Run 2 Monte Carlo Workshop

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Why have a workshop?

- For CDF/D0 to become more familiar with the latest in theoretical tools available and soon to become available for comparisons of data to both SM and non-SM theory in preparation for Run 2 analyses.
  - this was a topic not covered extensively in the Run 2 workshops
  - both Herwig and Pythia have recently released new versions (SUSY added to Herwig)
  - growth industries in:
    - exact matrix element tools (CompHep, Grace, Alpha,…)
    - matrix element corrections to Monte Carlos
  - would like to standardize Monte Carlo corrections to matrix elements
- For phenomenologists, especially the Monte Carlo people, to become more familiar with the physics potential of Run 2.
- To foster closer cooperation in Run 2 physics issues between CDF/D0/Fermi theory

Where/when/who?

- Fermilab (or possibly near Fermilab)
- April 18-20 (Wed-Thurs-Fri) or 19-21 (Thurs-Fri-Sat)
- Invitees (besides CDF/D0):
  - Bryan Webber
  - Torbjorn Sjostrand
  - Frank Paige
  - Mike Seymour
  - Gennaro Corcella
  - Leif Lonnblad
  - Slava Ilyin
  - Steve Mrenna
  - Ian Hinchliffe
  - Howie Baer/Xerxes Tata
  - Emanuelle Perez

Possible Agenda

Day 1

Session 1: Tevatron Experience

- 8:30-9:00 Registration
- 9:00-9:10 Welcome + goals of workshop
- 9:10-9:35 CDF experience with Monte Carlos in Run 1
- 9:35-10:00 D0 experience with Monte Carlos in Run 1
- 10:00-10:30 Break
- Session 2: Monte Carlo updates
- 10:30-11:05 Herwig
- 11:05-11:35 Pythia
- 11:35-12:05 Isajet
- Lunch:

Session 3: Matrix element tools

- 1:00-1:30 CompHep/Grace
- 2:00-2:30 VECBOS/NJETS
- 2:30-3:00 ALPHA
- 3:00-3:30 Break

Session 4: Corrections/extensions to Monte Carlos

- 3:00-3:30 Matrix element corrections to Monte Carlos –I
- 3:30-4:00 Matrix element corrections to Monte Carlos-II
- 4:30-5:00 Monte Carlo corrections to matrix element calculations
- 5:00-5:30 Review of NLO corrections to Monte Carlos
- 5:30-6:00 Panel discussion of different approaches

Possible Agenda

Day 1:

Session 5: PDF's

- 9:00-9:30 CTEQ
- 9:30-10:00 MRST
- 10:00-10:30 GKK
- 10:30-11:00 Break

Session 6: NLO/Resummation tools

- 11:00-11:30 NLO tools
- 11:30-12:00 Resummation tools
- 12:00-12:15 Discussion

- 12:15-1:30 Lunch

Session 7: NNLO

- 1:30-2:00 NNLO pdf's
- 2:00-2:30 NNLO cross sections

Session 8: Monte Carlo tunings

- 2:30-3:00 Monte Carlo tunings at LEP
- 3:00-3:30 Monte Carlo tunings at the Tevatron
- 3:30-4:00 Break

Session 9: SUSY tools

- 4:00-4:25 ISASUSY
- 4:25-4:50 SUSYGEN
- 4:50-5:15 SUSY in Pythia
- 5:15-5:40 R parity violating SUSY in Herwig

- Workshop Dinner?

Possible Agenda

Day 3

Session 10: LED/exotics
- 9:00-10:30
- 10:30-11:00 Break

Session 11: Top quark/EW physics
- 11:00-12:30
- 12:30-2:00 Lunch

Session 12: B/QCD tools
- 2:00-3:30
- 3:30-4:00 Break

Session 13: Onto C++
- 4:00-4:30 Herwig
- 4:30-5:00 Pythia

Questions

- At the least, we will scan the transparencies and put them on he web. Should we have something written similar to the Run 2 writeups?
- What talks/topics would be useful, especially during Day 3?