



Flavour Anomalies: Bi-Weekly Meeting



General Overview of Activities

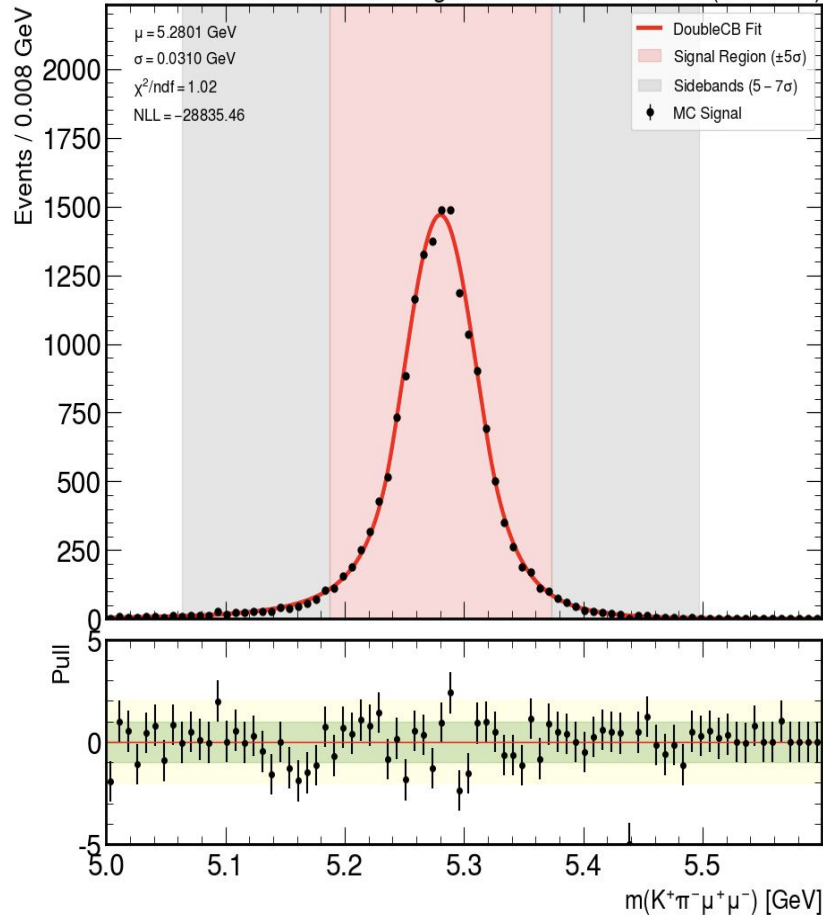
Over the past few weeks, I have been reworking the **Machine Learning (ML)** component for the **non-resonant channel**, incorporating tips and suggestions from both the Rare Decays group and our internal team.

- ❑ **MC Sample Production:** Generated Monte Carlo samples for the 2022 dataset, both with and without filters.
- ❑ **Kinematic Cuts:** Adjusted the pT thresholds for tracks and muons to **1.5 GeV** and **2.0 GeV**, respectively.
- ❑ **Signal Region Definition:** Implemented a **$\pm 5\sigma$ window** for the signal region definition.
- ❑ **Angular Distributions:** Created fit plots for the **GEN-level** angular distributions, comparing cases with and without Final State Radiation (FSR).

