

Bibliography

- [1] CMS Collaboration, “Measurement of the ratio of the inclusive 3-jet cross section to the inclusive 2-jet cross section in pp collisions at $\sqrt{s} = 7$ TeV and first determination of the strong coupling constant in the TeV range”, Eur. Phys. J. C **73**, no. 10, 2604 (2013) doi:10.1140/epjc/s10052-013-2604-6 arXiv:1304.7498 [hep-ex]
- [2] D. Griffiths, “Introduction to elementary particles; 2nd rev. version”, Wiley, New York (2008) <https://cds.cern.ch/record/111880>
- [3] D. H. Perkins, “Introduction to high energy physics”, Cambridge (1982) ISBN : 9780521621960
- [4] M. Herrero, “The Standard model”, NATO Sci. Ser. C **534**, 1 (1999) doi:10.1007/978-94-011-4689-0_1 arXiv:hep-ph/9812242
- [5] S. Weinberg, “A Model of Leptons”, Phys. Rev. Lett. **19**, 1264 (1967) doi:10.1103/PhysRevLett.19.1264
- [6] M. E. Peskin and D. V. Schroeder, “An Introduction to quantum field theory”, Addison-Wesley, USA (1995)
- [7] S. L. Glashow, “Towards a Unified Theory: Threads in a Tapestry”, Rev. Mod. Phys. **52**, 539 (1980) doi:10.1103/RevModPhys.52.539

-
- [8] A. Salam, “Gauge Unification of Fundamental Forces”, *Rev. Mod. Phys.* **52**, 525 (1980) [*Science* **210**, 723 (1980)] doi:10.1103/RevModPhys.52.525
 - [9] P. W. Higgs, “Broken Symmetries and the Masses of Gauge Bosons”, *Phys. Rev. Lett.* **13**, 508 (1964) doi:10.1103/PhysRevLett.13.508
 - [10] F. Englert and R. Brout, “Broken Symmetry and the Mass of Gauge Vector Mesons”, *Phys. Rev. Lett.* **13**, 321 (1964) doi:10.1103/PhysRevLett.13.321
 - [11] CMS Collaboration, “Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC”, *Phys. Lett. B* **716**, 30 (2012) doi:10.1016/j.physletb.2012.08.021 arXiv:1207.7235 [hep-ex]
 - [12] ATLAS Collaboration, “Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC”, *Phys. Lett. B* **716**, 1 (2012) doi:10.1016/j.physletb.2012.08.020 arXiv:1207.7214 [hep-ex]
 - [13] R. K. Ellis, W. J. Stirling and B. R. Webber, “QCD and collider physics”, *Camb. Monogr. Part. Phys. Nucl. Phys. Cosmol.* **8**, 1 (1996)
 - [14] F. Halzen and A. D. Martin, “Quarks And Leptons: An Introductory Course In Modern Particle Physics”, New York, Usa: Wiley (1984) 396p
 - [15] M. Gell-Mann, “Symmetries of baryons and mesons”, *Phys. Rev.* **125**, 1067 (1962) doi:10.1103/PhysRev.125.1067
 - [16] K. Rabbertz, “Jet Physics at the LHC : The Strong Force beyond the TeV Scale”, *Springer Tracts Mod. Phys.* **268**, pp.1 (2017) doi:10.1007/978-3-319-42115-5
 - [17] C. G. Callan, Jr., “Broken scale invariance in scalar field theory”, *Phys. Rev. D* **2**, 1541 (1970) doi:10.1103/PhysRevD.2.1541

