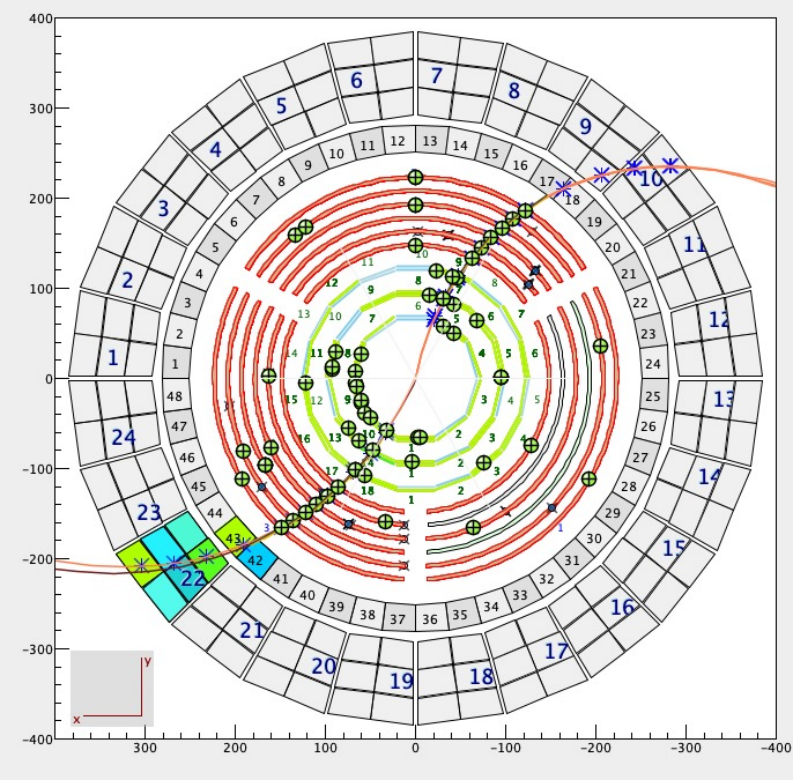
Update on CVT ML

CVT denoising :

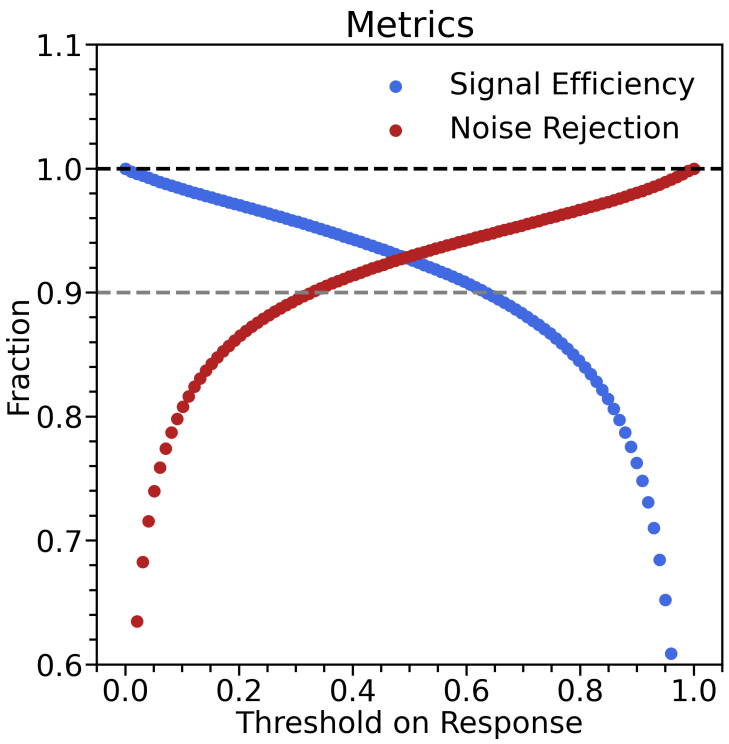
Input variables already implemeted in the model :
Layer, strip, sector, order, x1, y1, z1, x2, y2, z2, cweight, sweight