All updates are being posted and marked as completed in the **CodiMD**

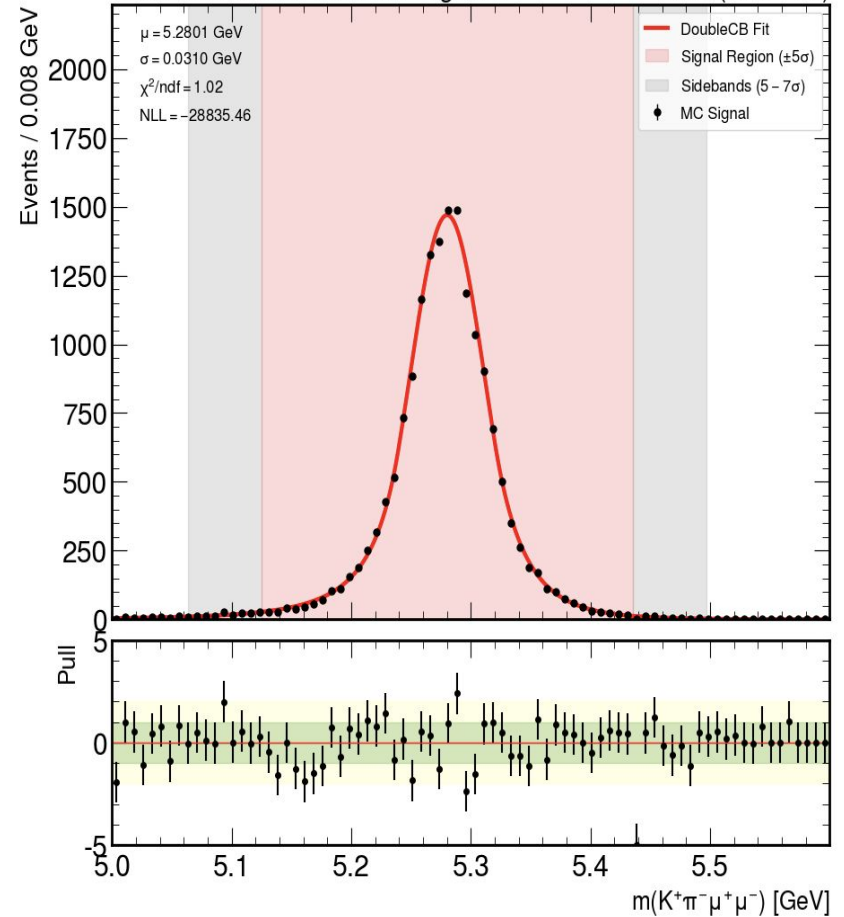
CMS Simulation Work in Progress

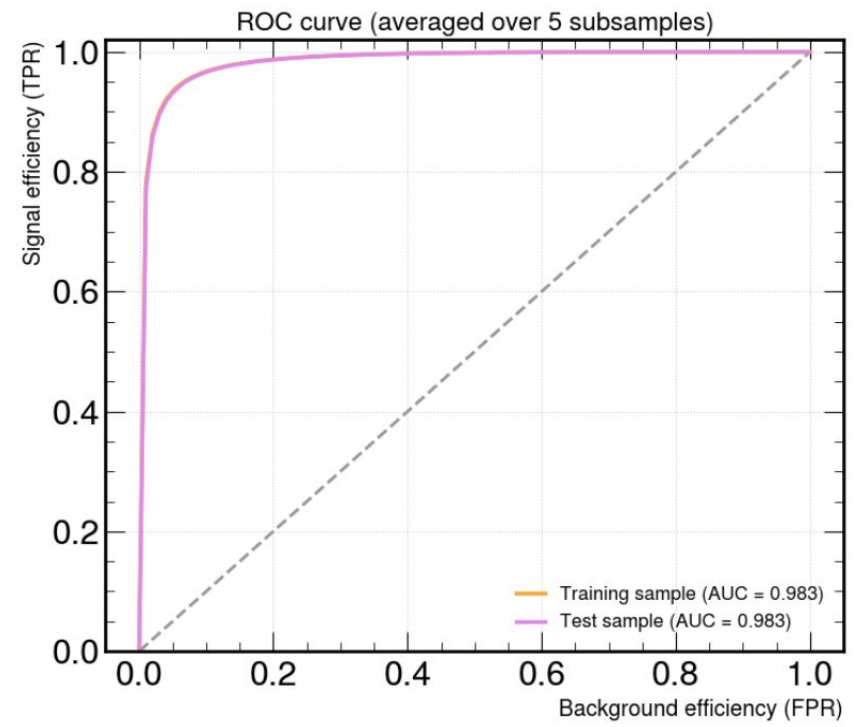
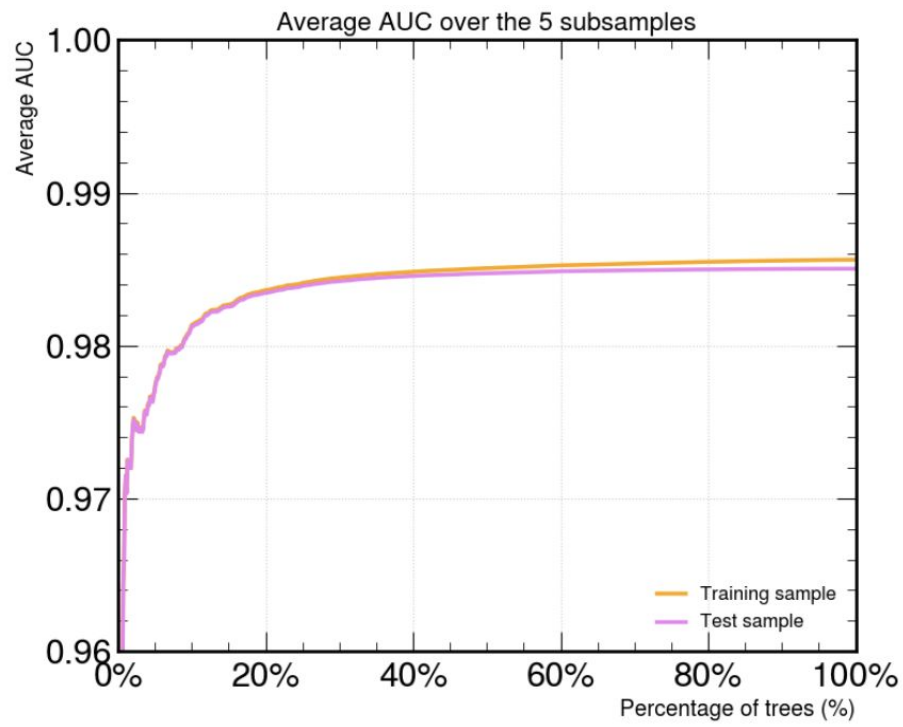
2022 (13.6 TeV)

