

---

# Future Directions or... where do we go from here?

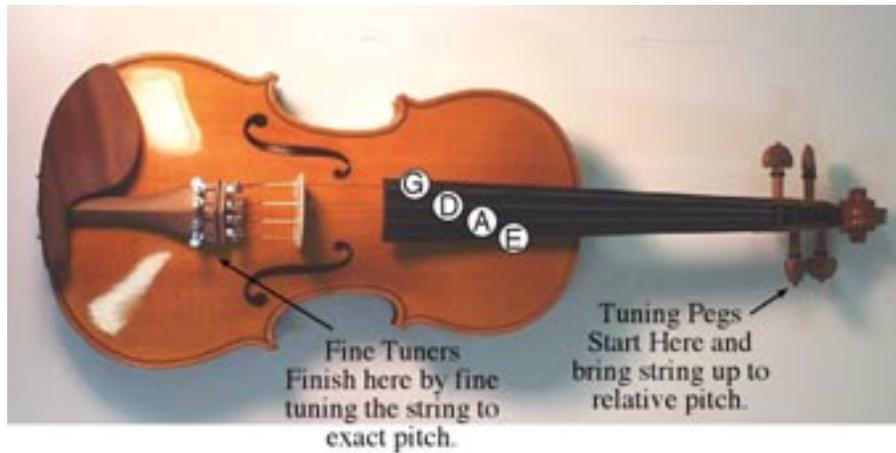
J. Huston

# Matrix element/Monte Carlo

---

- Matrix Element/Monte Carlo programs are becoming increasingly important tools for Run II physics
  - ◆ the Les Houches accord for interfacing between matrix element and Monte Carlo programs has greatly increased their flexibility and usefulness
- The motivation for organizing this ~~workshop~~ journal club was to bring together interested parties in CDF/D0/theory to share ideas and expertise, and to reduce duplication of effort
- ...this is a motivation shared by others given the attendance today

# Even though we may have different ideas of tuning

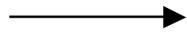


A Bart Reiter banjo available for \$693 from Elderly Instruments



ME/MC Tuning Workshop  
J. Huston

- 
- If this is valuable, how do we keep this from fizzling out? We've seen that CERN is approaching this problem in a systematic way.



- Meet on a regular basis, every 5 to 6 weeks with live streaming being available for every meeting (if possible)
- Next meeting is Friday Nov. 15 in 1-West
  - ◆ **Speakers include:**
    - ▲ Michelangelo Mangano on ME tunings
    - ▲ Claudio Ferretti on ROOT interfaces to ALPGEN
    - ▲ Steve Vejcik on gluon radiation in ttbar events in data and Monte Carlo
  - ◆ **Send an email if you would like to talk**

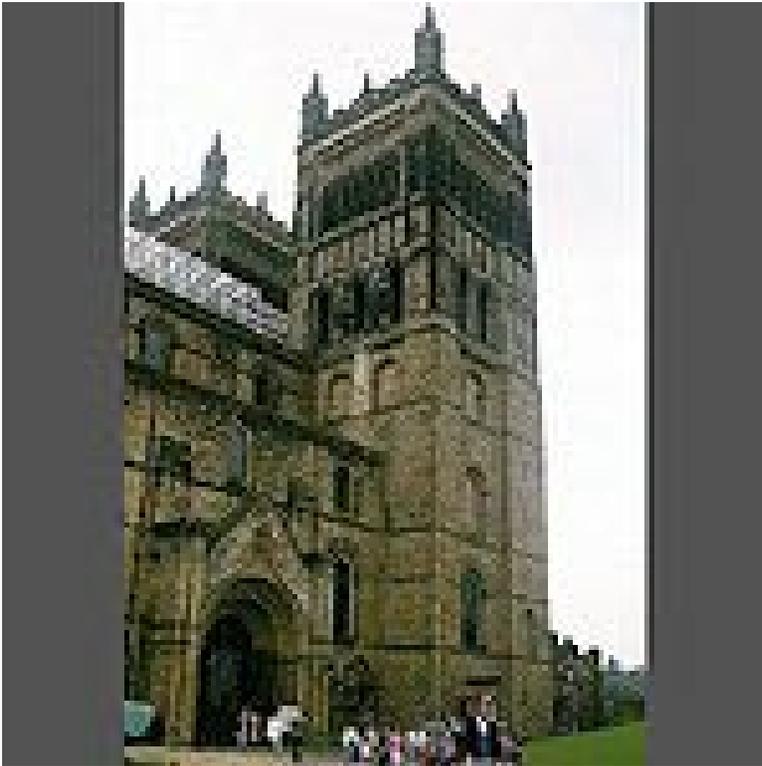
# Webpage

---

- We will also maintain a central webpage (along with an email distribution list) that includes handy references to standard tunes and useful tools and pointers to programs, as well as copies of all talks given at these meetings
- Plus we will schedule workshops in exotic locations with good weather like...

# Workshop at Durham

The IPPP has now moved into the new Ogden Centre for Fundamental Physics building!



