaia & coll. « Evidence for  $Z^0 \rightarrow e^+e^-$  at the CERN  $pp$  collider ». *Physics Letters* **B129**.1 (1983), p. 130-140. DOI : [https://doi.org/10.1016/0370-2693\(83\)90744-X](https://doi.org/10.1016/0370-2693(83)90744-X). URL : <http://www.sciencedirect.com/science/article/pii/037026938390744X>.
- [14] 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](https://doi.org/10.1016/0370-2693(83)91605-2). URL : <http://www.sciencedirect.com/science/article/pii/0370269383916052>.

- [15] P. BÄRTSCHI & coll. « Reconstruction of  $\tau$  lepton pair invariant mass using an artificial neural network ». *Nuclear Instruments and Methods in Physics Research A* **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>.
- [16] 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](https://doi.org/10.1016/S0370-1573(97)00005-7). URL : <http://www.sciencedirect.com/science/article/pii/S0370157397000057>.
- [17] J. BELLM & coll. « HERWIG 7.0/HERWIG++ 3.0 release note ». *European Physical Journal C* **76.196** (avr. 2016). DOI : [10.1140/epjc/s10052-016-4018-8](https://doi.org/10.1140/epjc/s10052-016-4018-8).
- [18] 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>.
- [19] C. BERNET. « Reconstruction du flux de particules et mise en évidence de la désintégration du boson de Higgs en paire de  $\tau$  avec CMS ». Thèse d'HDR (2017). URL : <https://drive.google.com/open?id=0B3nnTYQibadjVkVvUi03cGRiYlk>.
- [20] L. BIANCHINI & coll. « Reconstruction of the Higgs mass in  $H \rightarrow \tau\tau$  Events by Dynamical Likelihood techniques ». *Journal of Physics : Conference Series* **513.2** (juin 2014), p. 022035. DOI : [10.1088/1742-6596/513/2/022035](https://doi.org/10.1088/1742-6596/513/2/022035). URL : <https://doi.org/10.1088/1742-6596/513/2/022035>.
- [21] P. BOLZONI & coll. « Vector boson fusion at next-to-next-to-leading order in QCD : Standard model Higgs boson and beyond ». *Physical Review D* **D85** (3 fév. 2012). DOI : [10.1103/PhysRevD.85.035002](https://doi.org/10.1103/PhysRevD.85.035002). URL : <https://link.aps.org/doi/10.1103/PhysRevD.85.035002>.
- [22] B. BULLOCK, K. HAGIWARA & A. MARTIN. « Tau polarization and its correlations as a probe of new physics ». *Nuclear Physics B* **B395.3** (1993), p. 499-533. DOI : [https://doi.org/10.1016/0550-3213\(93\)90045-Q](https://doi.org/10.1016/0550-3213(93)90045-Q). URL : <http://www.sciencedirect.com/science/article/pii/055032139390045Q>.
- [23] N. CABIBBO. « Unitary Symmetry and Leptonic Decays ». *Physical Review Letters* **10** (12 juin 1963), p. 531-533. DOI : [10.1103/PhysRevLett.10.531](https://doi.org/10.1103/PhysRevLett.10.531). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.10.531>.
- [24] N. CABIBBO. « Unitary Symmetry and Nonleptonic Decays ». *Physical Review Letters* **12** (2 jan. 1964), p. 62-63. DOI : [10.1103/PhysRevLett.12.62](https://doi.org/10.1103/PhysRevLett.12.62). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.12.62>.
- [25] M. CACCIARI & G. P. SALAM. « Dispelling the  $N^3$  myth for the  $k_T$  jet-finder ». *Physics Letters B* **B641.1** (sept. 2006), p. 57-61. DOI : [10.1016/j.physletb.2006.08.037](https://doi.org/10.1016/j.physletb.2006.08.037). URL : <http://dx.doi.org/10.1016/j.physletb.2006.08.037>.
- [26] M. CACCIARI & G. P. SALAM. « Pileup subtraction using jet areas ». *Physics Letters B* **B659** (jan. 2008), p. 119-126. DOI : [10.1016/j.physletb.2007.09.077](https://doi.org/10.1016/j.physletb.2007.09.077). URL : <http://dx.doi.org/10.1016/j.physletb.2007.09.077>.
