

# Summary Plots – One Nuance

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Before I show different versions, I realized there was one nuance I hadn't considered. To illustrate this, I'll explain quickly how I calculate HLTAD thresholds

1. EB25 data is produced in a recent ATHENA version which contains the physics chain
2. HLTAD scores are saved to the file, and I also have access to L1AD decisions (although not the scores themselves)
3. Using the online L1AD decisions for seeding and the online HLTAD scores, I calculate the threshold that will yield 10Hz unique on EB25

However, there are still differences between online and software L1AD scores (as well as differences in online vs offline HLTAD scores, although those are very small and limited to only special cases of electrons)

**This means that when I use the online thresholds with the software scores, I get a different unique rate. In particular, using software scores in EB25, I obtain 18 Hz unique rate**

# Summary Plots – One Nuance

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We're still debugging the HLTAD differences, and are (hopefully) very close to full agreement. The L1AD differences seem to be more difficult to debug for reasons that I don't fully understand

In my mind, we have two options for the summary plot:

1. Use the online thresholds, yielding a unique rate of 18 Hz. Then, for the alternative trigger types, also add 18 Hz for those as well
2. Re-calculate thresholds using software scores to obtain 10 Hz unique, and add 10 Hz with the alternative trigger types as well

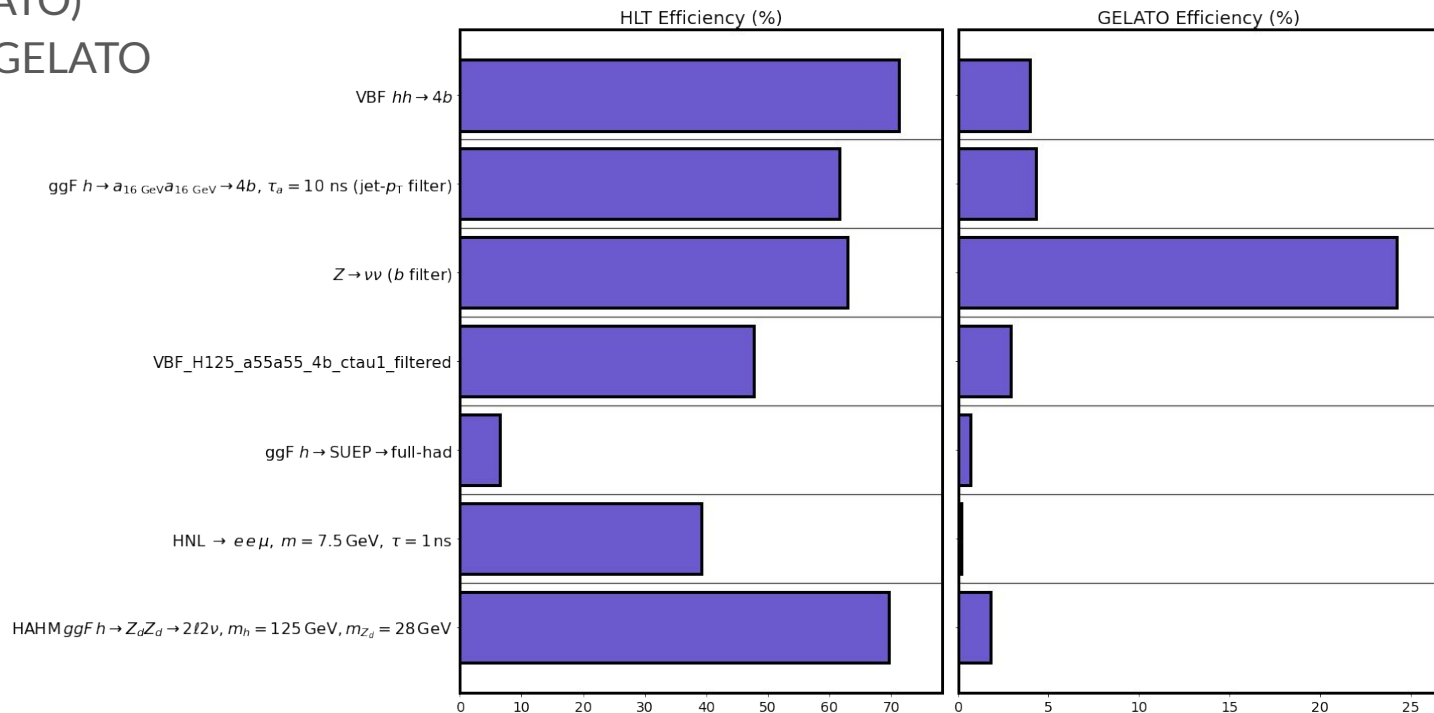
In these plots, I use option 1, although it would be very easy to use option 2 if we decide that is a better option.

