

# New Trigger Studies for Emerging Jets at CMS Experiment

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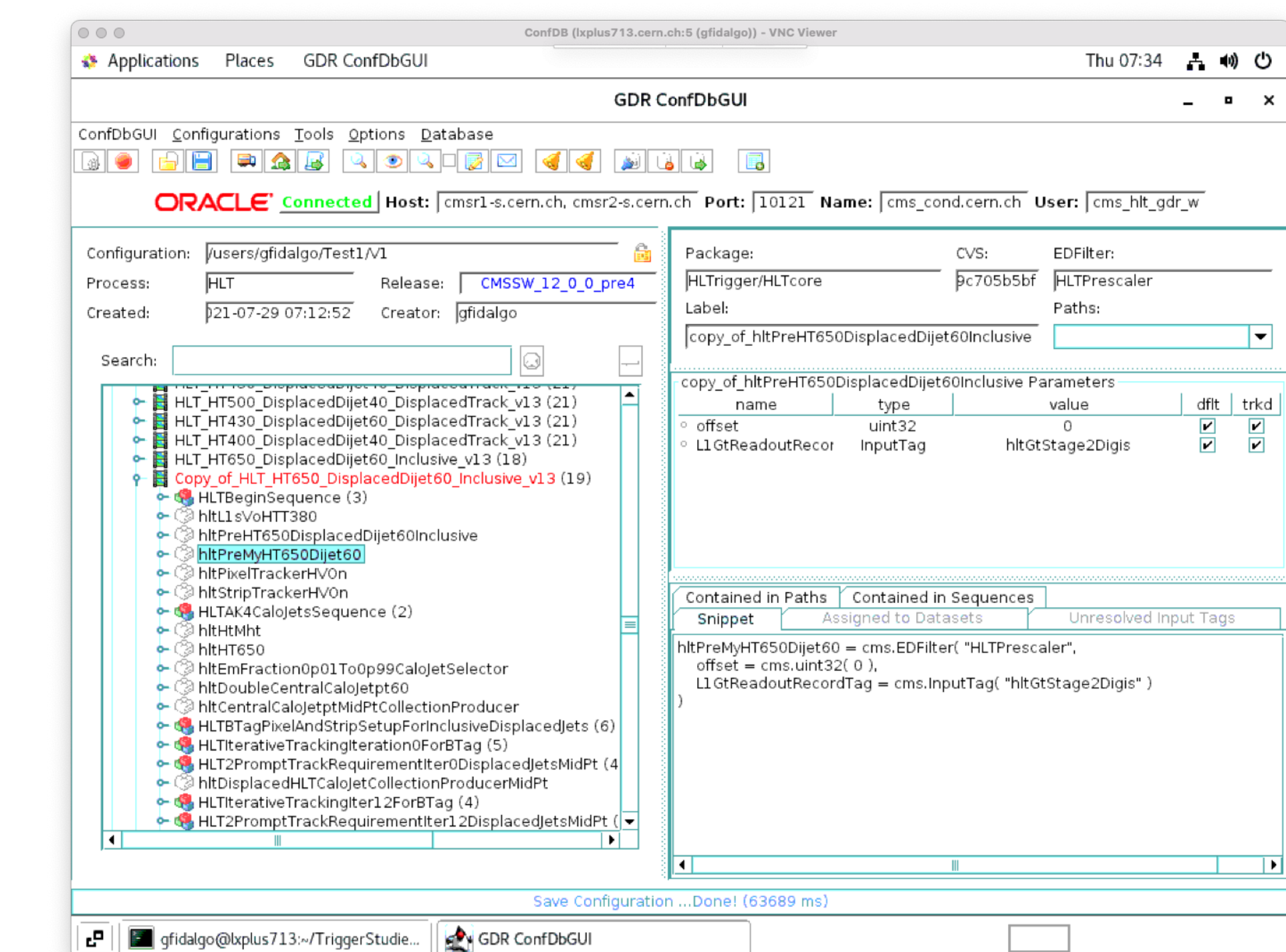
## Introduction

A Trigger is something that "triggers" the data taking process. Like a condition that is met in order to take a picture of particles that are coming out of a high energy proton-proton collision.