-
- [18] G. 't Hooft, “Dimensional regularization and the renormalization group”, Nucl. Phys. B **61**, 455 (1973) doi:10.1016/0550-3213(73)90376-3
- [19] S. Weinberg, “New approach to the renormalization group”, Phys. Rev. D **8**, 3497 (1973) doi:10.1103/PhysRevD.8.3497
- [20] C. Patrignani *et al.* (Particle Data Group), “Review of Particle Physics”, Chin. Phys. C **40**, no. 10, 100001 (2016) doi:10.1088/1674-1137/40/10/100001
- [21] J. C. Collins, D. E. Soper and G. F. Sterman, “Factorization of Hard Processes in QCD”, Adv. Ser. Direct. High Energy Phys. **5**, 1 (1989) doi:10.1142/9789814503266_0001 arXiv:hep-ph/0409313
- [22] V. N. Gribov and L. N. Lipatov, “Deep inelastic e p scattering in perturbation theory”, Sov. J. Nucl. Phys. **15**, 438 (1972) [Yad. Fiz. **15**, 781 (1972)]
- [23] Y. L. Dokshitzer, “Calculation of the Structure Functions for Deep Inelastic Scattering and e+ e- Annihilation by Perturbation Theory in Quantum Chromodynamics.”, Sov. Phys. JETP **46**, 641 (1977) [Zh. Eksp. Teor. Fiz. **73**, 1216 (1977)]
- [24] G. Altarelli and G. Parisi, “Asymptotic Freedom in Parton Language”, Nucl. Phys. B **126**, 298 (1977) doi:10.1016/0550-3213(77)90384-4
- [25] CMS Collaboration, “Measurement of the triple-differential dijet cross section in proton-proton collisions at $\sqrt{s} = 8$ TeV and constraints on parton distribution functions”, Eur. Phys. J. C **77**, no. 11, 746 (2017) doi:10.1140/epjc/s10052-017-5286-7 arXiv:1705.02628 [hep-ex]
- [26] S. Dulat *et al.*, “New parton distribution functions from a global analysis of quantum chromodynamics”, Phys. Rev. D **93**, no. 3, 033006 (2016) doi:10.1103/PhysRevD.93.033006 arXiv:1506.07443 [hep-ph]

-
- [27] L. A. Harland-Lang *et al.*, “Parton distributions in the LHC era: MMHT 2014 PDFs”, *Eur. Phys. J. C* **75**, no. 5, 204 (2015) doi:10.1140/epjc/s10052-015-3397-6 arXiv:1412.3989 [hep-ph]
- [28] NNPDF Collaboration, “Parton distributions for the LHC Run II”, *JHEP* **1504**, 040 (2015) doi:10.1007/JHEP04(2015)040 arXiv:1410.8849 [hep-ph]
- [29] S. Alekhin, J. Blumlein and S. Moch, “Parton Distribution Functions and Benchmark Cross Sections at NNLO”, *Phys. Rev. D* **86**, 054009 (2012) doi:10.1103/PhysRevD.86.054009 arXiv:1202.2281 [hep-ph]
- [30] B. Andersson, “The Lund model”, *Camb. Monogr. Part. Phys. Nucl. Phys. Cosmol.* **7**, 1 (1997) ISBN: 9780521420945
- [31] G. Marchesini and B. R. Webber, “Monte Carlo Simulation of General Hard Processes with Coherent QCD Radiation”, *Nucl. Phys. B* **310**, 461 (1988) doi:10.1016/0550-3213(88)90089-2
- [32] B. R. Webber, “A QCD Model for Jet Fragmentation Including Soft Gluon Interference”, *Nucl. Phys. B* **238**, 492 (1984) doi:10.1016/0550-3213(84)90333-X
- [33] D. Amati and G. Veneziano, “Preconfinement as a Property of Perturbative QCD”, *Phys. Lett.* **83B**, 87 (1979) doi:10.1016/0370-2693(79)90896-7
- [34] G. F. Sterman and S. Weinberg, “Jets from Quantum Chromodynamics”, *Phys. Rev. Lett.* **39**, 1436 (1977) doi:10.1103/PhysRevLett.39.1436
- [35] G. Hanson *et al.*, “Evidence for Jet Structure in Hadron Production by e^+e^- Annihilation”, *Phys. Rev. Lett.* **35**, 1609 (1975) doi:10.1103/PhysRevLett.35.1609