# Summary Plots

Raw Efficiencies:

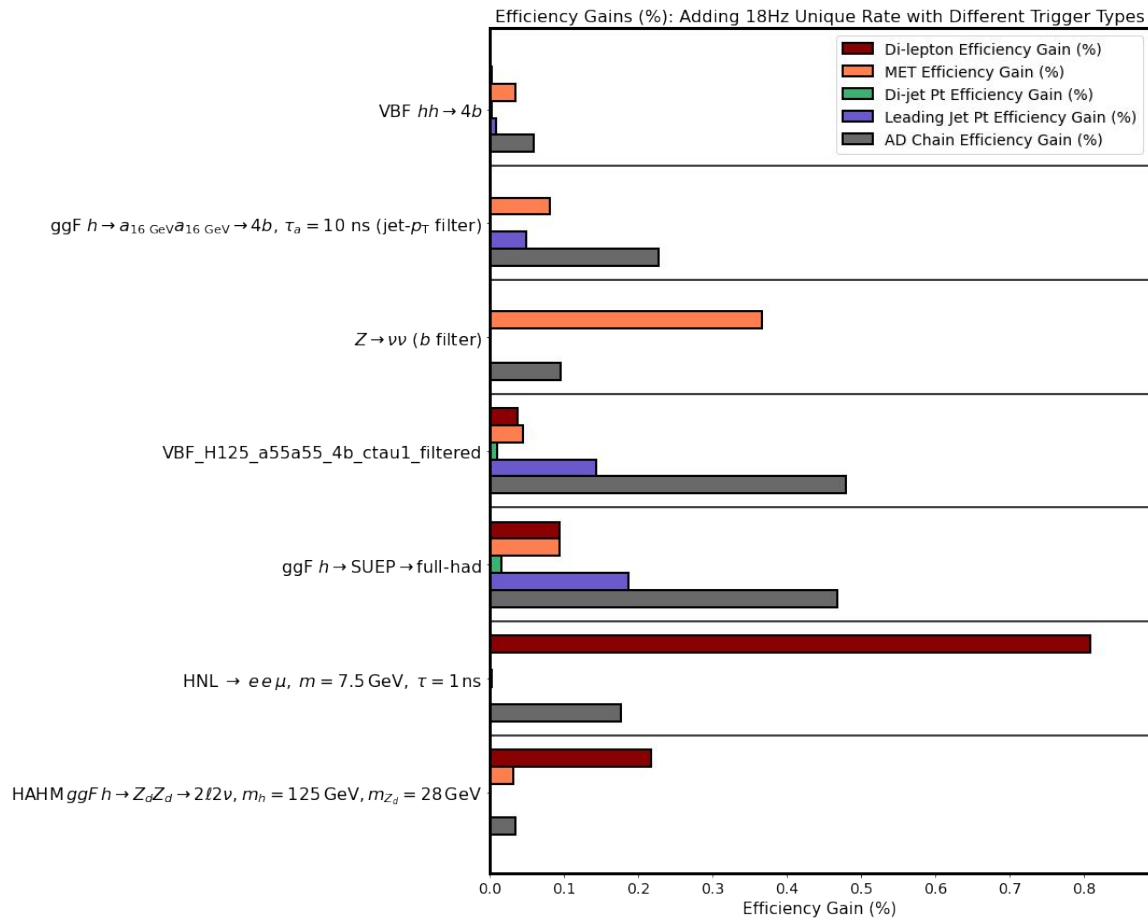
HLT (without GELATO)