- I work on a software based Trigger called the "High-Level Trigger".
- We want to look at evidence for dark matter produced at the LHC collisions. We find these by looking at showers of particles, specifically Jets that come out of "nowhere"

## Creating a new HLT

How to create a new Trigger? : We use a java application called ConfDB that runs on the CERN network. This is neat alternative to editing a python file with over 10k lines of code.

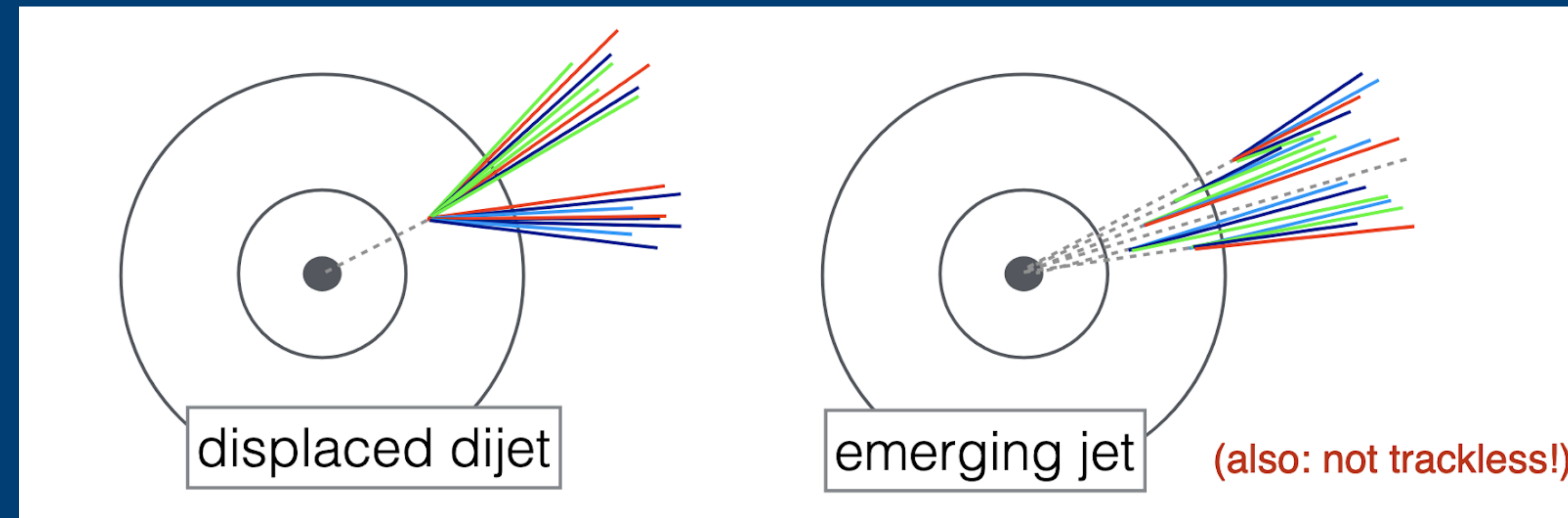


## Conclusion

This is still a work in progress but we have learned how to measure the efficiency of any trigger once it's available.