-
- [36] G. P. Salam, “Towards Jetography”, Eur. Phys. J. C **67**, 637 (2010) doi:10.1140/epjc/s10052-010-1314-6 arXiv:0906.1833 [hep-ph]
- [37] S. D. Ellis, Z. Kunszt and D. E. Soper, “The One Jet Inclusive Cross-Section at Order α_s^3 . 1. Gluons Only”, Phys. Rev. D **40**, 2188 (1989) doi:10.1103/PhysRevD.40.2188
- [38] G. C. Blazey *et al.*, “Run II jet physics”, arXiv:hep-ex/0005012
- [39] S. Weinzierl, “The SISCone jet algorithm optimised for low particle multiplicities”, Comput. Phys. Commun. **183**, 813 (2012) doi:10.1016/j.cpc.2011.12.007 arXiv:1108.1934 [hep-ph]
- [40] S. D. Ellis and D. E. Soper, “Successive combination jet algorithm for hadron collisions”, Phys. Rev. D **48**, 3160 (1993) doi:10.1103/PhysRevD.48.3160 arXiv:hep-ph/9305266
- [41] S. Catani *et al.*, “Longitudinally invariant K_t clustering algorithms for hadron hadron collisions”, Nucl. Phys. B **406**, 187 (1993) doi:10.1016/0550-3213(93)90166-M
- [42] S. Catani, Y. L. Dokshitzer and B. R. Webber, “The K^\perp perpendicular clustering algorithm for jets in deep inelastic scattering and hadron collisions”, Phys. Lett. B **285**, 291 (1992) doi:10.1016/0370-2693(92)91467-N
- [43] Y. L. Dokshitzer *et al.*, “Better jet clustering algorithms”, JHEP **9708**, 001 (1997) doi:10.1088/1126-6708/1997/08/001 arXiv:hep-ph/9707323
- [44] M. Cacciari, G. P. Salam and G. Soyez, “The Anti-k(t) jet clustering algorithm”, JHEP **0804**, 063 (2008) doi:10.1088/1126-6708/2008/04/063 arXiv:0802.1189 [hep-ph]

- [45] M. Cacciari, G. P. Salam and G. Soyez, “FastJet User Manual”, Eur. Phys. J. C **72**, 1896 (2012) doi:10.1140/epjc/s10052-012-1896-2 arXiv:1111.6097 [hep-ph]
- [46] UA1 Collaboration, “Experimental Observation of Isolated Large Transverse Energy Electrons with Associated Missing Energy at $\sqrt{s} = 540\text{-GeV}$ ”, Phys. Lett. **122B**, 103 (1983) doi:10.1016/0370-2693(83)91177-2
- [47] UA2 Collaboration, “Observation of Single Isolated Electrons of High Transverse Momentum in Events with Missing Transverse Energy at the CERN anti-p p Collider,”, Phys. Lett. **122B**, 476 (1983) doi:10.1016/0370-2693(83)91605-2
- [48] D0 Collaboration, “Search for the top quark in $p\bar{p}$ collisions at $\sqrt{s} = 1.8\text{ TeV}$,” Phys. Rev. Lett. **72**, 2138 (1994) doi:10.1103/PhysRevLett.72.2138
- [49] CDF Collaboration, “Evidence for top quark production in $p\bar{p}$ collisions at $\sqrt{s} = 1.8\text{ TeV}$ ”, Phys. Rev. D **50**, 2966 (1994) doi:10.1103/PhysRevD.50.2966
- [50] L. Evans and P. Bryant, “LHC Machine”, JINST **3**, S08001 (2008) doi:10.1088/1748-0221/3/08/S08001
- [51] S. Myers and E. Picasso, “The design, construction and commissioning of the CERN large Electron–Positron collider”, Contemporary Physics **31**, no. 6, 387 (1990) doi:10.1080/00107519008213789
- [52] ALICE Collaboration, “The ALICE experiment at the CERN LHC”, JINST **3**, S08002 (2008) doi:10.1088/1748-0221/3/08/S08002
- [53] ATLAS Collaboration, “The ATLAS Experiment at the CERN Large Hadron Collider”, JINST **3**, S08003 (2008) doi:10.1088/1748-0221/3/08/S08003
- [54] CMS Collaboration, “The CMS Experiment at the CERN LHC”, JINST **3**, S08004 (2008) doi:10.1088/1748-0221/3/08/S08004