- [27] M. CACCIARI, G. P. SALAM & G. SOYEZ. « FASTJET user manual ». *European Physical Journal C* **C72** (nov. 2012), p. 1896. DOI : [10.1140/epjc/s10052-012-1896-2](https://doi.org/10.1140/epjc/s10052-012-1896-2). arXiv : [1111.6097 \[hep-ph\]](https://arxiv.org/abs/1111.6097).
- [28] M. CACCIARI, G. P. SALAM & G. SOYEZ. « The Anti- $k_T$  jet clustering algorithm ». *Journal of High Energy Physics* **04** (avr. 2008), p. 63. DOI : [10.1088/1126-6708/2008/04/063](https://doi.org/10.1088/1126-6708/2008/04/063). arXiv : [0802.1189 \[hep-ph\]](https://arxiv.org/abs/0802.1189).
- [29] M. CARENA & coll. « MSSM Higgs boson searches at the LHC : benchmark scenarios after the discovery of a Higgs-like particle ». *European Physical Journal C* **C73.9** (sept. 2013). DOI : [10.1140/epjc/s10052-013-2552-1](https://doi.org/10.1140/epjc/s10052-013-2552-1). URL : <http://dx.doi.org/10.1140/epjc/s10052-013-2552-1>.
- [30] CERN. *The World Wide Web Project*. 1989. URL : <http://info.cern.ch/hypertext/WWW/TheProject.html>.

- [31] F. CHOLLET & coll. KERAS. <https://keras.io>. 2015.
- [32] N. D. CHRISTENSEN, T. HAN & S. SU. « MSSM Higgs Bosons at The LHC ». *Physical Review D* **D85** (2012), p. 115018. DOI : [10.1103/PhysRevD.85.115018](https://doi.org/10.1103/PhysRevD.85.115018). arXiv : [1203.3207 \[hep-ph\]](https://arxiv.org/abs/1203.3207).
- [33] D. CLOWE & coll. « A Direct Empirical Proof of the Existence of Dark Matter ». *Astrophysical Journal* **648.2** (août 2006). DOI : [10.1086/508162](https://doi.org/10.1086/508162). URL : <http://dx.doi.org/10.1086/508162>.
- [34] CMS Collaboration. « Performance of photon reconstruction and identification with the CMS detector in proton-proton collisions at  $\sqrt{s} = 8$  TeV ». *Journal of Instrumentation* **10** (fév. 2015). DOI : [10.1088/1748-0221/10/08/P08010](https://doi.org/10.1088/1748-0221/10/08/P08010). URL : <https://cds.cern.ch/record/1988093>.
- [35] 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 C* **79.20** (juil. 2018). DOI : [10.1140/epjc/s10052-018-6482-9](https://doi.org/10.1140/epjc/s10052-018-6482-9). URL : <http://cds.cern.ch/record/2628267>.
- [36] Dask : Scalable analytics in Python. URL : <https://dask.org/>.
- [37] A. DAVIDSON & K. C. WALL. « Family mass hierarchy from universal seesaw mechanism ». *Physical Review Letters* **60** (18 mai 1988), p. 1813-1816. DOI : [10.1103/PhysRevLett.60.1813](https://doi.org/10.1103/PhysRevLett.60.1813). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.60.1813>.
- [38] 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](https://doi.org/10.1103/physrevlett.77.16). URL : <http://dx.doi.org/10.1103/PhysRevLett.77.16>.
- [39] DELPHI, OPAL, ALEPH, LEP Working Group for Higgs Boson Searches, L3. « Search for neutral MSSM Higgs bosons at LEP ». *European Physical Journal C* **47** (2006), p. 547-587. DOI : [10.1140/epjc/s2006-02569-7](https://doi.org/10.1140/epjc/s2006-02569-7). arXiv : [hep-ex/0602042 \[hep-ex\]](https://arxiv.org/abs/hep-ex/0602042).
- [40] A. DJOUADI & coll. « The post-Higgs MSSM scenario : Habemus MSSM ? » *European Physical Journal C* **73.12** (19 juil. 2013), p. 2650. DOI : [10.1140/epjc/s10052-013-2650-0](https://doi.org/10.1140/epjc/s10052-013-2650-0). arXiv : [1307.5205v1 \[hep-ph\]](https://arxiv.org/abs/1307.5205v1).
