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Introduction

This page will be used to collect information to aid future comparisons of jet substructure measurements across the LHC experiments.

Meetings

- https://indico.cern.ch/event/797675/ (notes can be found here).

Common observable definitions and binning

While each experiment is of course encouraged to optimize observables and binnings to suite the needs of their detector, it would be nice to have at least one common setup that can be directly compared.

- **Jet Mass**
  - Existing measurements: ATLAS@13 TeV, CMS@13 TeV
  - Proposal for common setup: Measure m/p_T^2 in logarithmic bins of jet p_T. The denominator should be the ungroomed jet p_T. Proposal to have one inclusive jet p_T bin above 300 GeV (should be good for both Z+jets and dijets).

- **Fragmentation Functions**
  - Existing measurements: Run 1 ATLAS measurement for inclusive fragmentation, ATLAS HI comparison, Run 2 LHCb J/psi
  - Proposal for common setup: Sometimes people use $z = \mathrm{dot}(p_{track},p_{jet})/\mathrm{dot}(p_{jet},p_{jet})$ and sometimes $z = p_{T,track}/p_{T,jet}$. Proposal: use at least the latter.

References of recent measurements

- **ATLAS**
  - Lund jet plane @ 13 TeV (prelim.)
  - Mass in Z->(bb)+gamma @ 13 TeV
  - Fragmentation properties @ 13 TeV
  - JSS Observables in multijets & ttbar @ 13 TeV
  - g->bb @ 13 TeV
  - Jet pull @ 13 TeV
  - Jet mass @ 13 TeV
  - Fragmentation properties II @ 5.02 TeV
  - Fragmentation properties @ 5.02 TeV
  - Collinear W emission @ 8 TeV
  - Charged particles inside jets @ 8 TeV
  - Jet charge @ 8 TeV
  - Jet pull @ 8 TeV
  - Fragmentation properties @ 2.76 TeV
  - Jet shapes in ttbar events @ 7 TeV
  - Jet mass and other observables @ 7 TeV
  - Jet mass @ 7 TeV
  - Fragmentation properties @ 7 TeV
  - Fragmentation properties using track jets @ 7 TeV
  - Jet shapes @ 7 TeV
- **CMS**
  - Jet shapes in ttbar events @ 13 TeV
  - Jet mass @ 13 TeV
  - Jet mass of top jets @ 8 TeV
  - Jet charge @ 8 TeV
  - Jet mass in V+jets and dijets @ 7 TeV
  - Color coherence @ 7 TeV
  - Jet shapes @ 7 TeV
  - Medium-induced modifications of jet fragmentation in PbPb @ 5.02 TeV
  - Groomed jet mass in PbPb and pp @ 5.02 TeV
  - Splitting function in pp and PbPb @ 5.02 TeV
  - Jet shapes in PbPb and pp @ 5.02 TeV
  - Jet fragmentation in PbPb and pp @ 2.76 TeV
  - Modification of jet shapes in PbPb @ 2.76 TeV
  - Jet fragmentation in pp and PbPb @ 2.76 TeV
- **LHCb**
  - J/psi inside jets @ 13 TeV
  - Jet fragmentation @ 13 TeV
- **ALICE**
  - Zg and N_SD @ 7 TeV (pp) & 2.76 TeV (Pb+Pb)

Other relevant results

- **ATLAS**
  - Large-R in situ calibrations @ 13 TeV
  - W and top tagging @ 13 TeV
  - Tracking in dense environments @ 13 TeV
  - Single-hadron response @ 8 TeV
- **CMS**
  - Particle flow @ 8 TeV
  - JES and JER @ 8 TeV
  - W tagging @ 8 TeV
  - Tracking @ 7 TeV
- **LHCb**
- **ALICE**

-- BenjaminNachman - 2019-02-18

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