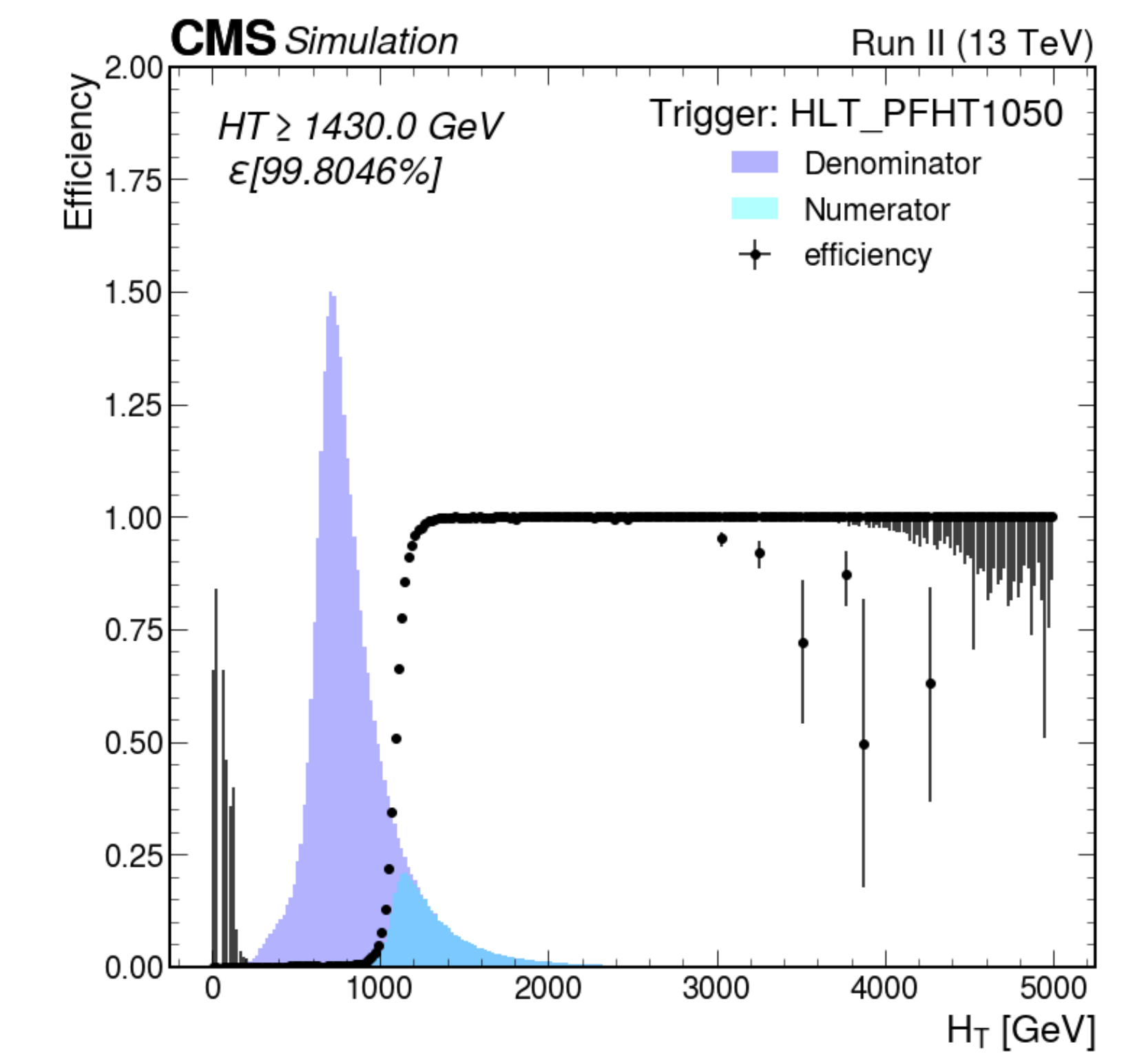
# I try to make the CMS detector see dark matter.