- [55] CMS Collaboration, “CMS Physics : Technical Design Report Volume 1: Detector Performance and Software”, CERN-LHCC-2006-001 (2006), CMS-TDR-8-1
- [56] CMS Collaboration, “CMS technical design report, volume II: Physics performance”, J. Phys. G **34**, no. 6, 995 (2007) doi:10.1088/0954-3899/34/6/S01
- [57] LHCb Collaboration, “The LHCb Detector at the LHC”, JINST **3**, S08005 (2008) doi:10.1088/1748-0221/3/08/S08005
- [58] LHCf Collaboration, “The LHCf detector at the CERN Large Hadron Collider”, JINST **3**, S08006 (2008) doi:10.1088/1748-0221/3/08/S08006
- [59] TOTEM Collaboration, “The TOTEM experiment at the CERN Large Hadron Collider”, JINST **3**, S08007 (2008) doi:10.1088/1748-0221/3/08/S08007
- [60] CMS Collaboration, “CMS Luminosity Based on Pixel Cluster Counting - Summer 2013 Update”, CMS Physics Analysis Summary **CMS-PAS-LUM-13-001** (2013) <http://cds.cern.ch/record/1598864>
- [61] S. van der Meer, “Calibration of the Effective Beam Height in the ISR”, Technical Report CERN-ISR-PO-68-31 (1968)
- [62] P. Adzic *et al.*, “Energy resolution of the barrel of the CMS electromagnetic calorimeter”, JINST **2**, P04004 (2007) doi:10.1088/1748-0221/2/04/P04004
- [63] CMS Collaboration, “Performance of the CMS Hadron Calorimeter with Cosmic Ray Muons and LHC Beam Data”, JINST **5**, T03012 (2010) doi:10.1088/1748-0221/5/03/T03012 arXiv:0911.4991 [physics.ins-det]
- [64] I. Bird *et al.*, “LHC computing Grid. Technical design report”, CERN-LHCC-2005-024 <http://cds.cern.ch/record/840543>
- [65] CMS Collaboration, “CMS: The computing project. Technical design report”, CERN-LHCC-2005-023 (2005) <http://cds.cern.ch/record/838359>

-
- [66] R. Brun and F. Rademakers, “ROOT: An object oriented data analysis framework”, Nucl. Instrum. Meth. A **389**, 81 (1997) doi:10.1016/S0168-9002(97)00048-X
- [67] Z. Nagy, “Three jet cross-sections in hadron hadron collisions at next-to-leading order”, Phys. Rev. Lett. **88**, 122003 (2002) doi:10.1103/PhysRevLett.88.122003 arXiv:hep-ph/0110315
- [68] Z. Nagy, “Next-to-leading order calculation of three jet observables in hadron hadron collision”, Phys. Rev. D **68**, 094002 (2003) doi:10.1103/PhysRevD.68.094002 arXiv:hep-ph/0307268
- [69] D. Britzger *et al.*, “New features in version 2 of the fastNLO project”, 217 (2012) doi:10.3204/DESY-PROC-2012-02/165 arXiv:1208.3641 [hep-ph]
- [70] T. Kluge, K. Rabbertz and M. Wobisch, “FastNLO: Fast pQCD calculations for PDF fits”, Proceedings DIS 2006, 14th International Workshop, 483 (2006) doi:10.1142/9789812706706_0110 arXiv:hep-ph/0609285
- [71] M. R. Whalley, D. Bourilkov and R. C. Group, “The Les Houches accord PDFs (LHAPDF) and LHAGLUE”, Proceedings : Workshop on the implications of HERA for LHC physics (2005) arXiv:hep-ph/0508110
- [72] A. Buckley, *et al.*, “LHAPDF6: parton density access in the LHC precision era”, Eur. Phys. J. C **75**, 132 (2015) doi:10.1140/epjc/s10052-015-3318-8 arXiv:1412.7420 [hep-ph]
- [73] N. Metropolis and S. Ulam, “The Monte Carlo Method”, Journal of the American Statistical Association **44**, no. 247, 335 (1949) doi:10.1080/01621459.1949.10483310
- [74] B. Andersson *et al.*, “Parton fragmentation and string dynamics”, Physics Reports, **97**, no. 2, 31 (1983) doi:10.1016/0370-1573(83)90080-7

