Review of aQGC benchmark (by Jakob Beyer)

Taikan Suehara
(Kyushu University)

Requests from Jenny to summarize

- the most important questions raised by you as referees and how they were addressed by Jakob
- your general assessment of the status of the analysis
- your general assessment of the status of the note
- do you agree with the selection of material for the IDR?
- which points remain to be addressed before material can be included in the IDR?

Jakob's analysis

- Selected to the benchmark for W/Z separation
- Final state: $\nu\nu qqqq$ at 1 TeV
- Based on his work of master thesis
  - Without SM background
    - Some cut table on selected bkg. included
  - No final analysis of aQGC values
- Cheated results on W/Z separation
  - Full reco vs cheated jets vs generator info
- Some study on neutrino correction included
  - Based on MC selection of neutrino/leptons

Discussions

- What are numbers/plots for performance comparison?
  - Signal eff./background rejection plot for WW as signal and ZZ as background (and vice versa) and tables on representative points
- Seems too much rely on the cheated results
  - All results should be shown by both cheated clustering and full reconstruction
- Too much depend on master thesis: actually people rarely read theses for reference
  - Necessary procedure to reproduce the results shown should be described in the note rather than just refer the thesis

Status so far

- For analysis
  - Mature enough as a WW/ZZ separation study
  - No full results of aQGC: not a scope of the note
  - Reasonable comparison of cheated and reconstructed jet clustering
  - Efficiency plots can be easily produced for IDR
- For note
  - Implementing the results of the discussion would finalize the note with good quality
    - Hopefully in 1-2 weeks?

Material for IDR

- Discussed yesterday
  - W/Z mass distribution with both cheated and full reconstructions overlaid (generator omitted), compared with large and small models
    - 8 lines in total: a little bit busy so need care for better view
  - Efficiency plot of WW(signal)/ZZ(background) with large and small models overlaid