Parton showers and MLM matching

with MadGraph and Pythia

Tutorial

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Lectures and exercises found at
https://server06.fynu.ucl.ac.be/projects/madgraph/wiki/SchoolNTU

Exercises

Choose one of the following two exercises:

1. Generate p p > w+ with 0 jets, 0,1 jets and 0,1,2 jets
   (Each on different computers - use the most powerful computer for 0,1,2 jets)
   a. Generate 20,000 events for a couple of different xqcut values (e.g., xqcut = 10, 20, 40, 80, 150).
   b. Compare the distributions (before and after Pythia) and cross sections (before and after Pythia) between the different processes, and between the different xqcut values.
   c. Summarize: How many jets do we need to simulate? What is a good xqcut value? How are the distributions affected?

2. Matched squark production (p p > ur ur~ + 0,1 jets)
   a. Run with and without "$ go" - how does the result change?
   b. With "$ go", do the exercises a.-c. under 1.
      What is a good choice for matching scale?