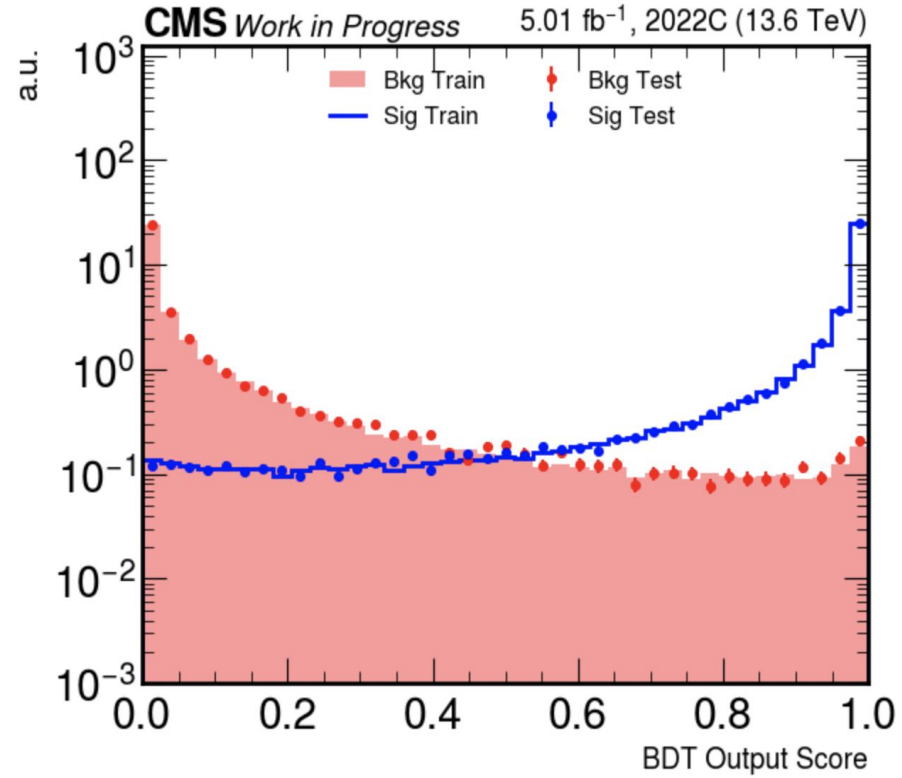
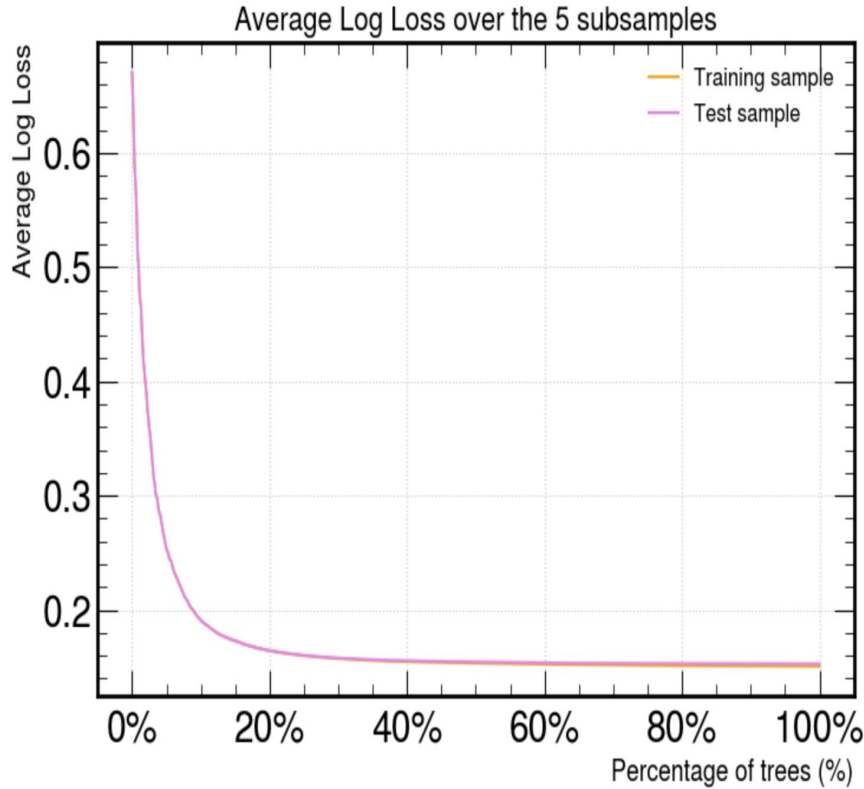


