LHC EW WG 2: Jets and EW bosons

- Conveners:
  - ATLAS: Eram Rizvi, Heberth Torres
  - CMS: Hannes Jung, Emanuela Barberis
  - LHCb: Stephen Farry, Will Barter
  - TH: Marek Schoenherr

  - further reading: WG Twiki

Theory comparison: LHC tune

- Common LHC tune for different NLO MC generators: ***LHC tune***
  - Goal: provide a common benchmark tune for theory calculations
  - Time scale
    - first results during summer 2018
    - to be used for theory comparison

LHC tune

- Discussion during general meeting:
  - question on purpose of tune:
    - common tune for all experiments and theory for comparison
    - consistency of tunes for different generators
    - common uncertainty estimates

  - doubts whether general tune can exist:
    - can one tune parameters with Pythia, Herwig standalone and use it in matched/merged calculations ?
      - does one need something special for NLO etc ?
    -

LHC tune – data

- Which data to tune to ?
  - start with list of data from Monash on hadronization and FSR from e+e-?
    - use identified particles from LHCb ?
      - LHCB_2013_I1208105 – LHCb measurement of energy flow from *pp* collisions at √=7TeV
      - LHCB_2010_S8758301 – LHCb differential cross section measurement of prompt *K0S* production in three rapidity windows at √=0.9TeV
      - LHCB_2011_I917009 –*V*0 production ratios in *pp* collisions ats √ =0.9 and 7 TeV at LHCb
      - LHCB_2011_I919315 – Inclusive differential Φ production cross-section as a function of *p*T and *y*
      - LHCB_2012_I1119400 – Measurement of prompt hadron production ratios in *pp* collisions at √ =0.9 and 7 TeV
      - LHCB_2014_I1281685 – Charged particle multiplicities and densities in *pp* collisions at √=7TeV
      - LHCB_2015_I1333223 – Measurement of inelastic interaction cross-section in pp collisions at 7 TeV for LHCb fiducial phase-space

LHC tune – data

- Which data to tune to ?
  - which data for UE ?
    - Tevatron 0.9, 1.96 TeV
    - LHC 0.9, 7, 8 13 TeV: ATLAS, CMS, ALICE, LHCb ?
  - which data for min bias ?
    - LHC 0.9, 7,8, 13 TeV: ATLAS, CMS, ALICE

LHC tune

- Which PDF to chose:
  - LO, NLO, NNLO ?
  - which alphas (order , value) ?
    - same for ISR, FSR ?

- Correlations
  - inside each data set (correlated uncertainties)
  - between data sets ?

- making use of AutoTune

WG 2: Agenda for today

LHC-EW WG: Jets and EW bosons

Monday 9 Jul 2018, 14:00 → 16:10 Europe/Zurich

40-R-D10 (CERN)

Videoconference Rooms

LHC-EW_WG__Jets_and_EW_bosons | Join | 40-R-D10

14:00 → 14:10 **Intro** 10m

14:10 → 15:10 **LHC tune discussion**

Appendix