- Tests without cweight and sweight
- Tests with **energy deposited** per hits in BST and BMT
- Tests with the **time** of hits in BST and BMT

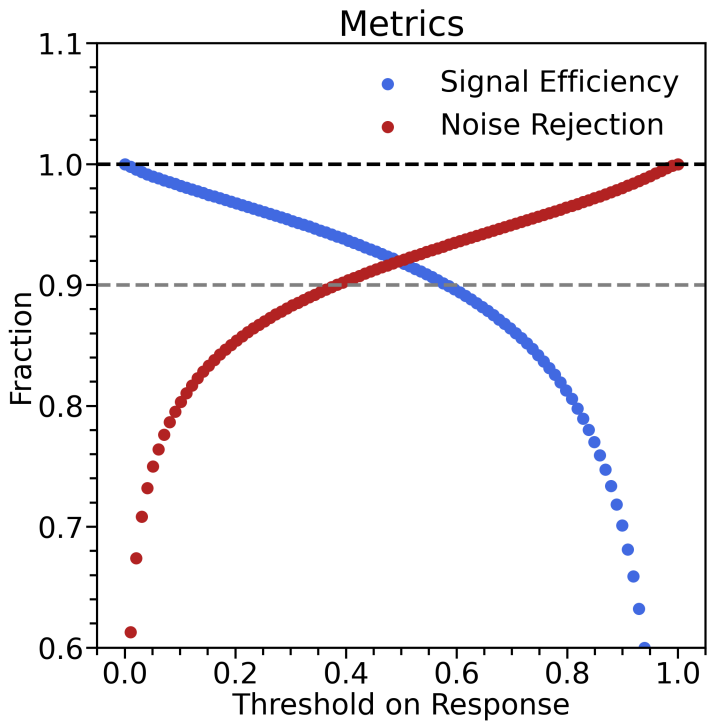
```
bank_name="CVT::MLHit", bank_name2="BST::Hits",bank_name3="BMT::Hits"
```



Tests without cweight and sweight

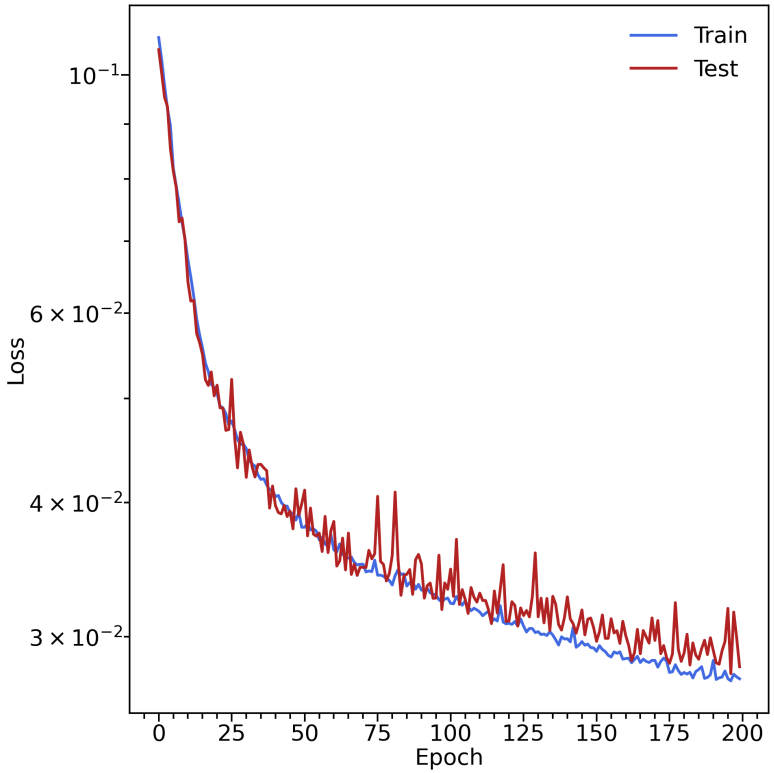


Without cweight and sweight (sector 1)