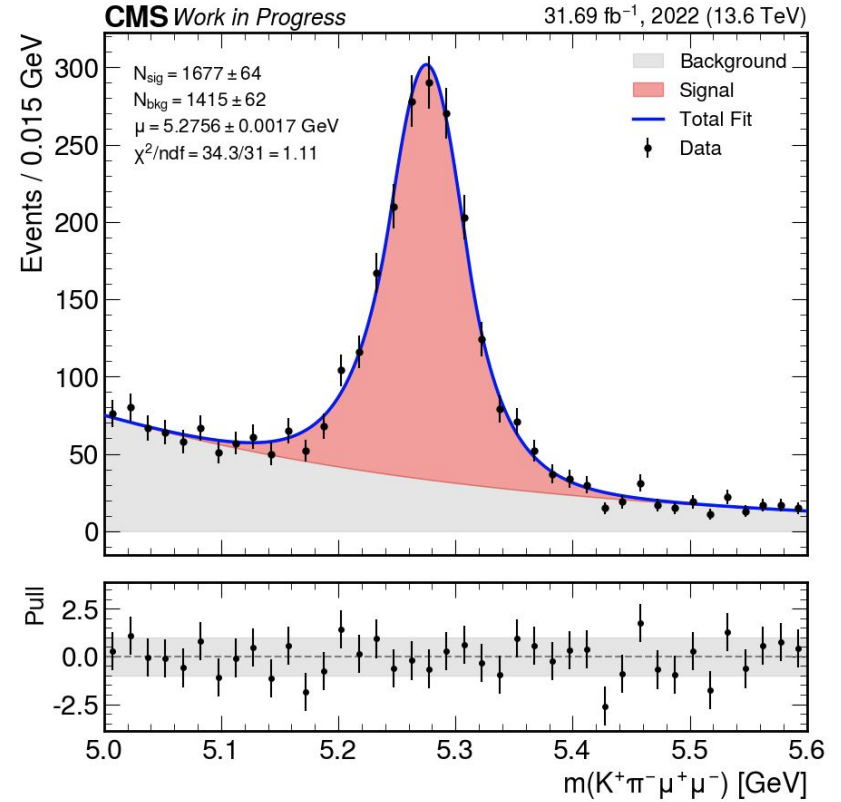
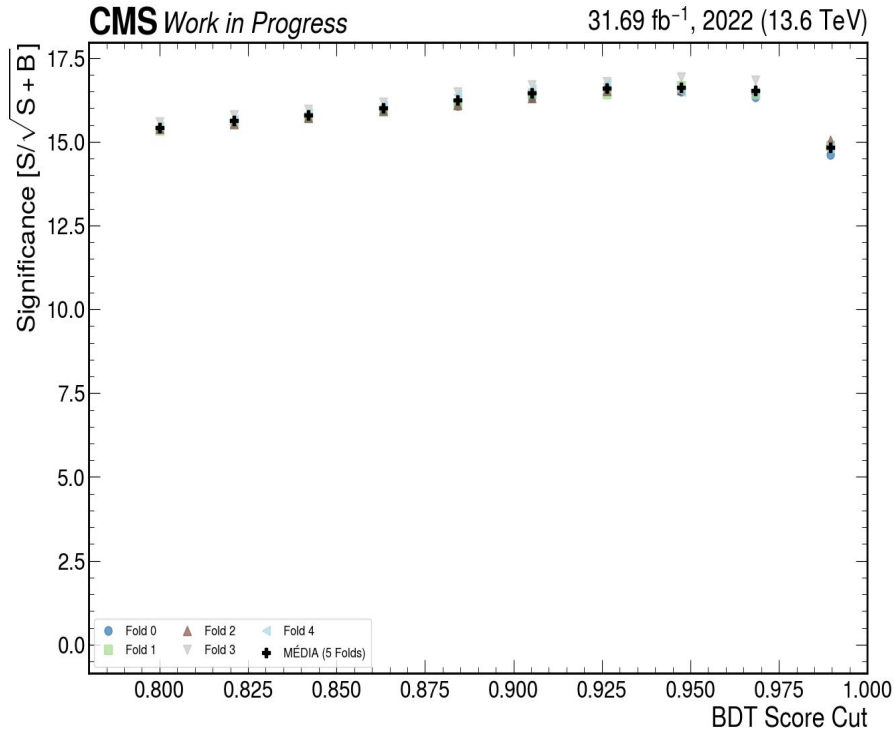
CMS Simulation Work in Progress