- [75] T. Sjostrand, S. Mrenna and P. Z. Skands, “PYTHIA 6.4 Physics and Manual”, JHEP **0605**, 026 (2006) doi:10.1088/1126-6708/2006/05/026 arXiv:hep-ph/0603175
- [76] T. Sjostrand, S. Mrenna and P. Z. Skands, “A Brief Introduction to PYTHIA 8.1”, Comput. Phys. Commun. **178**, 852 (2008) doi:10.1016/j.cpc.2008.01.036 arXiv:0710.3820 [hep-ph]
- [77] R. Field, “Min-Bias and the Underlying Event at the LHC”, Acta Phys. Polon. B **42**, 2631 (2011) doi:10.5506/APhysPolB.42.2631 arXiv:1110.5530 [hep-ph]
- [78] CMS Collaboration, “Event generator tunes obtained from underlying event and multiparton scattering measurements”, Eur. Phys. J. C **76**, no. 3, 155 (2016) doi:10.1140/epjc/s10052-016-3988-x arXiv:1512.00815 [hep-ex]
- [79] J. Alwall *et al.*, “MadGraph 5 : Going Beyond”, JHEP **1106**, 128 (2011) doi:10.1007/JHEP06(2011)128 arXiv:1106.0522 [hep-ph]
- [80] J. Alwall *et al.*, “A Standard format for Les Houches event files”, Comput. Phys. Commun. **176**, 300 (2007) doi:10.1016/j.cpc.2006.11.010 arXiv:hep-ph/0609017
- [81] G. Corcella *et al.*, “HERWIG 6: An Event generator for hadron emission reactions with interfering gluons (including supersymmetric processes)”, JHEP **0101**, 010 (2001) doi:10.1088/1126-6708/2001/01/010 arXiv:hep-ph/0011363
- [82] M. Bahr *et al.*, “Herwig++ Physics and Manual”, Eur. Phys. J. C **58**, 639 (2008) doi:10.1140/epjc/s10052-008-0798-9 arXiv:0803.0883 [hep-ph]
- [83] M. Bahr *et al.*, “Herwig++ 2.3 Release Note”, arXiv:0812.0529 [hep-ph]
- [84] S. Frixione, P. Nason and C. Oleari, “Matching NLO QCD computations with Parton Shower simulations: the POWHEG method”, JHEP **0711**, 070 (2007) doi:10.1088/1126-6708/2007/11/070 arXiv:0709.2092 [hep-ph]

-
- [85] P. Nason, “A New method for combining NLO QCD with shower Monte Carlo algorithms”, JHEP **0411**, 040 (2004) doi:10.1088/1126-6708/2004/11/040 arXiv:hep-ph/0409146
- [86] S. Alioli *et al.*, “Jet pair production in POWHEG”, JHEP **1104**, 081 (2011) doi:10.1007/JHEP04(2011)081 arXiv:1012.3380 [hep-ph]
- [87] C. Oleari, “The POWHEG-BOX”, Nucl. Phys. Proc. Suppl. **205-206**, 36 (2010) doi:10.1016/j.nuclphysbps.2010.08.016 arXiv:1007.3893 [hep-ph]
- [88] GEANT4 Collaboration, “GEANT4: A Simulation toolkit”, Nucl. Instrum. Meth. A **506**, 250 (2003) doi:10.1016/S0168-9002(03)01368-8
- [89] CMS Collaboration, “The fast simulation of the CMS detector at LHC”, J. Phys. Conf. Ser. **331**, 032049 (2011) doi:http://dx.doi.org/10.1088/1742-6596/331/3/032049 10.1088/1742-6596/331/3/032049
- [90] CMS Collaboration, “Particle-Flow Event Reconstruction in CMS and Performance for Jets, Taus, and MET”, CMS-PAS-PFT-09-001 (2009) <http://cds.cern.ch/record/1194487>
- [91] CMS Collaboration, “Commissioning of the Particle-flow Event Reconstruction with the first LHC collisions recorded in the CMS detector”, CMS-PAS-PFT-10-001 (2010) <http://cds.cern.ch/record/1247373>
- [92] W. Adam *et al.*, “Track reconstruction in the CMS tracker”, CERN-CMS-NOTE-2006-041 (2006) <http://cds.cern.ch/record/934067>
- [93] R. Fruhwirth, “Application of Kalman filtering to track and vertex fitting”, Nucl. Instrum. Meth. A **262**, 444 (1987) doi:10.1016/0168-9002(87)90887-4