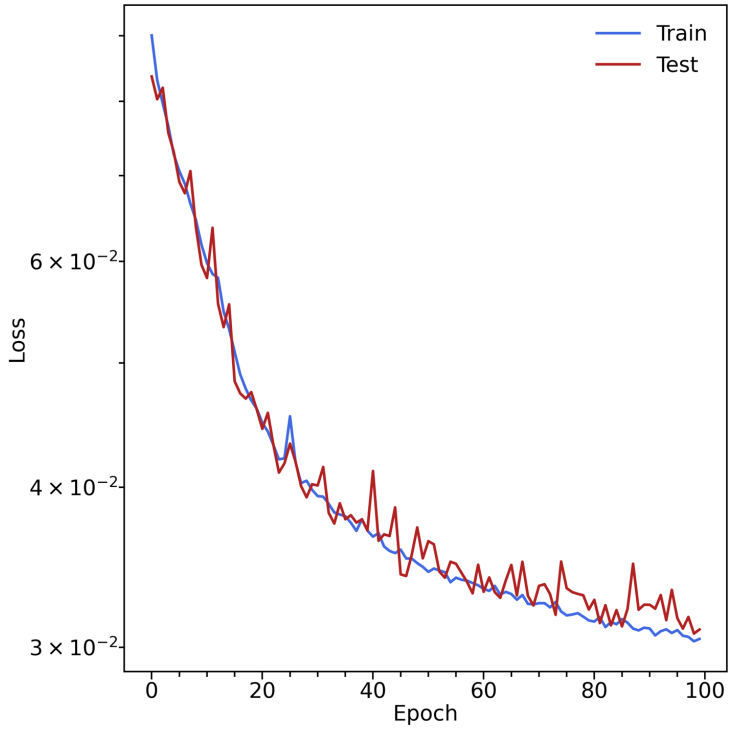


With cweight and sweight (sector 1)

Tests without cweight and sweight

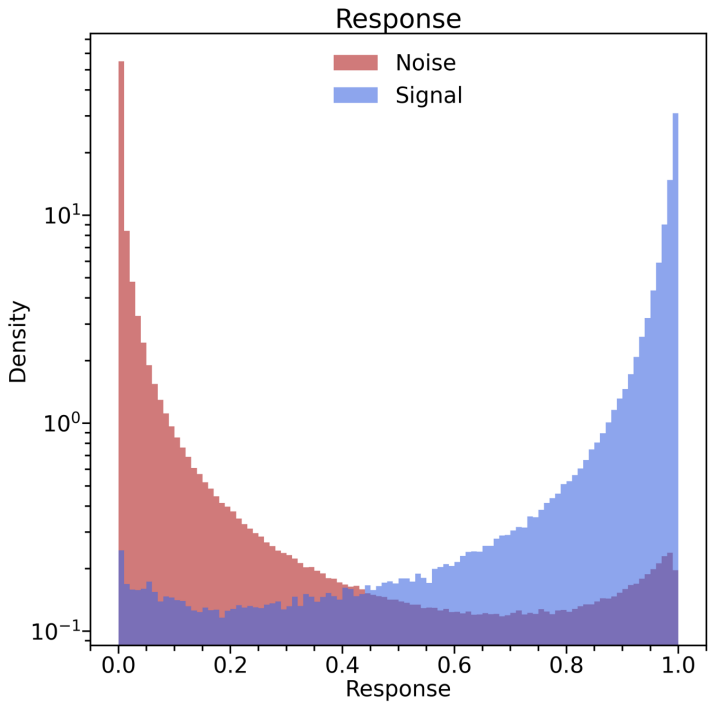


Without cweight and sweight (sector 1)

