For 16/11

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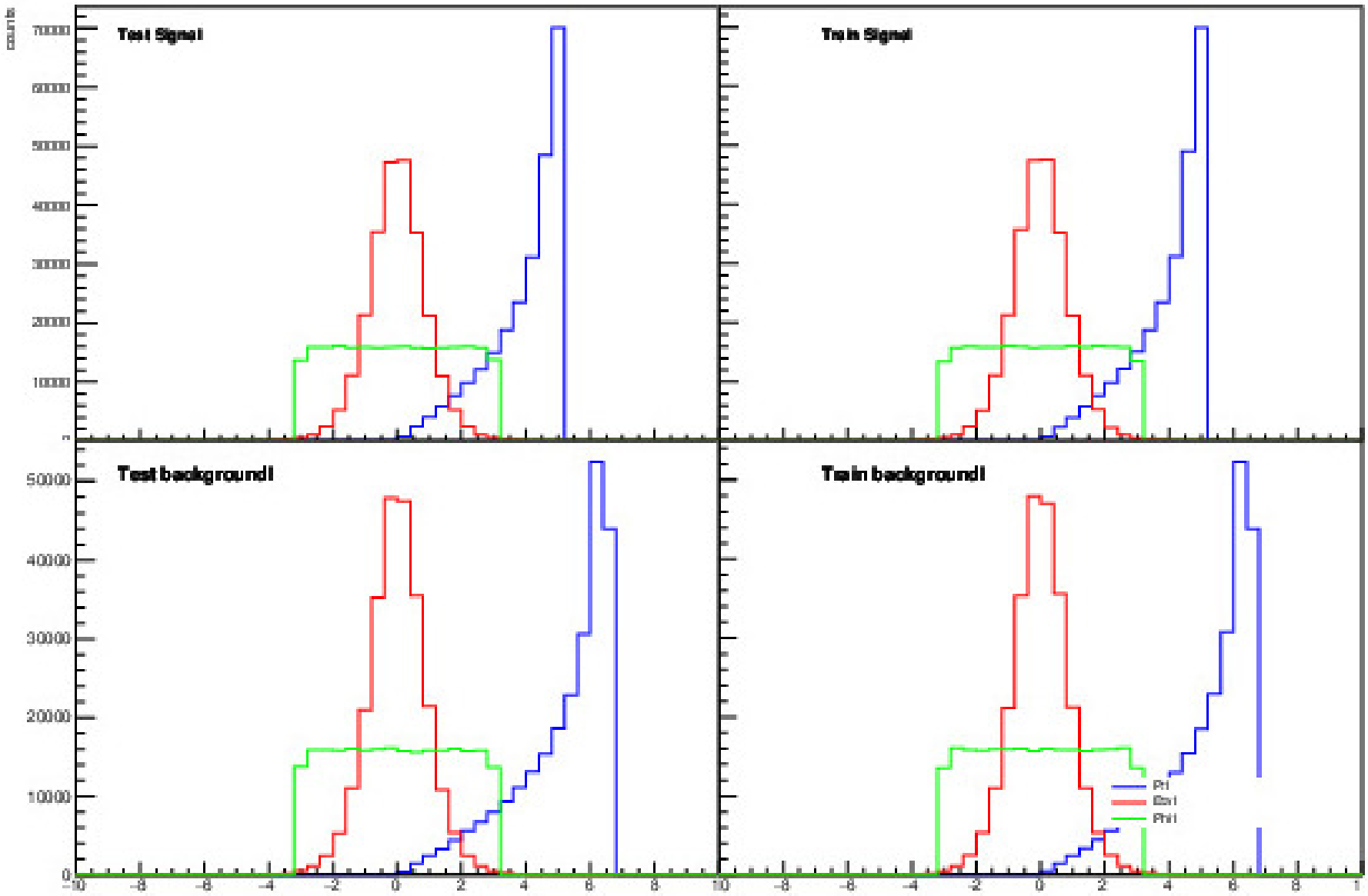
Simulation

500×10^3 Events for training and Testing
Signal parent mass: 10 Gev
Background parent mass: 13 Gev
Pt Eta Phi coordinates