- [41] S. DÜRR & coll. « Ab Initio Determination of Light Hadron Masses ». *Science* **322.5905** (nov. 2008), p. 1224-1227. DOI : [10.1126/science.1163233](https://doi.org/10.1126/science.1163233).
- [42] 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](https://doi.org/10.1103/PhysRevLett.13.321). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.13.321>.
- [43] 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](https://doi.org/10.1007/jhep02(2014)057). URL : [http://dx.doi.org/10.1007/JHEP02\(2014\)057](http://dx.doi.org/10.1007/JHEP02(2014)057).
- [44] M. GELL-MANN, P. RAMOND & R. SLANSKY. « Complex Spinors and Unified Theories » (1979). URL : <http://cds.cern.ch/record/133618>.
- [45] 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](https://doi.org/10.1016/0029-5582(61)90469-2).
- [46] D. GUEST & coll. « Jet flavor classification in high-energy physics with deep neural networks ». *Physical Review D* **D94.11** (déc. 2016). DOI : [10.1103/physrevd.94.112002](https://doi.org/10.1103/physrevd.94.112002). URL : <http://dx.doi.org/10.1103/PhysRevD.94.112002>.
- [47] 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>.
- [48] J. F. GUNION & coll. *The Higgs hunter's guide*. T. **80**. Upton, NY : Brookhaven Nat. Lab., 1989. URL : <https://cds.cern.ch/record/425736>.
- [49] 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](https://doi.org/10.1103/PhysRevLett.13.585). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.13.585>.

- [50] P. W. HIGGS. « Broken symmetries and the masses of gauge bosons ». *Physics Letters* **13.16** (oct. 1964), p. 132-133. DOI : [10.1103/physrevlett.13.508](https://doi.org/10.1103/physrevlett.13.508).
- [51] P. W. HIGGS. « Broken symmetries, massless particles and gauge fields ». *Physics Letters* **12.2** (sept. 1964), p. 132-133. DOI : [10.1016/0031-9163\(64\)91136-9](https://doi.org/10.1016/0031-9163(64)91136-9). URL : <https://cds.cern.ch/record/641590>.
- [52] 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](https://doi.org/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>.
- [53] A. J. LARKOSKI. « An Unorthodox Introduction to QCD » (2017). arXiv : [1709.06195 \[hep-ph\]](https://arxiv.org/abs/1709.06195).
- [54] 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](https://doi.org/10.5170/CERN-2012-002). URL : <https://cds.cern.ch/record/1416519>.
- [55] 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](https://doi.org/10.5170/CERN-2011-002). URL : <https://cds.cern.ch/record/1318996>.
- [56] 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](https://doi.org/10.23731/CYRM-2017-002). URL : <http://cds.cern.ch/record/2227475>.
- [57] 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](https://doi.org/10.5170/CERN-2013-004). URL : <https://cds.cern.ch/record/1559921>.
- [58] 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](https://doi.org/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>.
- [59] S. P. MARTIN. « A Supersymmetry primer ». *Advanced Series on Directions in High Energy Physics* (juil. 1998), p. 1-98. DOI : [10.1142/9789812839657\\_0001](https://doi.org/10.1142/9789812839657_0001). URL : [http://dx.doi.org/10.1142/9789812839657\\_0001](http://dx.doi.org/10.1142/9789812839657_0001).
- [60] 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](https://doi.org/10.1142/9789814644150_0004). URL : <http://cds.cern.ch/record/2103251>.
- [61] 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](https://doi.org/10.1088/1742-6596/608/1/012045).
- [62] 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](https://doi.org/10.1103/PhysRevLett.44.912). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.44.912>.
- [63] R. N. MOHAPATRA & G. SENJANOVIĆ. « Neutrino masses and mixings in gauge models with spontaneous parity violation ». *Physical Review D* **23** (1 jan. 1981), p. 165-180. DOI : [10.1103/PhysRevD.23.165](https://doi.org/10.1103/PhysRevD.23.165). URL : <https://link.aps.org/doi/10.1103/PhysRevD.23.165>.
- [64] Y. NAGASHIMA. *Beyond the Standard Model of Elementary Particle Physics*. Wiley, juin 2014.