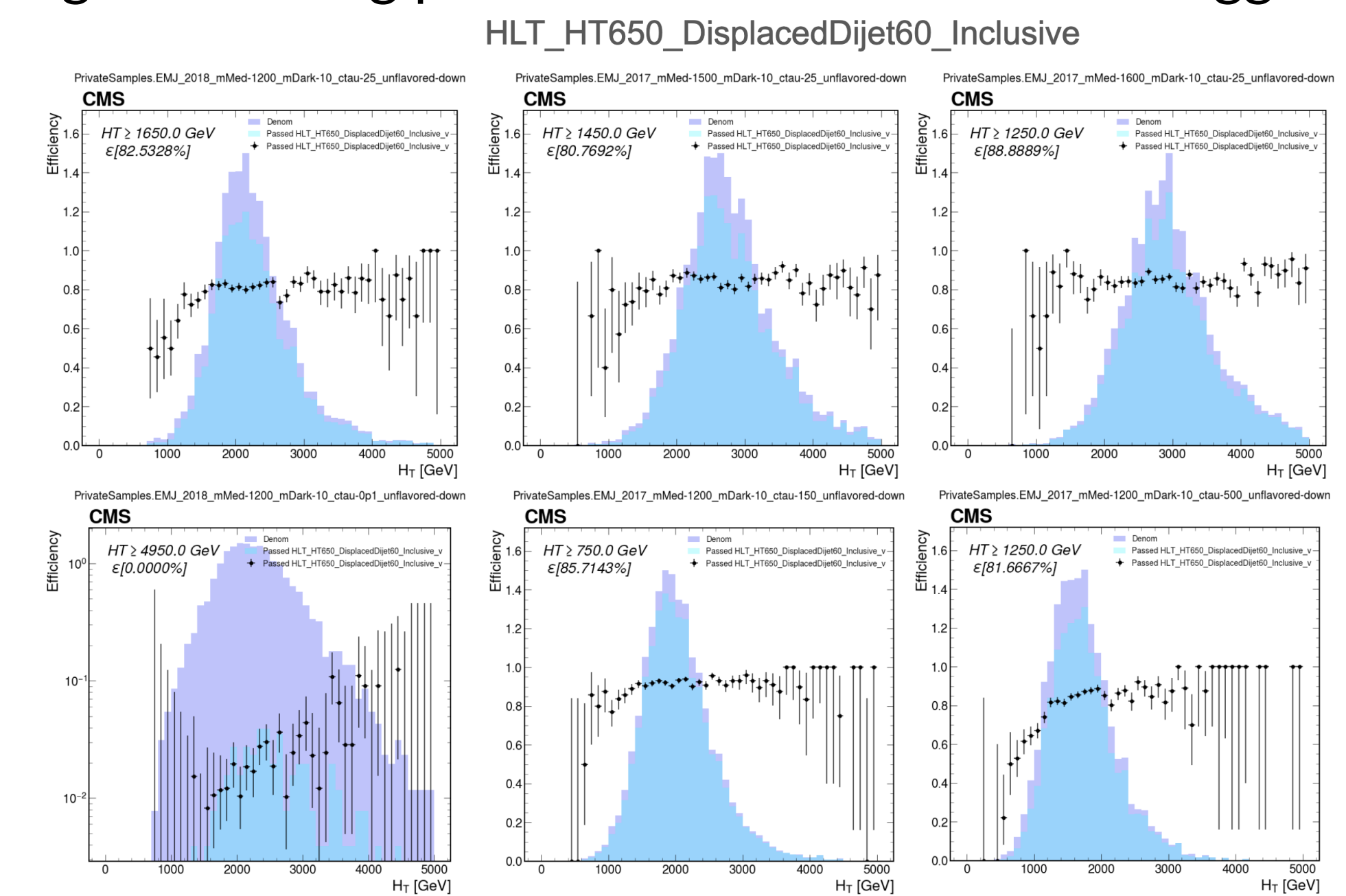
Take a picture to download the full paper or learn more about me.