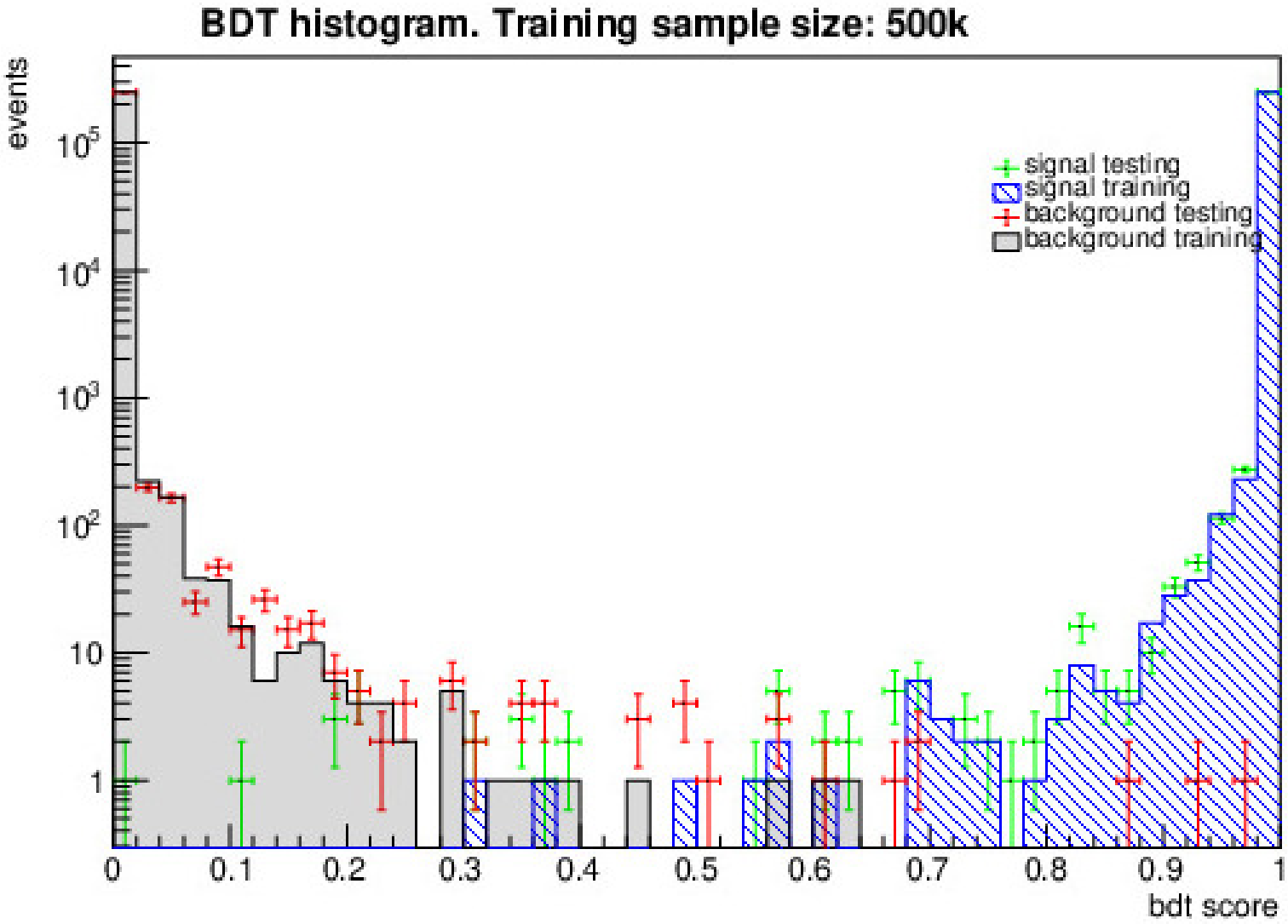
Output


counts
Test Signal
Train Signal
Test background
Train background
Pt
Et
Phi

Training

Params	Config
max depth	9
sub sample	0.3
n estimators	1000
learning rate	0.5
gamma	5
objective	binary:logistic
early stopping rounds	50
eval metric	auc

Results


BDT histogram. Training sample size: 500k
events
10^5
10^4
10^3
10^2
10
1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
bdt score
signal testing
signal training
background testing
background training

