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
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

University of Durham

ME/MC Tuning Workshop
J. Huston
Previous workshops

bullet 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/](http://www-theory.fnal.gov/runiimc/)
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://wwwlapp.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
Les Houches 2001 Writeups

- The QCD/SM Working Group: Summary Report
  - hep-ph/0204316
  - 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
- -> Les Houches accord (#1)

“Les Houches” User Process Interface for Event Generators


- 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

ME/MC Tuning Workshop
J. Huston
Right before Amsterdam, there was a workshop held in Cambridge on TeV-scale Physics

Original idea of workshop was to examine the implications of the several hundred pb$^{-1}$ 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