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# A short introduction

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thanks to the QCD conveners and to Tony for  
allowing us to use the QCD and Joint Physics  
time slots

# Reminder

## 15th TOPICAL CONFERENCE ON HADRON COLLIDER PHYSICS HCP2004

June 14-18, 2004  
Michigan State University



# History

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- Over the last two years or so, Steve Mrenna and I have organized a series of meetings (MC4Run2) with CDF and D0 experimenters and with interested theorists
  - ◆ October, 2002
  - ◆ November, 2002
  - ◆ January, 2003 (Durham)
  - ◆ April, 2003
  - ◆ Summer 2003 (Les Houches and CERN MC4LHC)
  - ◆ December, 2003
  - ◆ Santa Barbara (Jan 12 - April 2, 2004)
- Links to all provided on
  - ◆ [cepa.fnal.gov/patriot/mc4run2](http://cepa.fnal.gov/patriot/mc4run2)
  - ◆ [www.pa.msu.edu/~huston/santa\\_barbara/collider04.htm](http://www.pa.msu.edu/~huston/santa_barbara/collider04.htm)

# 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 (see S. Mrenna, P. Richardson hep-ph/0312274)
    - ◆ NLO tools such as MCFM
    - ◆ NLO MC's: MC@NLO
- NLO is often more than just a K-factor  
cf. W+jets, top production

# Agenda

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- 9:00–9:10 Introduction Joey Huston
- 9:10–9:30 Incorporating the MLM prescription in ALPGEN  
Michelangelo Mangano (by phone)
- 9:30–10:00 An overview of MC@NLO Stefano Frixione
- 10:00–10:20 PDF uncertainties for top production using MC@NLO Un-Ki Yang
- 10:20–10:40 MC@NLO comparisons in CDF (and some future plans) Saverio D'Auria
- 10:40–11:00 Status of CKKW/NLO W+jets comparisons in CDF Mitch Soderburg
- 11:00–11:15 BREAK
- 11:15–11:35 Impact of Pythia tuning on CKKW Steve Mrenna
- 11:35–12:00 The universality of Tune A Rick Field
- 12:00–12:25 Monte Carlo tuning of the D0 dijet delta-phi distribution Marek Zielinski
- 12:25–12:40 Faster parton distribution evaluation in Monte Carlos Zack Sullivan
- 12:45–1:00 Non-uniformity of Monte Carlo ID codes Rick Tesarek