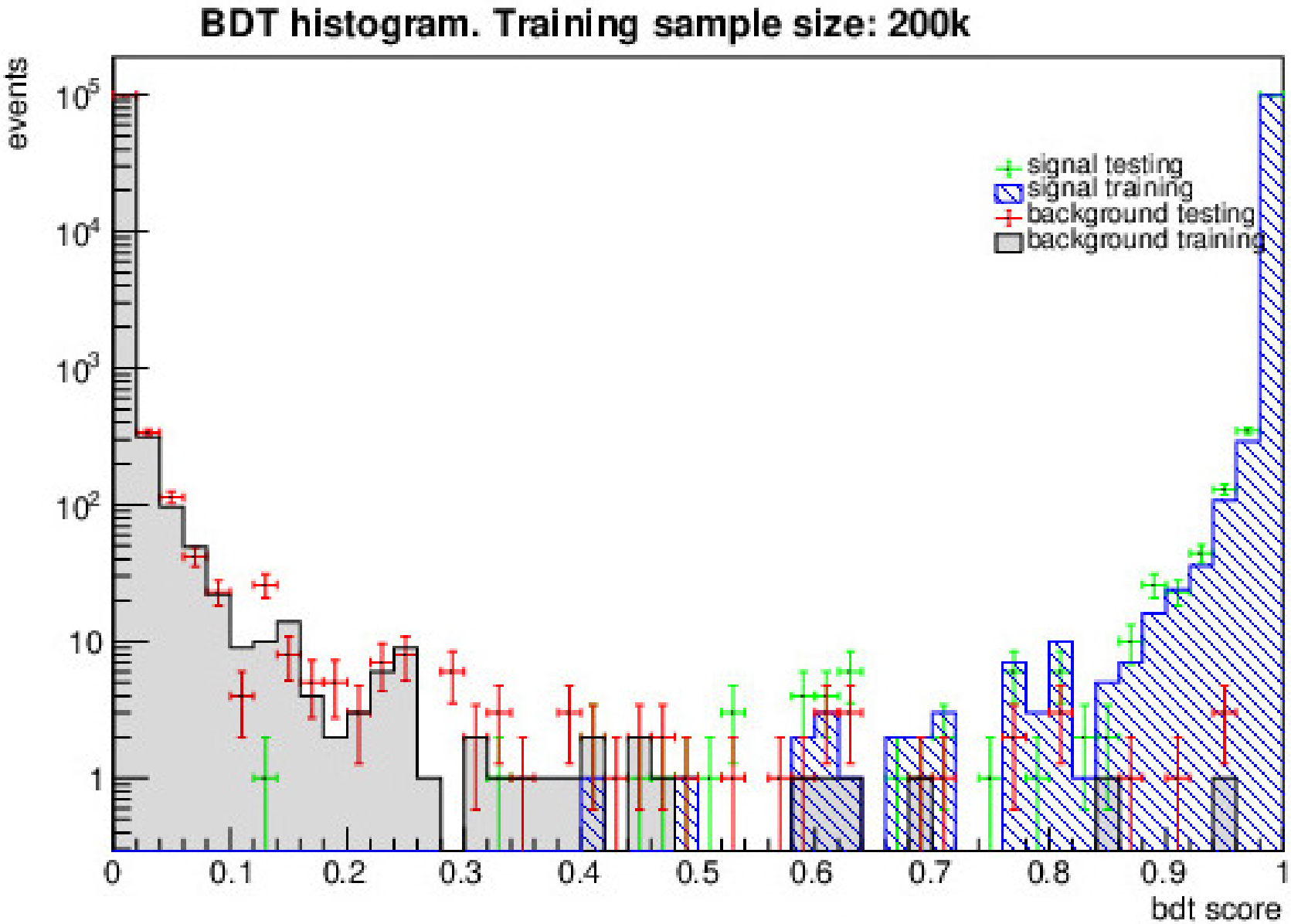
Simulation

This time, I din't produce new data. I used less data points 200K training events and 200K testing simply bu importing the first 200k events from each data set.

