Update

11/09/2024

TMVA response

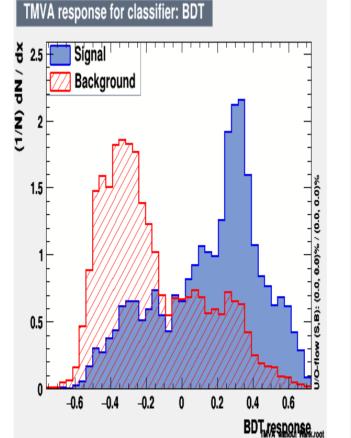
With Rank 01

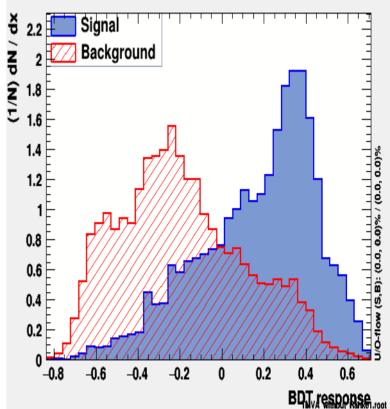
TMVA response for classifier: BDT Signal Background σ **2** 1.8 1.6 1.4 🗄 1.2 0.8 0.6 0.4 0.2 0.2 0.6 BDT response

Without Rank 01

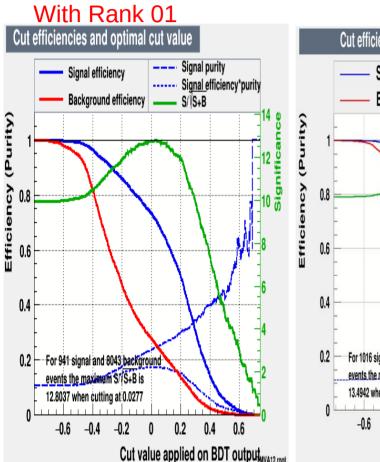
Without rank and with nLepton

TMVA response for classifier: BDT



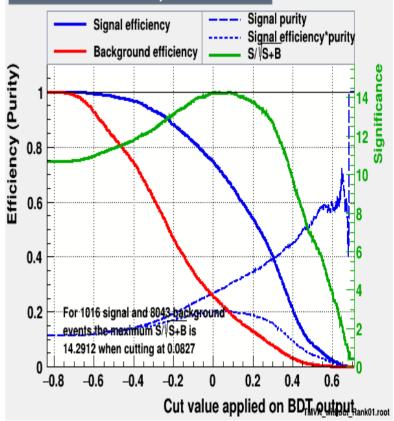


BDT FOM (BF 10⁻⁴)

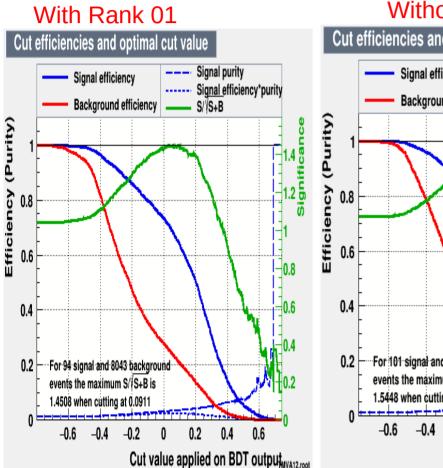


Without Rank 01 Cut efficiencies and optimal cut value Signal purity Signal efficiency Signal efficiency*purity **Background efficiency** S/\S+B For 1016 signal and 8043 background events the maximum S/ S+B is 13.4942 when cutting at 0.0336 0.6 Cut value applied on BDT output nout Rank.root

Without rank 01 and with nLepton

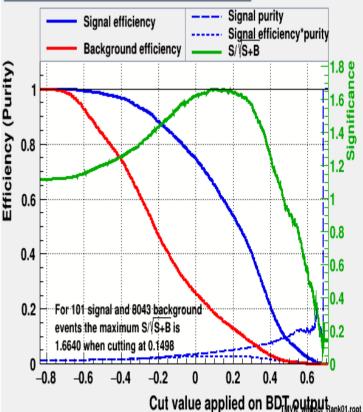


BDT FOM (BF 10⁻⁵)