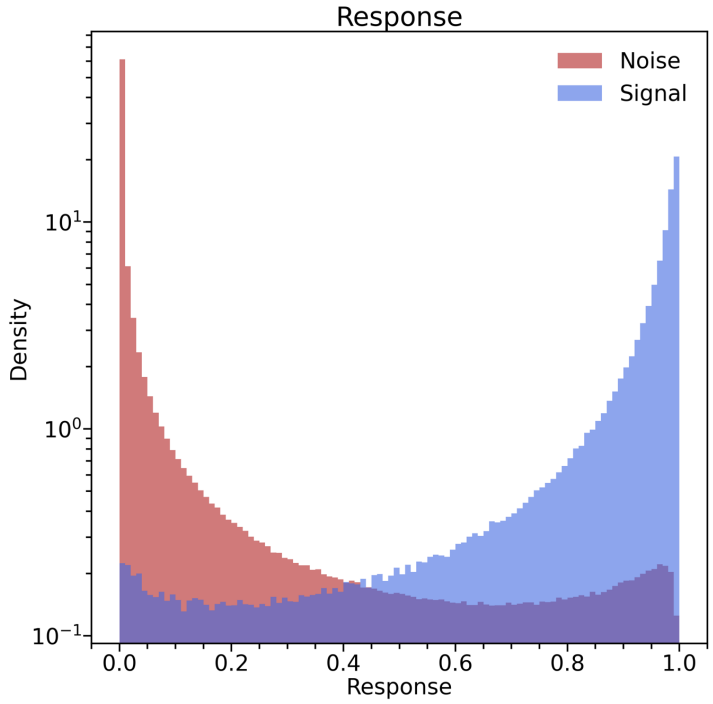


With cweight and sweight (sector 1)