2022 (13.6 TeV)

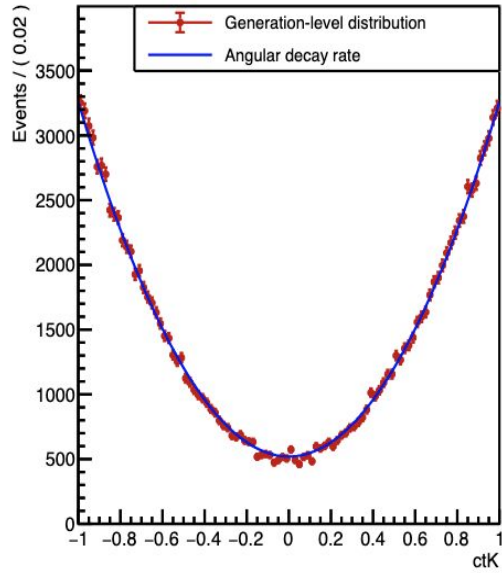




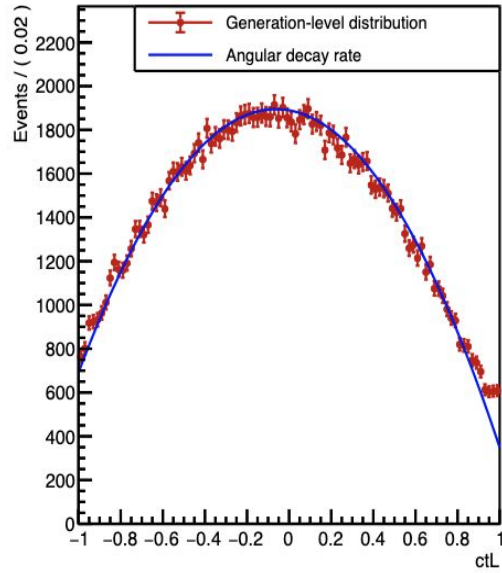




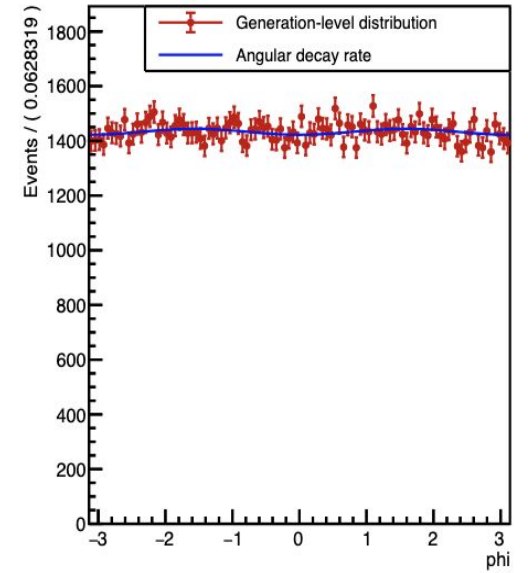
Fit to generation-level distributions (q2-bin 1 odd)



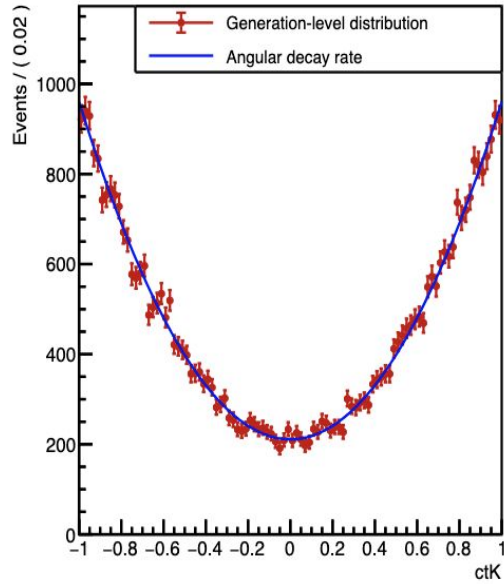
Fit to generation-level distributions (q2-bin 1 odd)