compared to only GELATO



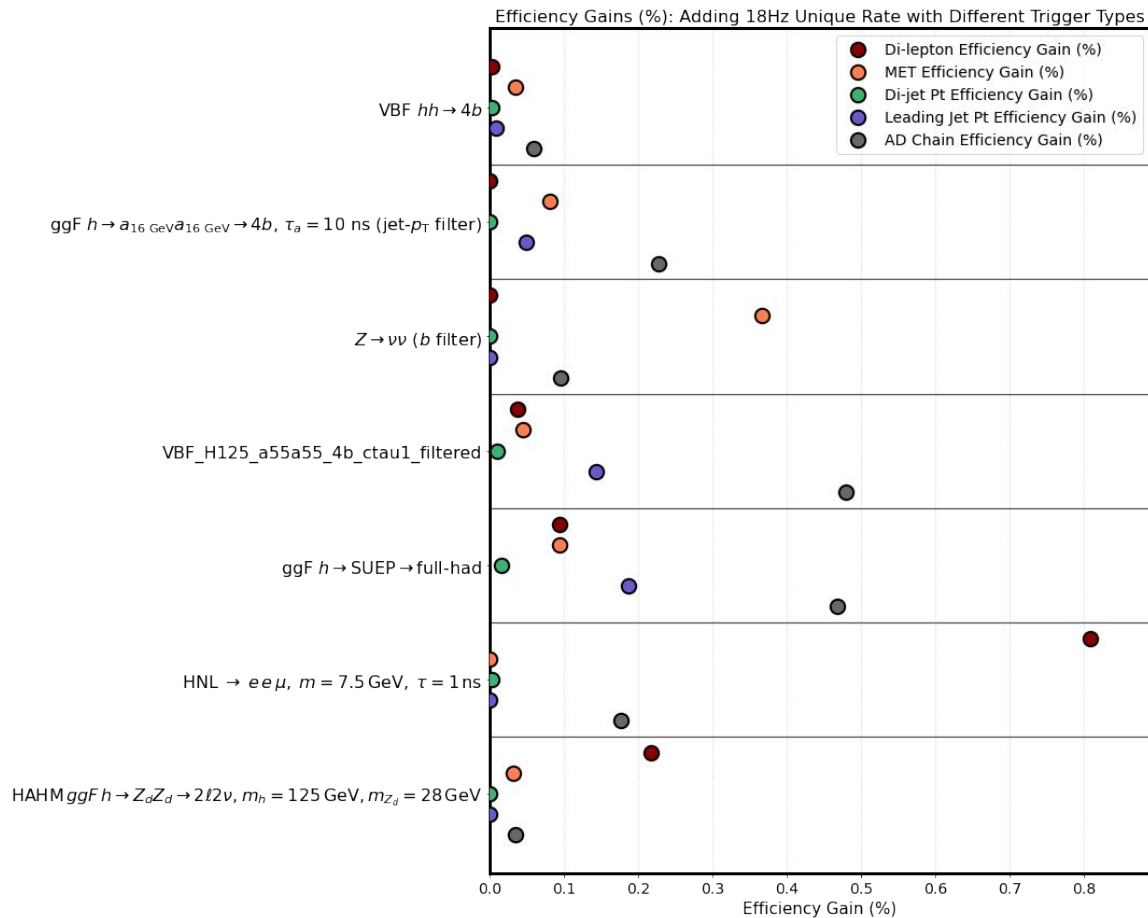
# Summary Plots

## Efficiency gains: bar plot



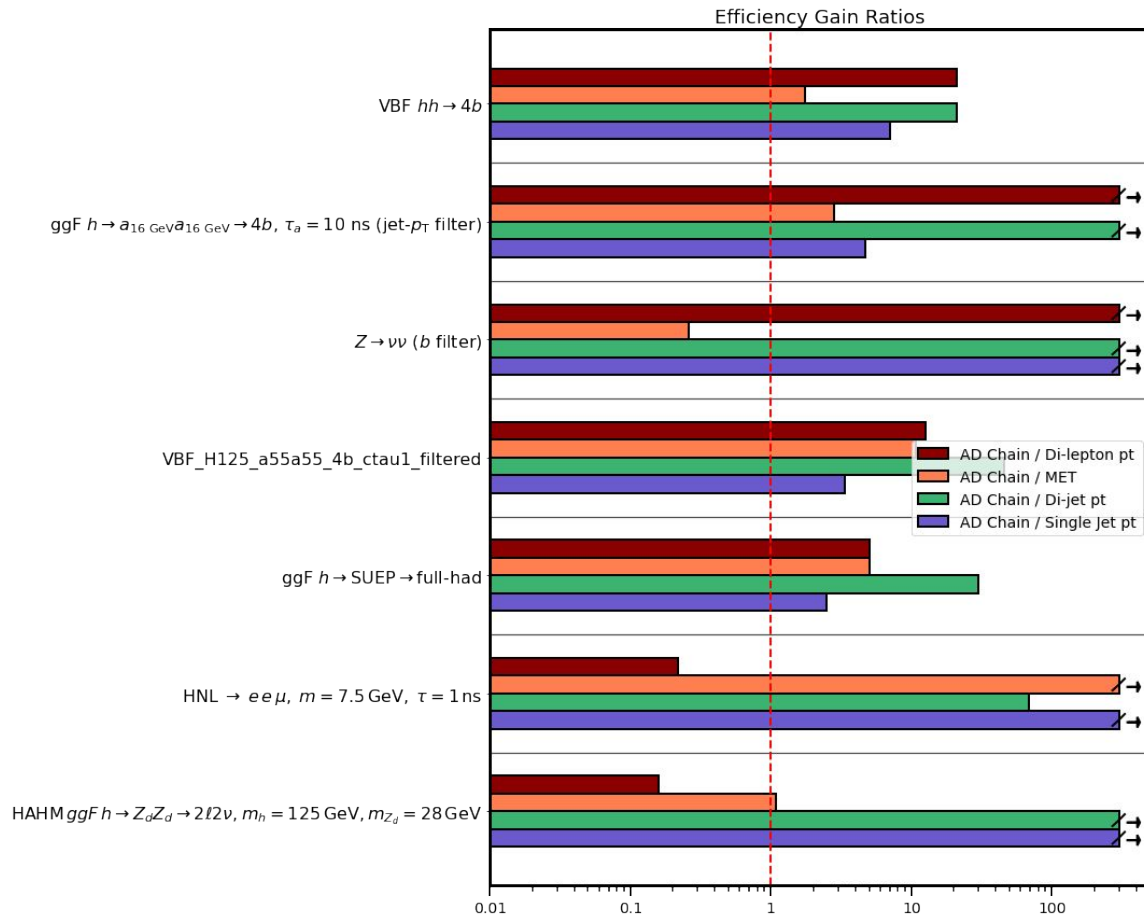
# Summary Plots

## Efficiency gains: scatter plot



# Summary Plots

## Efficiency gain ratios: bar plot



# Summary Plots

## Efficiency gain ratios: scatter plot