- [65] OPAL, DELPHI, LEP Working Group for Higgs boson searches, ALEPH, L3. « Search for the standard model Higgs boson at LEP ». *Physics Letters B* **565** (2003), p. 61-75. DOI : [10.1016/S0370-2693\(03\)00614-2](https://doi.org/10.1016/S0370-2693(03)00614-2). arXiv : [hep-ex/0306033 \[hep-ex\]](https://arxiv.org/abs/hep-ex/0306033).
- [66] Particle Data Group. « Review of Particle Physics ». *Chinese Physics* **C38** (2014). DOI : [10.1088/1674-1137/38/9/090001](https://doi.org/10.1088/1674-1137/38/9/090001).
- [67] Particle Data Group. « Review of Particle Physics ». *Chinese Physics* **C40** (2016). DOI : [10.1088/1674-1137/40/10/100001](https://doi.org/10.1088/1674-1137/40/10/100001).



- [68] Particle Data Group. « Review of Particle Physics ». *Physical Review* **D98** (août 2018). DOI : [10.1103/PhysRevD.98.030001](https://doi.org/10.1103/PhysRevD.98.030001).
- [69] S. RAYCHAUDHURI & D. P. ROY. « Charged Higgs boson search at the Fermilab Tevatron upgrade using  $\tau$  polarization ». *Physical Review* **D52.3** (3 août 1995), p. 1556-1564. DOI : [10.1103/PhysRevD.52.1556](https://doi.org/10.1103/PhysRevD.52.1556). URL : <https://link.aps.org/doi/10.1103/PhysRevD.52.1556>.
- [70] G. RIDOLFI, G. ROSS & F. ZWIRNER. « Supersymmetry ». *Large Hadron Collider Workshop Proceedings. II*. CERN. Geneva : CERN, oct. 1990, p. 606-683.
- [71] G. P. SALAM. *Elements of QCD for hadron colliders*. 2010. arXiv : [1011.5131](https://arxiv.org/abs/1011.5131) [hep-ph]. URL : <https://arxiv.org/pdf/1011.5131.pdf>.
- [72] G. P. SALAM. « Towards jetography ». *European Physical Journal* **C67.3-4** (mai 2010), p. 637-686. DOI : [10.1140/epjc/s10052-010-1314-6](https://doi.org/10.1140/epjc/s10052-010-1314-6). URL : <http://dx.doi.org/10.1140/epjc/s10052-010-1314-6>.
- [73] G. P. SALAM & G. SOYEZ. « A practical seedless infrared-safe cone jet algorithm ». *Journal of High Energy Physics* **05** (mai 2007), p. 86. DOI : [10.1088/1126-6708/2007/05/086](https://doi.org/10.1088/1126-6708/2007/05/086). URL : <http://dx.doi.org/10.1088/1126-6708/2007/05/086>.
- [74] W. SARLE. « Neural Networks and Statistical Models ». 1994.
- [75] 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](https://doi.org/10.1103/PhysRevD.22.2227). URL : <https://link.aps.org/doi/10.1103/PhysRevD.22.2227>.
- [76] T. SJÖSTRAND, S. MRENNNA & P. SKANDS. « PYTHIA 6.4 physics and manual ». *Journal of High Energy Physics* **05** (mai 2006). DOI : [10.1088/1126-6708/2006/05/026](https://doi.org/10.1088/1126-6708/2006/05/026). URL : <http://dx.doi.org/10.1088/1126-6708/2006/05/026>.
- [77] 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](https://doi.org/10.1016/j.cpc.2015.01.024). arXiv : [1410.3012](https://arxiv.org/abs/1410.3012) [hep-ph].
- [78] 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](https://doi.org/10.1088/1748-0221/3/08/S08002). URL : <http://cds.cern.ch/record/1129812>.
- [79] The ATLAS Collaboration. « Search for additional heavy neutral Higgs and gauge bosons in the ditau final state produced in  $36\text{ fb}^{-1}$  of  $pp$  collisions at  $\sqrt{s} = 13\text{ TeV}$  with the ATLAS detector ». *Journal of High Energy Physics* **2018.1** (jan. 2018). DOI : [10.1007/jhep01\(2018\)055](https://doi.org/10.1007/jhep01(2018)055). URL : [http://dx.doi.org/10.1007/JHEP01\(2018\)055](http://dx.doi.org/10.1007/JHEP01(2018)055).