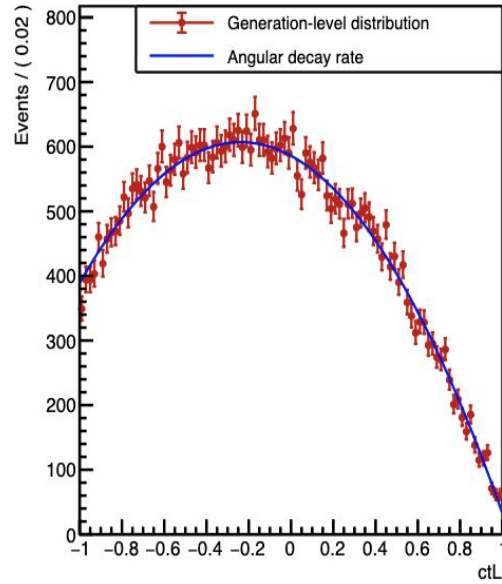
Fit to generation-level distributions (q2-bin 1 odd)



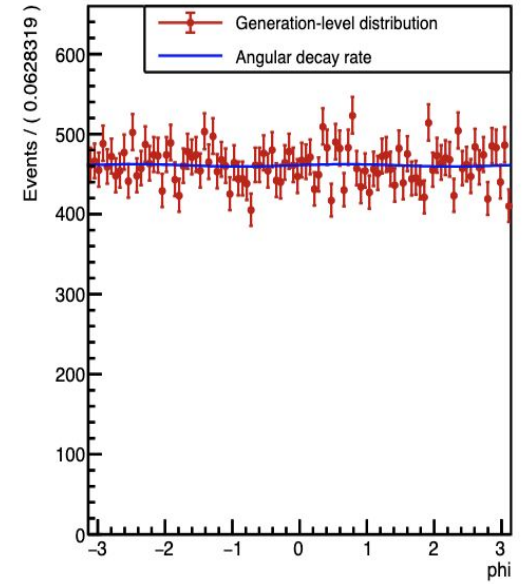
Fit to generation-level distributions (q2-bin 0 odd)



Fit to generation-level distributions (q2-bin 0 odd)

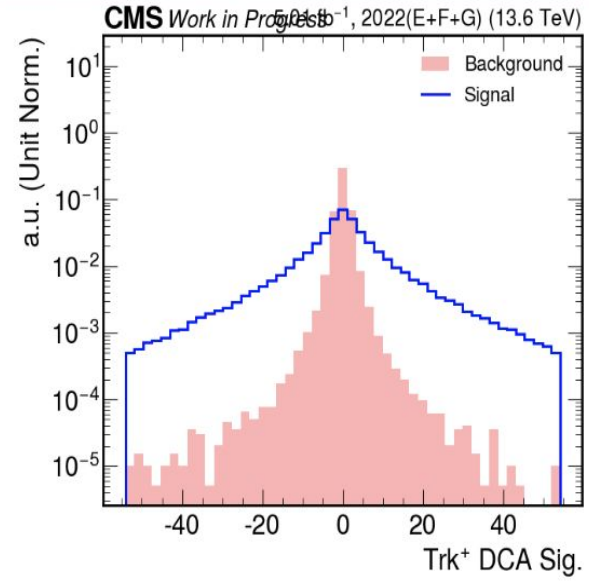
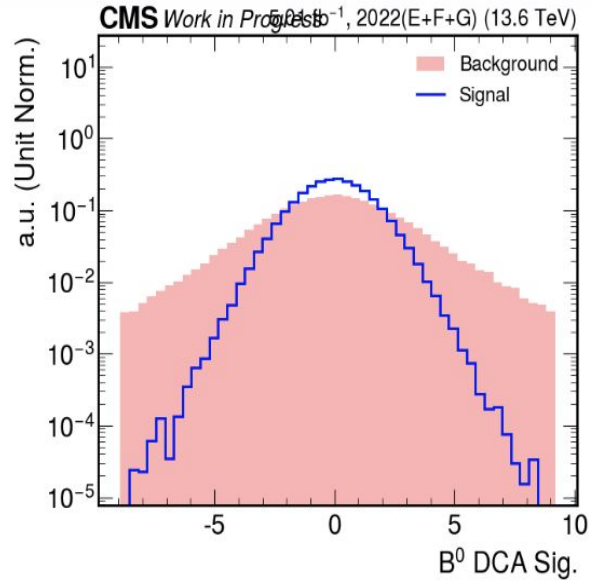
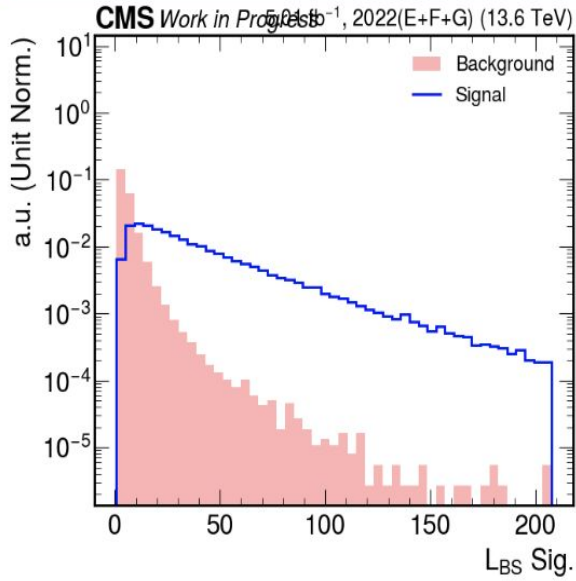


