

# Generators

April 20, 2020

# Overview

- Report template setup, [linked from mattermost](#)
- Currently populated by Andy + Marek (conv.) + Tim (ECHEP-funded)
- 20 participants to the mattermost so far.
- Need to start to populate the different areas, two marked as **review areas**.
  - Machine-learning in phase space sampling
  - Negative weight reduction
- Improved sample biasing / filtering / forced hadronisation and decays
  - Look at Phil Ilten (Bham) Pythia work - additional hooks to setup chains, throw away fewer events due to filtering.
  - Get more experimentalist input, can be tackled more by non generator developers.
- **Sociological**
  - Re-use of intermediate computations between collaborations
- General Profiling + Dedicated Binaries (next slide)

# Profiling

- My work focused on reading / setup / learning
  - Working VTune profile setup, spent time familiarising.
  - Local Pythia install (quite trivial)
  - Local Sherpa install (less trivial, only managed +OpenLoops, not +Blackhat)
  - Sherpa NLO Z+jets
- In progress
  - Modifications to Sherpa Z+jets to make it more ATLAS-like
  - Understanding how the ME computation is factored.
  - Settling on a balance of complexity / realism and generating some VTune profiles, plus documenting the run cards.
- Next
  - Install MadGraph, make it CMS-like
  - Deep-dive into VTune profiles
  - Attempt Link Time Optimisations, compare different optimization levels