-
- [94] K. Rose, “Deterministic Annealing for Clustering, Compression, Classification, Regression and related Optimisation Problems”, *Proceedings of the IEEE* **86** (1998) doi:10.1109/5.726788
- [95] R. Fruhwirth, W. Waltenberger and P. Vanlaer, “Adaptive vertex fitting”, *J. Phys. G* **34**, N343 (2007) doi:10.1088/0954-3899/34/12/N01
- [96] T. Schörner-Sadenius, “The Large Hadron Collider : Harvest of Run 1”, Springer (2015) doi:10.1007/978-3-319-15001-7
- [97] CMS Collaboration, “Determination of Jet Energy Calibration and Transverse Momentum Resolution in CMS”, *JINST* **6**, P11002 (2011) doi:10.1088/1748-0221/6/11/P11002 arXiv:1107.4277 [physics.ins-det]
- [98] CMS Collaboration, “Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV”, *JINST* **12**, P02014 (2017) doi:10.1088/1748-0221/12/02/P02014 arXiv:1607.03663 [hep-ex]
- [99] CMS Collaboration, “Measurement and QCD analysis of double-differential inclusive jet cross sections in pp collisions at $\sqrt{s} = 8$ TeV and cross section ratios to 2.76 and 7 TeV”, *JHEP* **1703**, 156 (2017) doi:10.1007/JHEP03(2017)156 arXiv:1609.05331 [hep-ex]
- [100] C. J. Clopper and E. S. Pearson, “The Use of Confidence or Fiducial Limits Illustrated in the Case of the Binomial”, *Biometrika* **26**, 404 (1934) doi:10.2307/2331986
- [101] CMS Collaboration, “Jet Performance in pp Collisions at 7 TeV”, CMS Physics Analysis Summary **CMS-PAS-JME-10-003** (2010) <http://cds.cern.ch/record/1279362>
- [102] CMS Collaboration, “Jet Identification at 8 TeV”, URL: <https://twiki.cern.ch/twiki/bin/viewauth/CMS/JetID> (accessed on 2017-10-31)

- [103] CMS Collaboration, “Jet Energy Resolution at 8 TeV”, URL: <https://twiki.cern.ch/twiki/bin/viewauth/CMS/JetResolution> (accessed on 2016-01-22)
- [104] CMS Collaboration, “Jet Energy Resolution in CMS at $\sqrt{s}=7$ TeV” CMS Physics Analysis Summary **CMS-PAS-JME-10-014** (2011) <http://cds.cern.ch/record/1339945>
- [105] Tim Adye, “Unfolding algorithms and tests using RooUnfold”, Proceedings of the PHYSTAT 2011 Workshop, CERN, Geneva, Switzerland 313 (January 2011) doi:10.5170/CERN-2011-006.313 arXiv:1105.1160 [physics.data-an]
- [106] G. D’Agostini, “A Multidimensional unfolding method based on Bayes’ theorem”, Nucl. Instrum. Meth. A **362**, 487 (1995) doi:10.1016/0168-9002(95)00274-X
- [107] G. D’Agostini, “Improved iterative Bayesian unfolding”, (2010) arXiv:1010.0632 [physics.data-an]
- [108] CMS Collaboration, “Measurement of the Inclusive Jet Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV”, Phys. Rev. Lett. **107**, 132001 (2011) doi:10.1103/PhysRevLett.107.132001 arXiv:1106.0208 [hep-ex]
- [109] CMS Collaboration, “Jet energy scale uncertainty sources”, URL: <https://twiki.cern.ch/twiki/bin/viewauth/CMS/JECUncertaintySources> (accessed on 2017-10-31)
- [110] CMS Collaboration, “Measurements of differential jet cross sections in proton-proton collisions at $\sqrt{s} = 7$ TeV with the CMS detector”, Phys. Rev. D **87**, no. 11, 112002 (2013) Erratum: [Phys. Rev. D **87**, no. 11, 119902 (2013)] doi:10.1103/PhysRevD.87.112002, 10.1103/PhysRevD.87.119902 arXiv:1212.6660 [hep-ex]

