

References

Updated 5 January 2017

1. Introduction

Collider Physics, Barger and Phillips. This is a little dated and doesn't talk at all about issues such as underlying events, ISR and FSR, but has a very accessible introduction to the basic physics.

2. Basic Phenomenology of a Hard Scattering Process

The first article is a "must read" for anyone interested in doing simulations in particle physics.

"Tools for the Simulation of Hard Hadronic Collisions," M. Mangano and T. Stelzer, Annu. Rev. Nucl. Sci. 2005 Volume 55, 555 (2005). This is an excellent review of the basic issues.

"Parton Distributions for the LHC," A.D. Martin, W.J. Stirling, R.S. Thorne and G. Watt, hep-ph/0901.0002 (2009). This summarizes the work that went into the MRS PDFs that are used heavily in LHC measurements.

"Progress in the Determination of the Partonic Structure of the Proton," S. Forte and G. Watt, Annu. Rev. Nucl. Sci. 2013 Volume 63, 291 (2013). This is a very good update on the status of PDF evaluation.

"Level-3 Calorimetric Resolution Available for the Level-1 and Level-2 CDF Triggers," A. Canepa et al., physics.ins-det/0810.3738 (2008).

"A Complete Calculation of the Order α_s^3 Correction to the Drell-Yan K-Factor," R. Hamberg, W.L. van Neerven and T. Matsuura, Nucl. Phys. B359, 343 (1991).

3. Underlying Event, ISR and FSR

"Multiple Interactions and the Structure of Beam Fragments," T. Sjöstrand and P. Z. Skands, JHEP 0403:053 (2004).

"Matching Underlying Events and Minimum Bias Physics," J. Butterworth, ATLAS Tutorial, June 2004.

"Studying the Underlying Event at CDF," Talk at Northwest Terascale Workshop: Parton Showers and Event Structure at the LHC, February 2009. See www.phys.ufl.edu/~rfield/cdf/rdf_talks.html for recent listing.

"Studies of the Underlying Event with ATLAS," talk given at the International Workshop on LowX Physics, Rehovot and Eilat, Israel, Jun 2013, <https://cds.cern.ch/record/1556519>.

4. Production and Identification of Jets

The first two articles are particularly informative. The latter ones focus on the issues of modeling accurately QCD processes using matrix-element techniques.

“Jets in Hadron-Hadron Collisions,” S.D. Ellis, J. Huston, K. Hatakeyama, P. Loch and M. Tonnesmann, Prog. Part. Nucl. Phys. **60**, 484-551, 2008 (also hep-ex/0712.2447v1).

“Run II Jet Physics,” G. Blazey et al., FERMILAB-CONF-00-092-E and hep-ex/0005012, May 2000.

“Higher Order Corrections to Jet Cross Sections in Hadron Colliders,” W.T. Giele, E.W.N. Glover and D.A. Kosower, Nucl. Phys. B **403**, 633 (1993).

“Matching Matrix Elements and Parton Showers with HERWIG and PYTHIA,” S. Mrenna and P. Richardson, JHEP **05** (2004), hep-ph/0312274.

“Comparative Study of Various Algorithms for the Merging of Parton Showers and Matrix Elements in Hadronic Collisions,” J. Alwall et al., hep-ph/0706.2569 (2008).

“Next-to-Leading Order Calculation of Three-Jet Observables in Hadron-Hadron Collisions,” Z. Nagy, Phys. Rev. D **68**, 094002 (2003).

“QCD Studies with e+e- Annihilation Data at 172-189 GeV,” G. Abbiendi et al. (OPAL Collaboration), Eur. Phys. J C **16**, 185 (2000).

“Determination of the Jet Energy Scale at the Collider Detector at Fermilab,” A. Bhatti et al., Nucl. Instrum. Meth. A **566**, 375 (2006).

5. Charged Lepton Identification

“Particle Identification”, C. Lippmann, Nucl. Instr. and Meth. A (2011), doi:10.1016/j.nima.2011.03.009