

# MC Group Activities in the Analysis Center

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# Parton Shower Development

$$\text{Data} = (\text{Hard} \otimes \text{Shower} + \text{MPI} \otimes \text{Shower}) \otimes \text{Hadronization}$$

- Parton Shower program development
  - Cascade a shower with unintegrated PDF (H. Jung)
  - Shower with quantum interference (Z.N.)
- HepMCAnalyser (J. Katzy, C. Ay, S. Johnert, Z. Qin)
  - Common interface of MC School 2008
  - Generator validation, comparison and debugging
  - First release in end of November
  - Future plans
    - Extend HepMCAnalyser to compare LO to NLO distributions
    - Underlying event tuning
    - Provide and use HERA results for LHC MC tuning

# Parton Shower Development

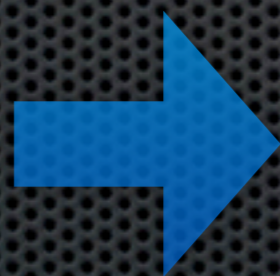
- Validation of the shower against theory (QCD)
  - Mini workshop on “Criticism on dipole shower” with P. Marchesini, Oct. 23-24
    - Over 20 attendees, EVO connection to Paris and Lund
    - Papers are in preparation
      - P. Skands and S. Weinzierl on numerical studies
      - Z.N. and D. Soper on analytic results
- We are planning a mini workshop/working week on “Systematical studies of parton shower algorithms” around end of January or beginning of February
  - Does the parton shower resum the right large logarithms?
  - Splitting function, momentum mapping, evolution variable,.....
  - Can we agree on a “Standardized Concept”?

# Underlying Event

- ✦ Meeting on “What is Underlying Event?” in January
  - ✦ With both experimentalists and theorists
  - ✦ Tuning of existing programs
  - ✦ Identify significant evidence for multiple interaction
  - ✦ Try to form some theoretical framework based on QCD

# PDF in MC Generators

- ✦ Meeting on “What PDF to use in MC Generators” on 10-11 November
  - ✦ J. Huston visited us
  - ✦ 22 attendees (18 locally + 4 by EVO)
  - ✦ Modified LO pdf for MC generator vs. PDF fit to MC cross sections
  - ✦ Common interface for NLO programs based on NTUPLES



Communication and  
collaboration between  
working groups

# MC School 2009

- ✦ April 20-24, 2009
- ✦ Focusing on BSM event generator
- ✦ Background processes (NLO, Shower,...)
- ✦ Signal processes (matrix element generators,...)

# Monte Carlo Meetings

- ✦ Regular meeting every two weeks (usually on Thursday)
- ✦ Announcements, reports, comments
- ✦ Sort talks (physics) on various topics
- ✦ Broadcasted on EVO