UPDATED LIST OF TOPICS COVERED BY THE QCD/SM WORKING GROUP

PARTON DISTRIB. FCTS. (PDF), A. VOGT and W. GIELE coord.

GOAL: to improve the accuracy of pdf's and to develop a systematic treatment of pdf uncertainties, and define as clearly as possible how the different definitions of uncertainties relate to each other.

* Towards NNLO (topic in common with HO)
  - where do we stand
  - inclusion of partial NNLO evolution in pdf packages

* PDF uncertainties:

  - Reexamination of Prior assumptions for PDF's
    (parameterizations and/or smoothness, factorization schemes and order of calculation, theory uncertainties, impact of lattice QCD inputs, use of sumrules: constraints or consistency checks?)
  - Theory uncertainties
    (Treatment of renormalisation/factorization scale, inclusion of resummed predictions, what do we learn from comparing LO, NLO, NNLO,...,resummed?)
  - Experimental systematic uncertainties:
    standardization? How do different definitions relate to each other?

* Treatment of heavy flavours

* suggestions from 'the users'

HIGHER ORDERS (HO), N. GLOVER coord.

GOAL: to obtain new results for multiloop and one-loop multileg processes and develop efficients (fast, precise, automated) methods for computing observables beyond the leading order accuracy.

* Recent developments in NNLO Matrix Elements (ME) calculations

* IR cancellation for 1-loop single unresolved

* IR cancellation for tree level double unresolved

* Estimations of size of NNLO effetcs. Are they needed?

* PDF at NNLO (in common with PDF)

* Towards more automated NLO calculations?

RESUMMATIONS, E. LAENEN coord.

GOAL: to assess for various resummations the theoretical status, and inventorize/priorize what needs to be done to improve the methods further for practical use at TeV colliders (subleading accuracies, power corrections, matching) to assess for a number of concrete cases (e.g. Higgs boson production) what resummations have to say about it.

* small x summation:
  - status of small-x resummation (BFKL etc.)
  - impact on Tevatron and LHC observables (e.g. heavy quark cross sections)
  - power corrections?

* Threshold summation:
  - status and recent development
  - relevance for TeV colliders

* Q_T summation

* Threshold and Q_T summations, and Higgs physics (in common with Higgs WG)

* joint summation:
  - formalism and its status
  - applicability

* Resummed PDF (in common with PDF):
  - how important
  - how to do it, what is needed.
  - Can a project for this be set up? Resummed PDF's with errors?

* Resummations & MC

MONTE CARLOS (MC), I. HINCHLIFFE coord.

Topics to be possibly discussed:

* Comparisons of differents approaches:

  - parton showers (PS):
    . showering in Pythia vs. Herwig vs. Isajet
    . showers vs. resummation
  - PS with Matrix Elt (ME) corrections
  - ME calculations (feynman diag. vs. ALPHA)
  - ME with PS corrections

* "extensions to NLO"

* When ME necessary, when PS fail, why can PS fail badly (cf: W + n jets vs. W + 1 jet * PS)

HEAVY FLAVOURS (HF), S. FRIXIONE coord.

JETS & PHOTONS, J. HUSTON coord.