Training

Same as before

Results

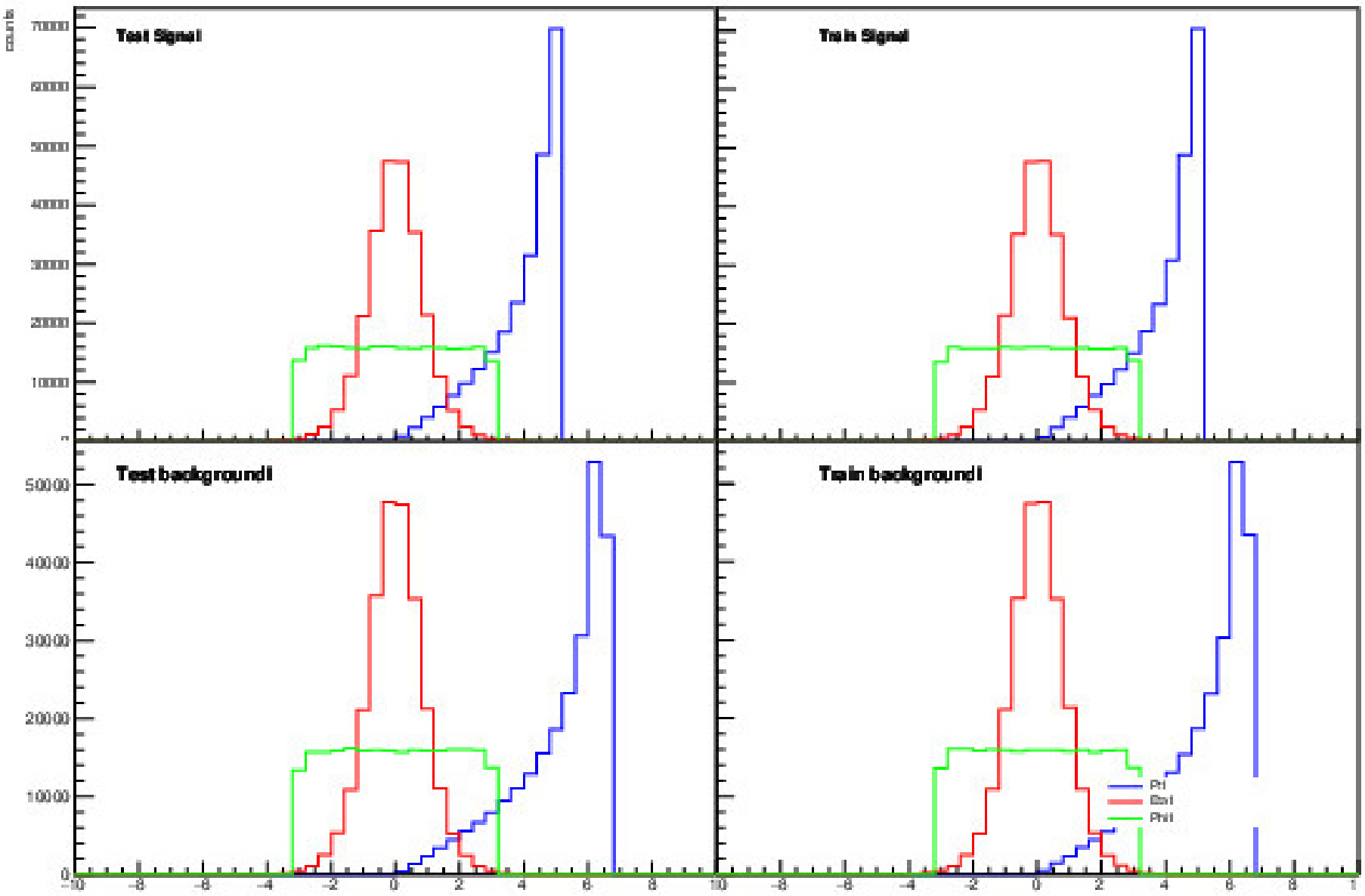

BDT histogram. Training sample size: 200k
events
10^5
10^4
10^3
10^2
10
1
signal testing
signal training
background testing
background training
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
bdt score

Simulation

Instead of generating 1M events and then splitting them in half(for training and testing), I created different sets of 500k events for testing and training,

500×10^3 Events for training and Testing
Signal parent mass: 10 Gev
Background parent mass: 13 Gev
Pt Eta Phi coordinates

