



CDF/D0/theory ME/MC workshop

Why are we here?

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History



- Over the last year or so, we've had a series of meetings with CDF and D0 experimenters and with interested theorists
 - ◆ From D0News via Bernard Pope
 - ◆ "The next round of the "Matrix Element and Monte Carlo Tuning Workshops" organized by the theorists Joey Huston and Stephen Mrenna will be held at FNAL on december 4th 2003."
 - ◆ October, 2002
 - ◆ November, 2002
 - ◆ January, 2003 (Durham)
 - ◆ April, 2003
 - ◆ Summer (Les Houches and CERN MC4LHC)
- Links to all provided on
 - ◆ <http://cepa.fnal.gov/patriot/mc4run2/MCTuning/index.html>



Goals



- The goal of these workshops has been to understand and make full use of all of the neat theoretical tools that have become available for use by experimenters for comparison with Run 2 data
 - ◆ new versions of Monte Carlo programs like Herwig, Pythia
 - ▲ and the tunes a la Rick Field needed to fit the Run 2 data
 - ◆ matrix element programs such as ALPGEN, Madgraph, GRAPPA
 - ◆ the interface (Les Houches) between the two
 - ▲ the MLM prescription for determining the proper cutoffs
 - ▲ the CKKW prescription for avoiding having to use the MLM prescription
 - ◆ NLO tools such as MCFM
 - ◆ NLO MC's: [MC@NLO](#)



Goals



- Both CDF and D0 have accumulated data samples of the order of twice that of Run 1
- With a long shutdown this fall, the data taken so far serves as a natural sample for the first Run 2 publications
- So there's even more importance attached to the theoretical comparisons that we will be making to the data
- And even more reason for CDF and D0 to share their understanding/problems
- And we'd like to summarize some of our understanding going into the Santa Barbara workshop



Agenda



Time	Title	Speaker	Talk Link
09:00 AM	Introduction	Joey Huston	huston.pdf
09:15 AM	CKKW implementation	Stephen Mrenna	mrenna.pdf
10:00 AM	CKKW use in CDF	Evelyn Thomson	thomson.pdf
10:30 AM	Issues in verification of ALPGEN heavy flavor production	Regina Demina	demina.pdf
10:45 AM	Break		
11:00 AM	Method 2 studies at NLO	John Campbell	johnmc.pdf
11:30 AM	MC@NLO intro	Joey Huston	huston2.pdf
11:50 AM	MC@NLO use in CDF	Mary Bishai	bishai.pdf
12:15 PM	Lunch		
01:30 PM	Herwig/Pythia differences in photon+jet balancing	Giuseppe Latino	latino.pdf
02:00 PM	Non-perturbative contributions to jet cross sections	Markus Wobisch	wobisch.pdf
02:30 PM	Drell-Yan studies	Un Ki Yang	unki.pdf
03:00 PM	ResBos-A	CP Yuan	cpyuan.pdf
03:30 PM	Adjournment		



A talk not given



- LHAPDF is intended to be a replacement for PDFLIB (and as easy to use)
 - ◆ crucial for calculating errors on cross sections due to pdf uncertainties
- In use since late 2001
 - ◆ incorporated for example into MCFM
 - ◆ see John's talk at this workshop
- To calculate the pdf errors on a cross section requires using 41 pdf's (for CTEQ)
- This can be very time-consuming
- A new version(still beta) of LHAPDF allows you to keep all 41 pdf's in memory at the same time
- So the cross section can be generated with the central value while the pdf luminosity weights are stored for the 40 pdf error sets
- Beta version can be downloaded at
- <http://durpdg.dur.ac.uk/lhapdf/downloads.htm>



Workshop on Collider Physics

Kavli Institute for Theoretical Physics

Santa Barbara, California Jan. 12-16

http://www.kitp.ucsb.edu/activities/collide_c04/?id=290