- [80] 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>.
- [81] The ATLAS Collaboration. « Search for the neutral Higgs bosons of the Minimal Supersymmetric Standard Model in  $pp$  collisions at  $\sqrt{s} = 7\text{ TeV}$  with the ATLAS detector ». *Journal of High Energy Physics* **02** (2013), p. 095. DOI : [10.1007/JHEP02\(2013\)095](https://doi.org/10.1007/JHEP02(2013)095). arXiv : [1211.6956](https://arxiv.org/abs/1211.6956) [hep-ex].
- [82] The ATLAS Collaboration. « Search for heavy Higgs bosons decaying into two tau leptons with the ATLAS detector using  $pp$  collisions at  $\sqrt{s} = 13\text{ TeV}$  » (2020). arXiv : [2002.12223](https://arxiv.org/abs/2002.12223) [hep-ex].
- [83] 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](https://doi.org/10.1088/1748-0221/3/08/S08003). URL : <http://cds.cern.ch/record/1129811>.
- [84] 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>.

- [85] 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), p. 201801. DOI : [10.1103/PhysRevLett.103.201801](https://doi.org/10.1103/PhysRevLett.103.201801). arXiv : [0906.1014](https://arxiv.org/abs/0906.1014) [hep-ex].
- [86] 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](https://doi.org/10.1103/physrevlett.74.2626). URL : <http://dx.doi.org/10.1103/PhysRevLett.74.2626>.
- [87] The CMS Collaboration. « Evidence for the 125 GeV Higgs boson decaying to a pair of  $\tau$  leptons ». *Journal of High Energy Physics* **05** (20 jan. 2014), p. 104. DOI : [10.1007/JHEP05\(2014\)104](https://doi.org/10.1007/JHEP05(2014)104). arXiv : [1401.5041v2](https://arxiv.org/abs/1401.5041v2) [hep-ex].
- [88] 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>.
- [89] 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](https://doi.org/10.1007/jhep06(2013)081).
- [90] 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](https://doi.org/10.1016/j.physletb.2013.04.017). arXiv : [1302.2892](https://arxiv.org/abs/1302.2892) [hep-ex].
- [91] 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](https://doi.org/10.1016/j.physletb.2012.05.028). arXiv : [1202.4083](https://arxiv.org/abs/1202.4083) [hep-ex].
- [92] The CMS Collaboration. « First results from the CMS SiPM-based hadronic endcap calorimeter ». Geneva, août 2018. DOI : [10.1088/1742-6596/1162/1/012009](https://doi.org/10.1088/1742-6596/1162/1/012009). URL : <https://cds.cern.ch/record/2636475>.
- [93] 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](https://doi.org/10.1088/1748-0221/6/11/p11002). URL : <http://dx.doi.org/10.1088/1748-0221/6/11/P11002>.
- [94] 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](https://doi.org/10.1088/1748-0221/8/04/p04013). URL : <http://dx.doi.org/10.1088/1748-0221/8/04/P04013>.
- [95] 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>.
- [96] 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>.
- [97] 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](https://doi.org/10.1007/jhep10(2014)160). URL : [http://dx.doi.org/10.1007/JHEP10\(2014\)160](http://dx.doi.org/10.1007/JHEP10(2014)160).
- [98] 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](https://doi.org/10.1088/1748-0221/12/02/p02014). URL : <https://doi.org/10.1088/1748-0221/12/02/p02014>.
- [99] The CMS Collaboration. « Event generator tunes obtained from underlying event and multiparton scattering measurements ». *European Physical Journal* **C76.3** (2016), p. 155. DOI : [10.1140/epjc/s10052-016-3988-x](https://doi.org/10.1140/epjc/s10052-016-3988-x). arXiv : [1512.00815](https://arxiv.org/abs/1512.00815) [hep-ex].
- [100] The CMS Collaboration. « Reconstruction and identification of tau lepton decays to hadrons and tau neutrino at CMS ». *Journal of Instrumentation* **11.1** (2016), P01019. DOI : [10.1088/1748-0221/11/01/P01019](https://doi.org/10.1088/1748-0221/11/01/P01019). arXiv : [1510.07488](https://arxiv.org/abs/1510.07488) [physics.ins-det].