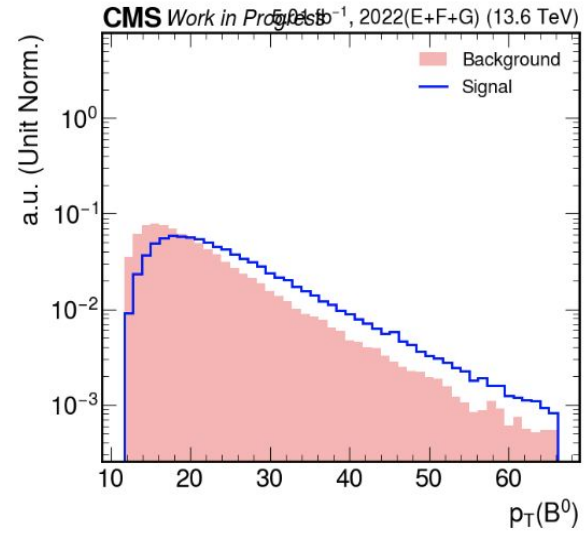
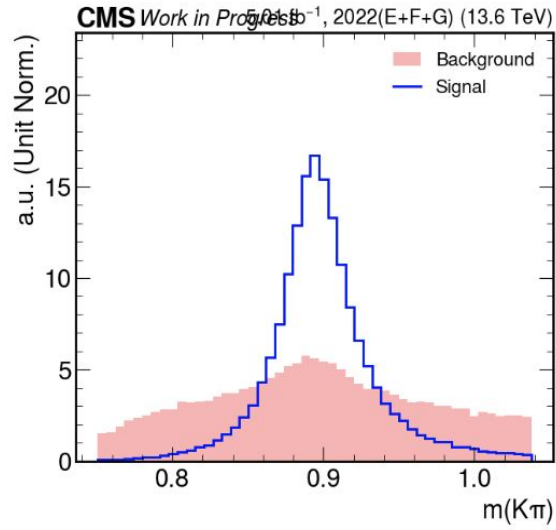
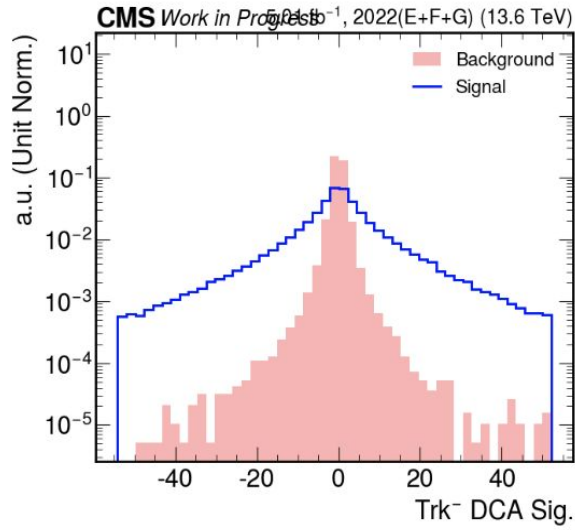
Fit to generation-level distributions (q2-bin 0 odd)