Tests without cweight and sweight

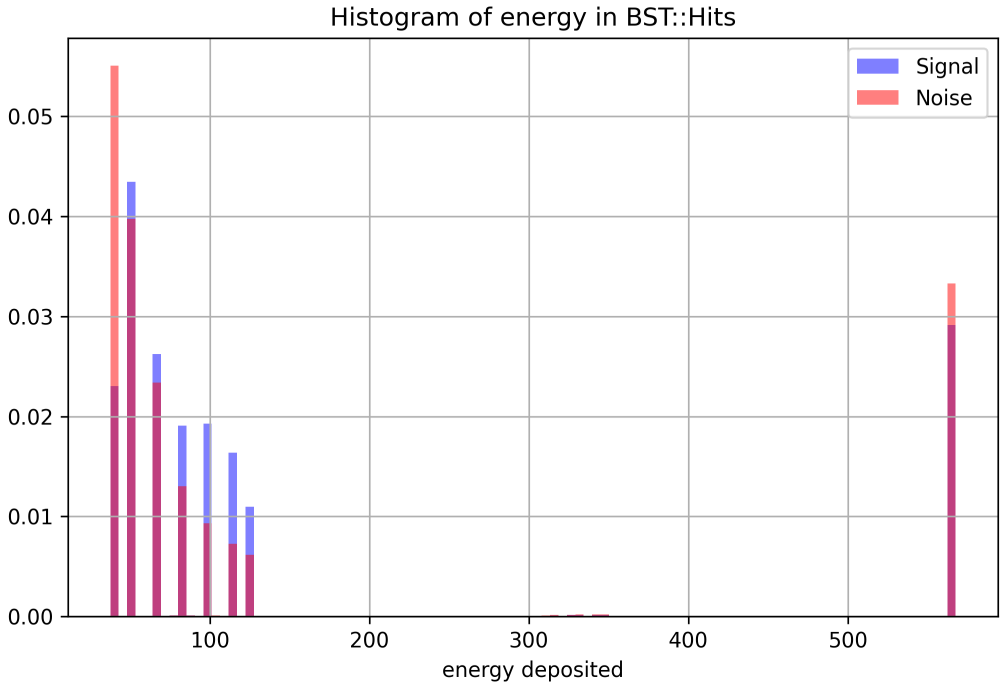


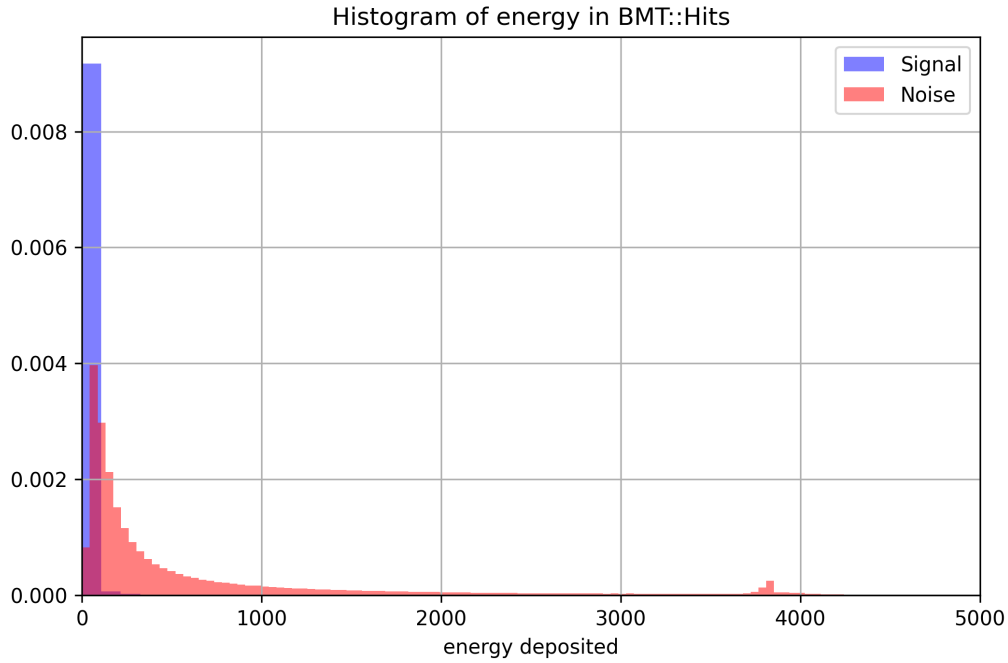
Without cweight and sweight (sector 1)