- [111] ATLAS Collaboration, “Measurement of the inclusive jet cross section in pp collisions at $\sqrt{s}=2.76$ TeV and comparison to the inclusive jet cross section at $\sqrt{s}=7$ TeV using the ATLAS detector”, *Eur. Phys. J. C* **73**, no. 8, 2509 (2013) doi:10.1140/epjc/s10052-013-2509-4 arXiv:1304.4739 [hep-ex]
- [112] ATLAS Collaboration, “Measurement of the inclusive jet cross-section in proton-proton collisions at $\sqrt{s} = 7$ TeV using 4.5 fb^{-1} of data with the ATLAS detector”, *JHEP* **1502**, 153 (2015) Erratum: [*JHEP* **1509**, 141 (2015)] doi:10.1007/JHEP02(2015)153, 10.1007/JHEP09(2015)141 arXiv:1410.8857 [hep-ex]
- [113] CMS Collaboration, “Measurement of the inclusive 3-jet production differential cross section in proton–proton collisions at 7 TeV and determination of the strong coupling constant in the TeV range”, *Eur. Phys. J. C* **75**, no. 5, 186 (2015) doi:10.1140/epjc/s10052-015-3376-y arXiv:1412.1633 [hep-ex]
- [114] CMS Collaboration, “Measurement of the inclusive jet cross section in pp collisions at $\sqrt{s} = 2.76$ TeV”, *Eur. Phys. J. C* **76**, no. 5, 265 (2016) doi:10.1140/epjc/s10052-016-4083-z arXiv:1512.06212 [hep-ex]]
- [115] H. L. Lai *et al.*, “New parton distributions for collider physics”, *Phys. Rev. D* **82**, 074024 (2010) doi:10.1103/PhysRevD.82.074024 arXiv:1007.2241 [hep-ph]
- [116] A. D. Martin *et al.*, “Parton distributions for the LHC”, *Eur. Phys. J. C* **63**, 189 (2009) doi:10.1140/epjc/s10052-009-1072-5 arXiv:0901.0002 [hep-ph]
- [117] A. D. Martin *et al.*, “Uncertainties on $\alpha(S)$ in global PDF analyses and implications for predicted hadronic cross sections”, *Eur. Phys. J. C* **64**, 653 (2009) doi:10.1140/epjc/s10052-009-1164-2 arXiv:0905.3531 [hep-ph]
- [118] R. D. Ball *et al.*, “Parton distributions with LHC data”, *Nucl. Phys. B* **867**, 244 (2013) doi:10.1016/j.nuclphysb.2012.10.003 arXiv:1207.1303 [hep-ph]

- [119] H1 and ZEUS Collaborations, “Combination of measurements of inclusive deep inelastic $e^\pm p$ scattering cross sections and QCD analysis of HERA data”, Eur. Phys. J. C **75**, no. 12, 580 (2015) doi:10.1140/epjc/s10052-015-3710-4 arXiv:1506.06042 [hep-ex]
- [120] W. Hollik *et al.*, “Electroweak physics”, Acta Phys. Polon. B **35**, 2533 (2004) arXiv:hep-ph/0501246
- [121] S. Dittmaier, A. Huss and C. Speckner, “Weak radiative corrections to dijet production at hadron colliders”, JHEP **1211**, 095 (2012) doi:10.1007/JHEP11(2012)095 arXiv:1210.0438 [hep-ph]
- [122] J. Pumplin *et al.*, “New generation of parton distributions with uncertainties from global QCD analysis”, JHEP **0207**, 012 (2002) doi:10.1088/1126-6708/2002/07/012 arXiv:hep-ph/0201195
- [123] CMS Collaboration, “Determination of the top-quark pole mass and strong coupling constant from the $t\bar{t}$ production cross section in pp collisions at $\sqrt{s} = 7$ TeV”, Phys. Lett. B **728**, 496 (2014) Erratum: [Phys. Lett. B **738**, 526 (2014)] doi:10.1016/j.physletb.2014.08.040, 10.1016/j.physletb.2013.12.009 arXiv:1307.1907 [hep-ex]
- [124] CMS Collaboration, “Constraints on parton distribution functions and extraction of the strong coupling constant from the inclusive jet cross section in pp collisions at $\sqrt{s} = 7$ TeV”, Eur. Phys. J. C **75**, no. 6, 288 (2015) doi:10.1140/epjc/s10052-015-3499-1 arXiv:1410.6765 [hep-ex]
- [125] ATLAS Collaboration, “Measurement of transverse energy-energy correlations in multi-jet events in pp collisions at $\sqrt{s} = 7$ TeV using the ATLAS detector and determination of the strong coupling constant $\alpha_s(m_Z)$ ”, Phys. Lett. B **750**, 427 (2015) doi:10.1016/j.physletb.2015.09.050 arXiv:1508.01579 [hep-ex]