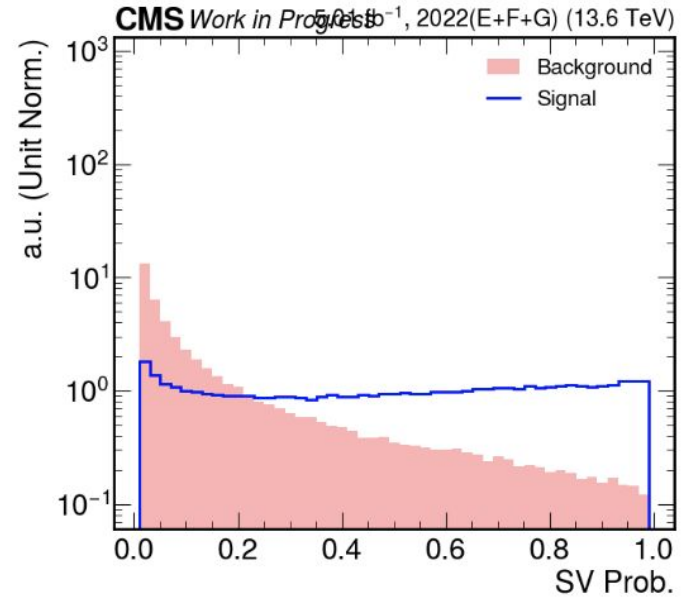
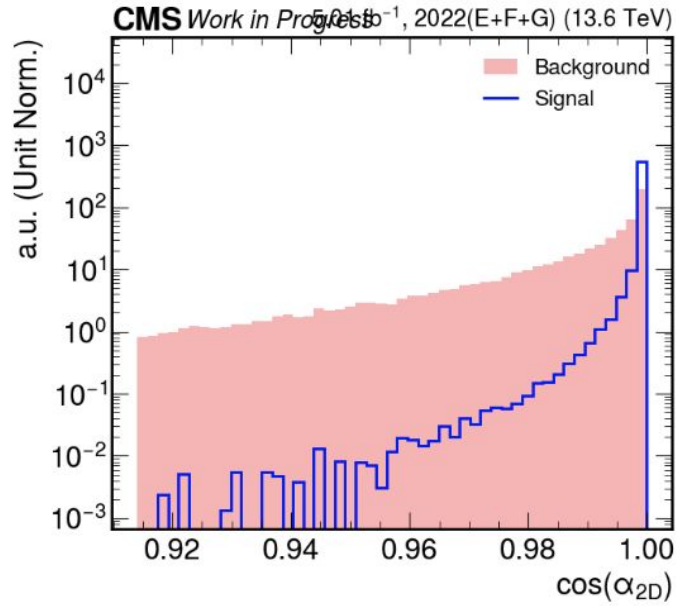




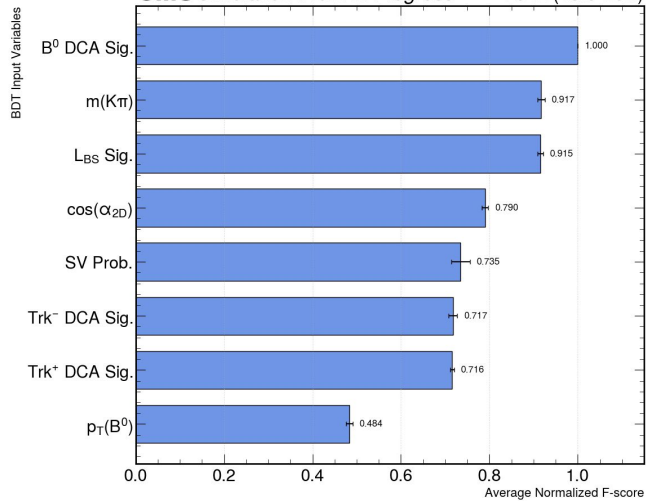
Backup Slides



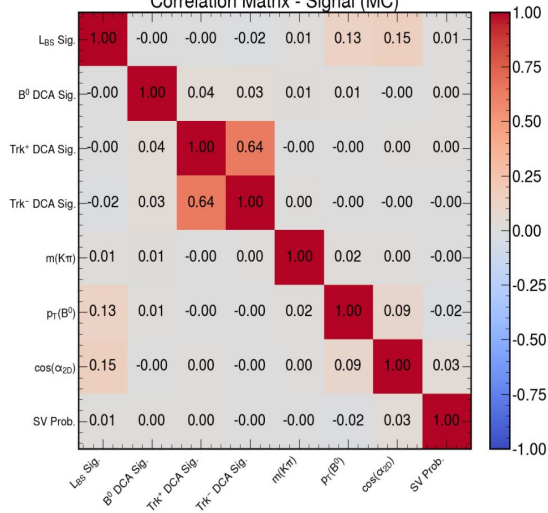




CMS Simulation Work in Progress 2022 (13.6 TeV)



Correlation Matrix - Signal (MC)



Correlation Matrix - Background (Data)