- [101] The CMS Collaboration. « Search for neutral MSSM Higgs bosons decaying into a pair of bottom quarks ». *Journal of High Energy Physics* **11** (2015), p. 071. DOI : [10.1007/JHEP11\(2015\)071](https://doi.org/10.1007/JHEP11(2015)071). arXiv : [1506.08329](https://arxiv.org/abs/1506.08329) [hep-ex].
- [102] 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](https://doi.org/10.1016/j.physletb.2015.11.042). arXiv : [1508.01437](https://arxiv.org/abs/1508.01437) [hep-ex].
- [103] The CMS Collaboration. « CMS set of posters (En & Fr) updated 2019 » (mar. 2020). URL : <https://cds.cern.ch/record/2712624>.
- [104] 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>.
- [105] The CMS Collaboration. « « ZOOOM » : Drawings of the CMS detector with SketchUp » (juin 2012). URL : <https://cds.cern.ch/record/2629326>.
- [106] The CMS Collaboration. « Particle-flow reconstruction and global event description with the CMS detector ». *Journal of Instrumentation* **12.10** (juin 2017), P10003. DOI : [10.1088/1748-0221/12/10/P10003](https://doi.org/10.1088/1748-0221/12/10/P10003). arXiv : [1706.04965v2](https://arxiv.org/abs/1706.04965v2) [physics.ins-det]. URL : <http://stacks.iop.org/1748-0221/12/i=10/a=P10003>.
- [107] 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](https://doi.org/10.1007/JHEP09(2018)007).
- [108] 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), P05011-P05011. DOI : [10.1088/1748-0221/13/05/p05011](https://doi.org/10.1088/1748-0221/13/05/p05011). URL : <http://dx.doi.org/10.1088/1748-0221/13/05/P05011>.
- [109] 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](https://doi.org/10.1088/1748-0221/14/06/p06032).
- [110] 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](https://doi.org/10.1140/epjc/s10052-019-7499-4). URL : <https://cds.cern.ch/record/2669320>.
- [111] 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](https://doi.org/10.1088/1748-0221/3/08/S08004). URL : <http://cds.cern.ch/record/1129810>.
- [112] The DØ Collaboration. « Observation of the top quark ». *Physical Review Letters* **74.14** (avr. 1995), p. 2632-2637. DOI : [10.1103/physrevlett.74.2632](https://doi.org/10.1103/physrevlett.74.2632). URL : <http://dx.doi.org/10.1103/PhysRevLett.74.2632>.
- [113] The DØ Collaboration. « Search for Higgs bosons decaying to  $\tau\tau$  pairs in  $p\bar{p}$  collisions at  $\sqrt{s} = 1,96$  TeV ». *Physics Letters* **B707** (2012), p. 323-329. DOI : [10.1016/j.physletb.2011.12.050](https://doi.org/10.1016/j.physletb.2011.12.050). arXiv : [1106.4555](https://arxiv.org/abs/1106.4555) [hep-ex].
- [114] The DØ Collaboration. « Measurement of the  $B_s^0$  lifetime in the exclusive decay channel  $B_s^0 \rightarrow J/\Psi\phi$  ». *Physical Review Letters* **94** (2005).
- [115] The LHCb Collaboration. « The LHCb Detector at the LHC ». *Journal of Instrumentation* **3.S08005** (2008). DOI : [10.1088/1748-0221/3/08/S08005](https://doi.org/10.1088/1748-0221/3/08/S08005). URL : <http://cds.cern.ch/record/1129809>.
- [116] 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](https://doi.org/10.1103/PhysRevLett.89.011301). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.89.011301>.
- [117] 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](https://doi.org/10.1103/PhysRevLett.81.1562). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.81.1562>.

- [118] S. WEINBERG. « A model of leptons ». *Physical Review Letters* **19** (21 nov. 1967), p. 1264-1266. DOI : [10.1103/PhysRevLett.19.1264](https://link.aps.org/doi/10.1103/PhysRevLett.19.1264). URL : <https://link.aps.org/doi/10.1103/PhysRevLett.19.1264>.
- [119] 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](https://doi.org/10.1140/epjc/s2004-01960-8). URL : <http://dx.doi.org/10.1140/epjc/s2004-01960-8>.