- [126] D0 Collaboration, “Determination of the strong coupling constant from the inclusive jet cross section in $p\bar{p}$ collisions at $\sqrt{s}=1.96$ TeV”, Phys. Rev. D **80**, 111107 (2009) doi:10.1103/PhysRevD.80.111107 arXiv:0911.2710 [hep-ex]
- [127] D0 Collaboration, “Measurement of angular correlations of jets at $\sqrt{s} = 1.96$ TeV and determination of the strong coupling at high momentum transfers”, Phys. Lett. B **718**, 56 (2012) doi:10.1016/j.physletb.2012.10.003 arXiv:1207.4957 [hep-ex]
- [128] H1 Collaboration, “Measurement of multijet production in ep collisions at high Q^2 and determination of the strong coupling α_s ”, Eur. Phys. J. C **75**, no. 2, 65 (2015) doi:10.1140/epjc/s10052-014-3223-6 arXiv:1406.4709 [hep-ex]
- [129] H1 Collaboration, “Measurement of Jet Production Cross Sections in Deep-inelastic ep Scattering at HERA”, Eur. Phys. J. C **77**, no. 4, 215 (2017) doi:10.1140/epjc/s10052-017-4717-9 arXiv:1611.03421 [hep-ex]
- [130] ZEUS Collaboration, “Inclusive-jet photoproduction at HERA and determination of α_s ”, Nucl. Phys. B **864**, 1 (2012) doi:10.1016/j.nuclphysb.2012.06.006 arXiv:1205.6153 [hep-ex]
- [131] CDF Collaboration, “Measurement of the strong coupling constant from inclusive jet production at the Tevatron $p\bar{p}$ collider”, Phys. Rev. Lett. **88**, 042001 (2002) doi:10.1103/PhysRevLett.88.042001 arXiv:hep-ex/0108034
- [132] R. D. Ball *et al.*, “A first unbiased global NLO determination of parton distributions and their uncertainties”, Nucl. Phys. B **838**, 136 (2010) doi:10.1016/j.nuclphysb.2010.05.008 arXiv:1002.4407 [hep-ph]
- [133] B. Schmidt and M. Steinhauser, “CRunDec: a C++ package for running and decoupling of the strong coupling and quark masses”, Comput. Phys. Commun. **183**, 1845 (2012) doi:10.1016/j.cpc.2012.03.023 arXiv:1201.6149 [hep-ph]

-
- [134] K. G. Chetyrkin, J. H. Kuhn and M. Steinhauser, “RunDec: A Mathematica package for running and decoupling of the strong coupling and quark masses”, Comput. Phys. Commun. **133**, 43 (2000) doi:10.1016/S0010-4655(00)00155-7 arXiv:hep-ph/0004189
- [135] CMS Collaboration, “Upgrade of the CMS Hadron Outer Calorimeter with SiPM sensors”, J. Phys. Conf. Ser. **404**, 012018 (2012) doi:10.1088/1742-6596/404/1/012018
- [136] CMS Collaboration, “Commissioning and performance of the CMS Hadron Outer Calorimeter”, CMS Detector Note (Unpublished) **CMS DN-14-019** (2014)
- [137] CMS Collaboration, “Upgrade of the CMS Hadron Outer Calorimeter with SIPMs”, Phys. Procedia **37**, 72 (2012) doi:10.1016/j.phpro.2012.02.358
- [138] CMS Collaboration, “MPPC photon sensor operational experience in CMS”, Proceedings of 16th International Conference on Calorimetry in High Energy Physics (CALOR 2014) **587**, 12022 (2015) doi:10.1088/1742-6596/587/1/012022
- [139] CMS Collaboration, “CMS Technical Design Report for the Phase 1 Upgrade of the Hadron Calorimeter”, CERN-LHCC-2012-015, CMS-TDR-010, FERMILAB-DESIGN-2012-01 (2012) doi:10.2172/1151651
- [140] CMS Collaboration, “Data Quality Monitoring (DQM) and Data Certification (DC)”, URL: <https://twiki.cern.ch/twiki/bin/viewauth/CMS/DQM> (accessed on 2018-2-10)
- [141] CMS Collaboration, “Data certification activity”, URL: <https://twiki.cern.ch/twiki/bin/view/CMS/DQMDataCertification> (accessed on 2018-2-10)