With cweight and sweight (sector 1)

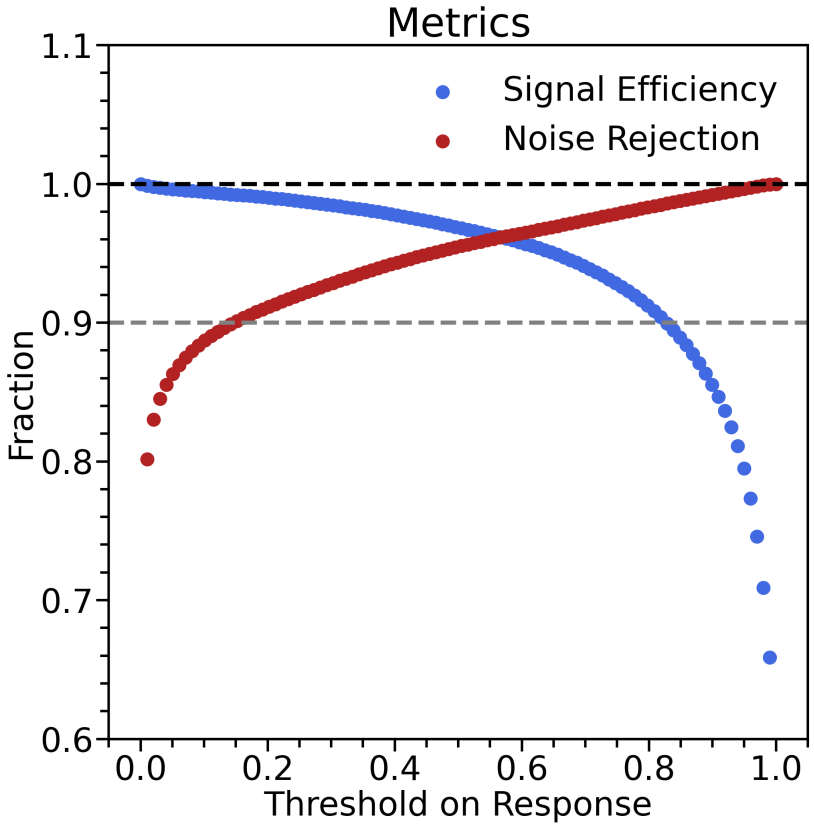
Tests with energy depostited in BST and BMT