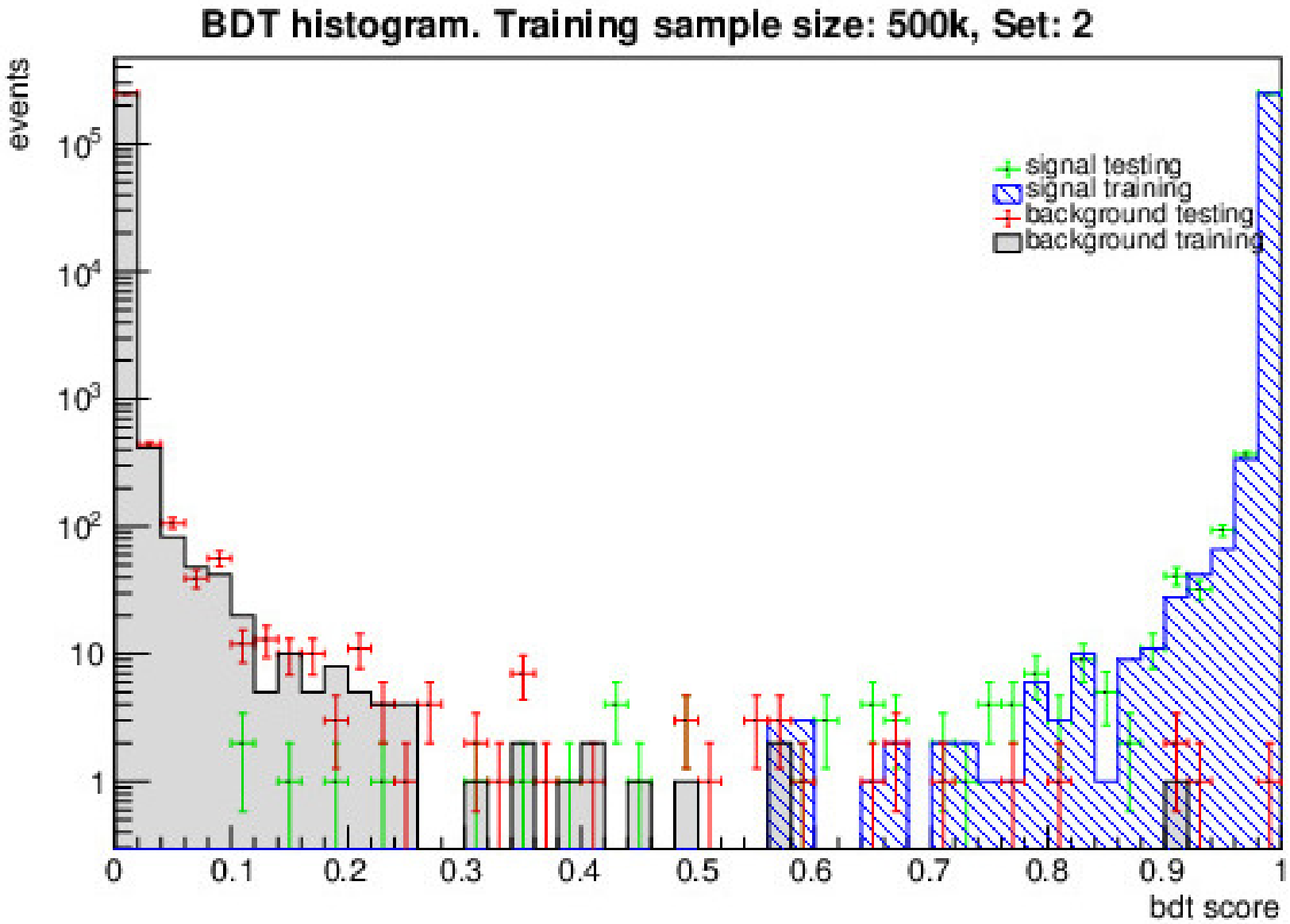
Output


Test Signal
Train Signal
Test background
Train background
counts
Pt
Bkl
Phi

Training

Same as before

Results


BDT histogram. Training sample size: 500k, Set: 2
events
10^5
10^4
10^3
10^2
10
1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
bdt score
signal testing
signal training
background testing
background training

Simulation

This time, I used 3d attempt's data set, and only Pt1 Ph1 Eta1 the settings where the same as ed attempt