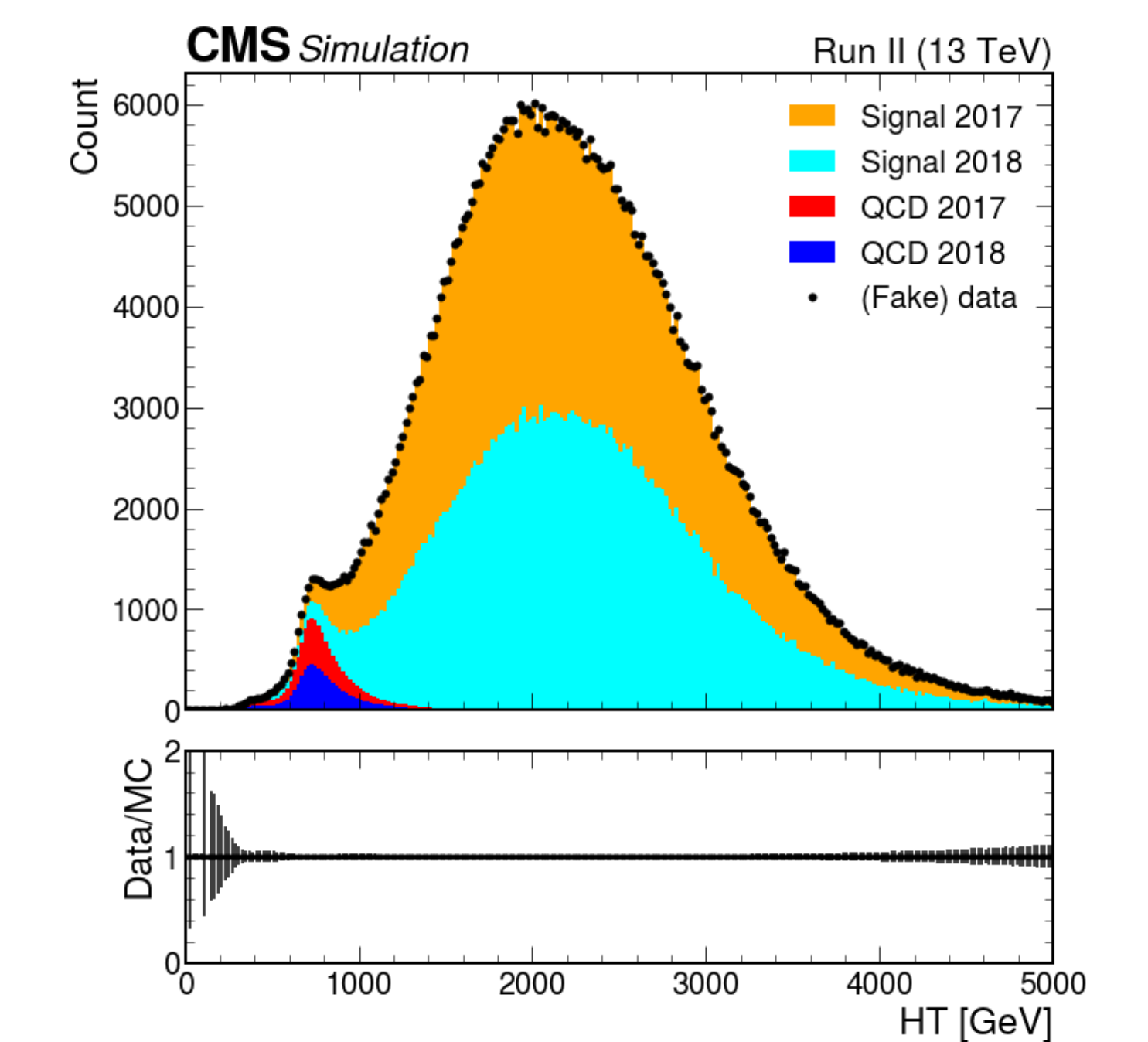
Here we see the efficiency plot of 1 trigger.



We can measure the efficiencies of many other displaced jet triggers. We think these might be a good starting point to create our new EMJ trigger.



The phase space we are looking at is filled with background (noise). So we need dedicated triggers to help sort through it efficiently.



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