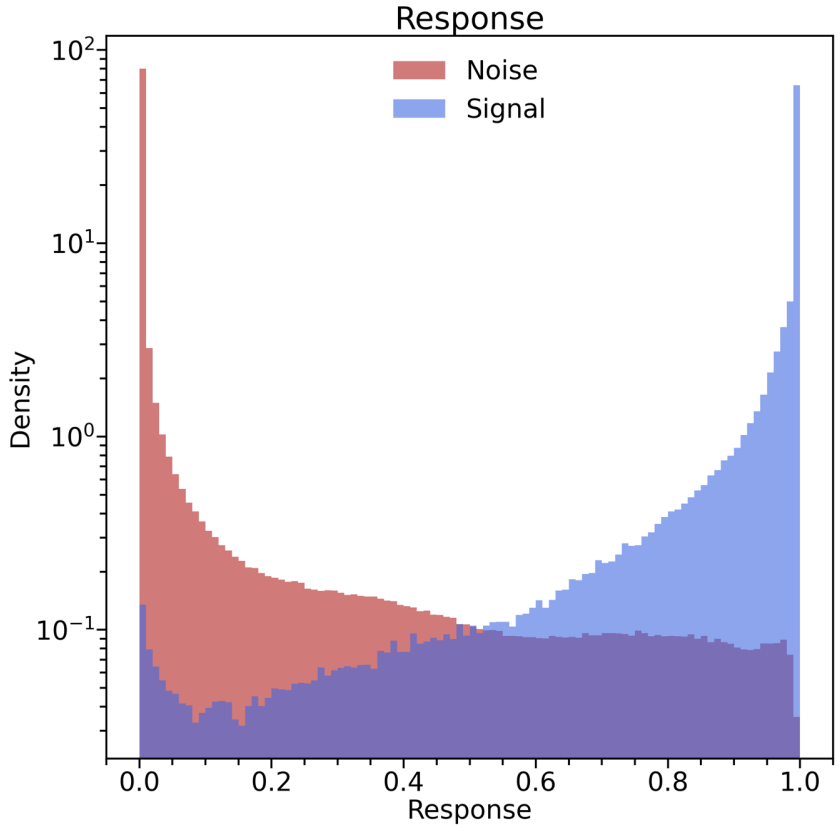




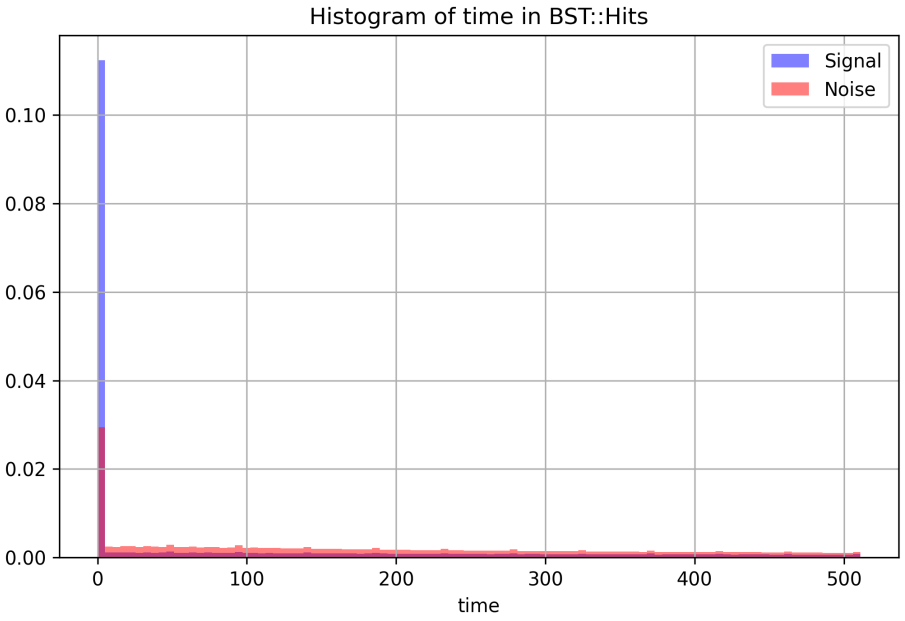
Low energy deposition in BMT for the signal :
Is this characteristic of muons, or is it due to an unrealistic simulation?

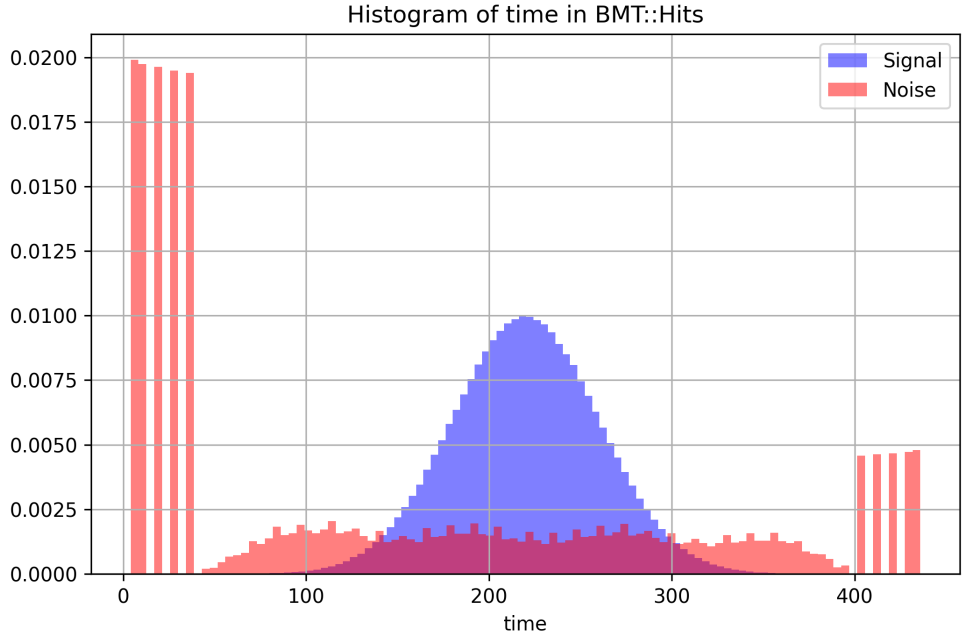
Tests with energy depostited in BST and BMT