- Matrix Element and Parton Showering Monte Carlos

◆ Week of Jan. 20, 2003



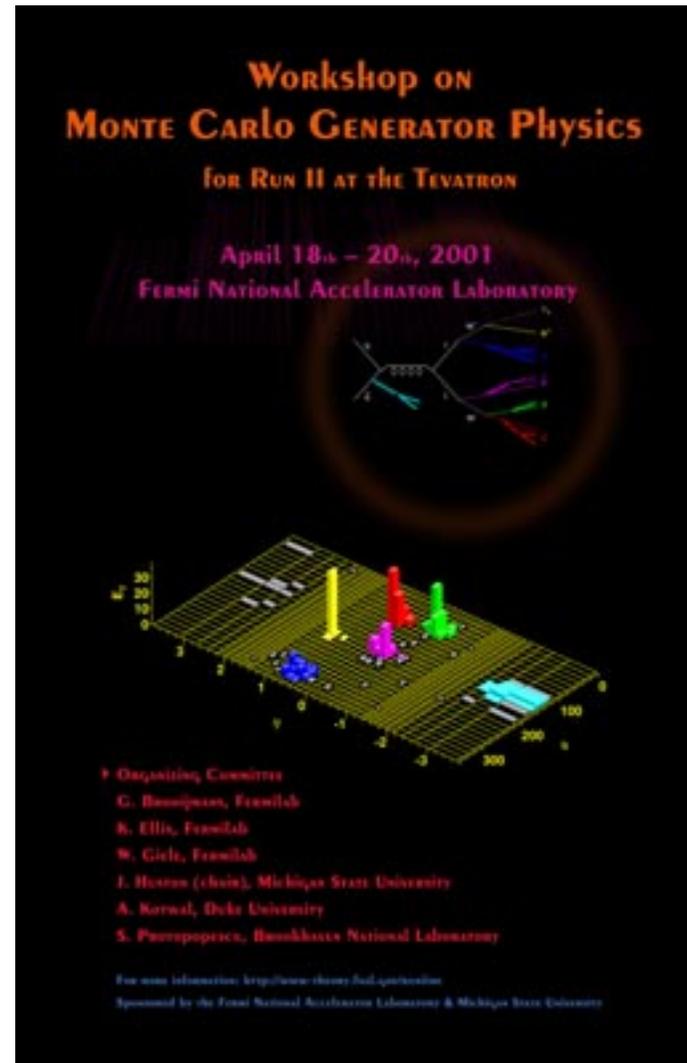
# Previous workshops

---

- Plus, there's a lot of useful material still available...

# Run 2 Monte Carlo Workshop

- Transparencies, video links to individual talks and links to programs can all be found at <http://www-theory.fnal.gov/runiimc/>
- or <http://thpc20.fnal.gov/runiimc/>



ME/MC Tuning Workshop  
J. Huston

# Les Houches

- Two workshops on “Physics at TeV Colliders” have been held so far, in 1999 and 2001 (May 21-June 1)
- Working groups on QCD/SM, Higgs, Beyond Standard Model
- See web page:

<http://www.lapp.in2p3.fr/conferences/LesHouches/Houches2001/>

especially for links to writeups from 1999 and 2001

- QCD 1999 writeup (hep-ph/0005114) is an excellent pedagogical review for new students
- QCD 2001 writeup (hep-ph/0204316) is a good treatment of the state of the art for pdfs, NLO calculations, Monte Carlos
- Les Houches 2003 will have more of a concentration on EW/top physics



ME/MC Tuning Workshop  
J. Huston

# Les Houches 2001 Writeups

---

- The QCD/SM Working Group: Summary Report
  - ◆ [hep-ph/0204316](#)
- The Higgs Working Group: Summary Report (2001)
  - ◆ [hep-ph/0203056](#)
- The Beyond the Standard Model Working Group: Summary Report
  - ◆ [hep-ph/0204031](#)

# Les Houches and Monte Carlos

- Much of the time during meeting was spent developing a generic process interface from matrix element to Monte Carlo programs
  - This interface allows:
    - ◆ arbitrary hard subprocesses to be plugged into shower/hadronization generators.
- CompHEP  
Grace  
MadGraph →  
VecBos  
Wbbgen
- Herwig  
Isajet  
Pythia
- ◆ ->Les Houches accord (#1)

“Les Houches” User Process  
Interface  
for Event Generators

hep-ph/0109068

E. Boos, M. Dobbs, W. Giele, I. Hinchliffe, J. Huston,  
V. Ilyin, J. Kanzaki, K. Kato, Y. Kurihara,  
L. Lönnblad, M. Mangano, S. Mrenna, F. Paige, E. Richter-Was,  
M. Seymour, T. Sjöstrand, B. Webber, D. Zeppenfeld

- Possible because one or more authors from each of these programs was present at Les Houches
  - ◆ Matt Dobbs has been the front man for coordinating the disputes/discussions
  - ◆ literally hundreds of email exchanges

# Workshop in Cambridge

- Right before Amsterdam, there was a workshop held in Cambridge on TeV-scale Physics
  - ◆ <http://www.hep.phy.cam.ac.uk/theory/webber/camws.html>
- Original idea of workshop was to examine the implications of the several hundred pb<sup>-1</sup> of data available from CDF and D0
- Instead emphasis was more on ME/MC tools, especially NLO MC's
  - ◆ [MC@NLO](#) available now for diboson production, and soon will follow with more subprocesses
  - ◆ also talks by John Collins, Steve Mrenna, Dave Soper on their ideas for NLO MCs
  - ◆ Most of the talks I've linked to the website:  
[http://www.pa.msu.edu/~huston/cambridge\\_tevscale/cambridge\\_program.html](http://www.pa.msu.edu/~huston/cambridge_tevscale/cambridge_program.html)