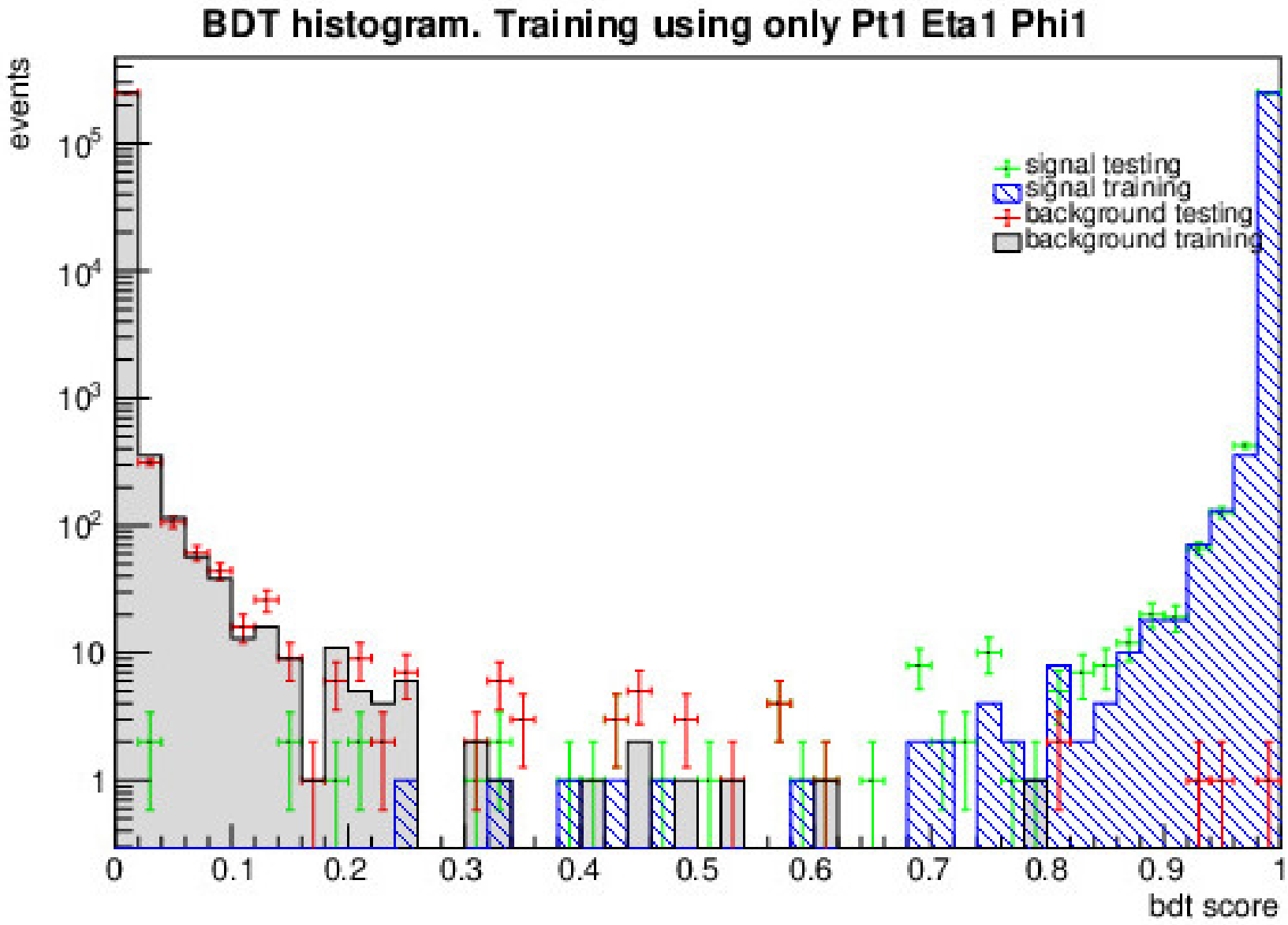
Training

I tried two different training configurations

Params	Config1	Config2
max depth	9	5
sub sample	0.3	0.8
n estimators	1000	1500
learning rate	0.5	0.1
gamma	5	0
objective	binary:logistic	bnary:logistic
early stopping rounds	50	50
eval metric	auc	log loss

Results

1st configuration



2nd configuration