Tests with time of hits in BST and BMT

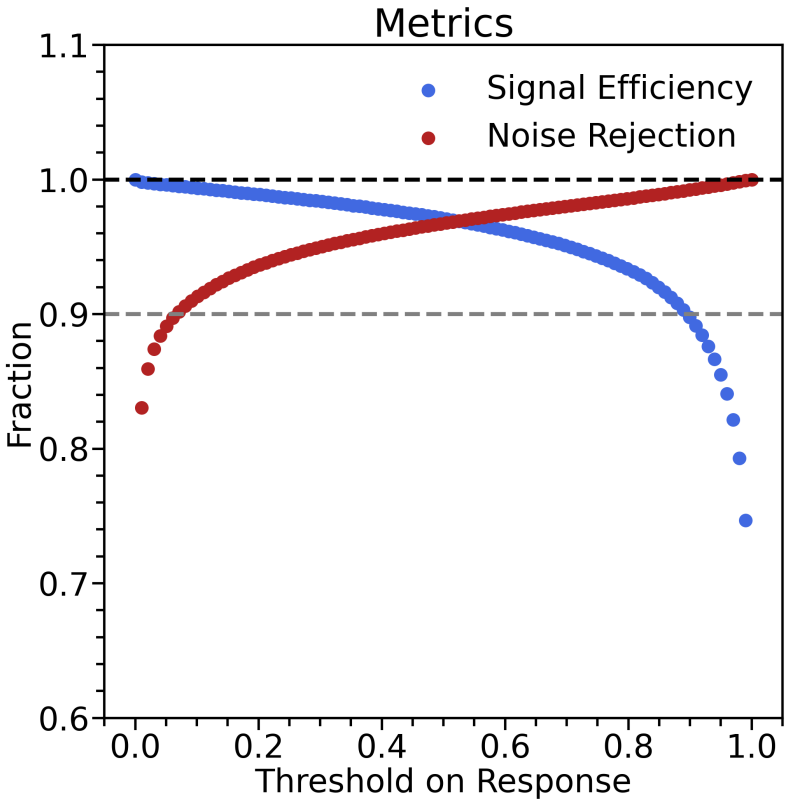


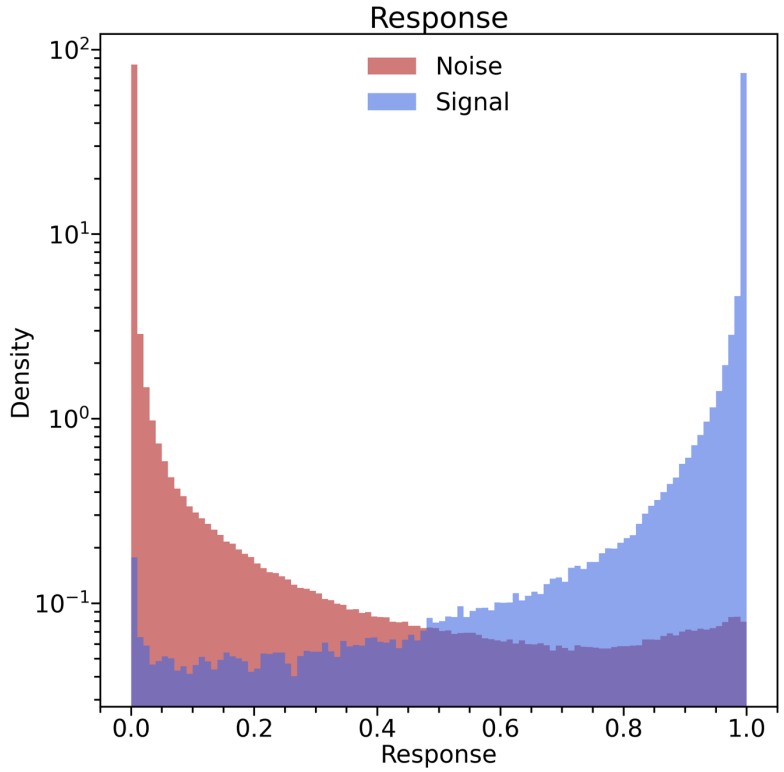


BST : seems unrealistic time for signal

BMT : The time for signal could be correctly simulated

Tests with time of hits in BST and BMT





Outlook

For now :

- Understand whether the BMT and BST banks for energy and time are realistic or not
- If not, is it possible to improve the signal simulation for the deposited energy and time in BST and BMT?

Outlook :

- Do more realistic training of ML model with these inputs and try to do validation with real data set