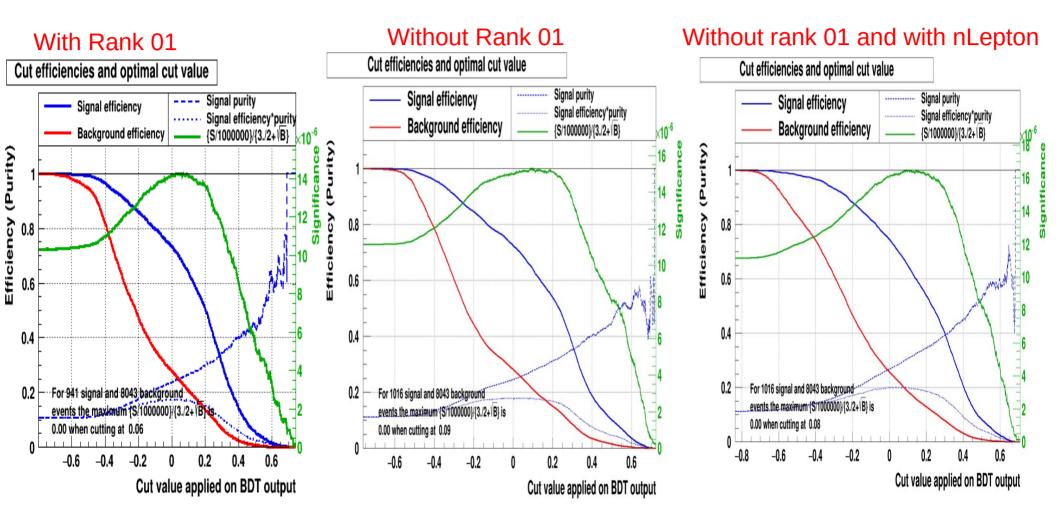


Without Rank 01 Cut efficiencies and optimal cut value Signal purity Signal efficiency Signal efficiency*purity -----Background efficiency S/S+B Õ 1.6 .4≝ 1.2 0 0.8 -0.6 For 101 signal and 8043 background events the maximum S/\S+B is 1.5448 when cutting at 0.1001 0.2 0.4 0.6 Cut value applied on BDT output Bankroot

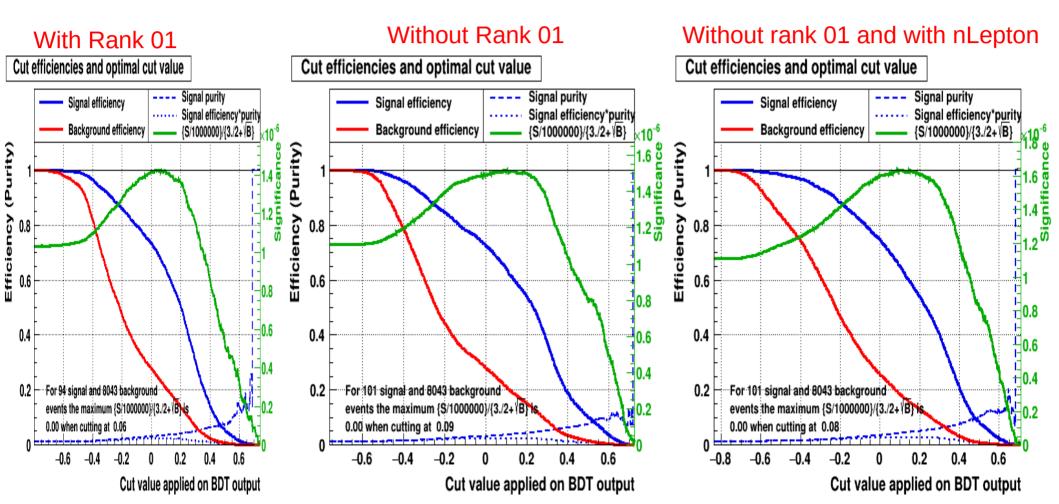
Without rank 01 and with nLepton



BDT PFOM (BF 10⁻⁴)



BDT PFOM (BF 10⁻⁵)



Back up

TMVA

Using the following input variables.
p_{Itag}, m_{ROE}, cos(p_{Btag}, p_{vis.tag}), nLeptons

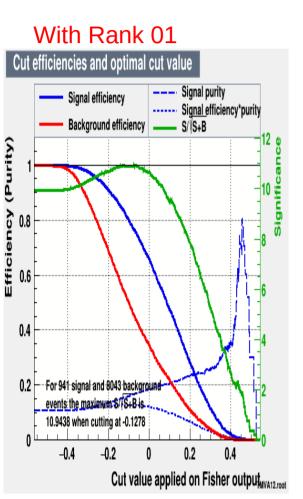
- Applied some loose selections on tag side
 - $p_{Itag} > 0.3 \text{ GeV } \& p_{Itag} < 2.5 \text{ GeV}$
 - $1.3 < m_{ROE} < 2.1 \text{ GeV}$

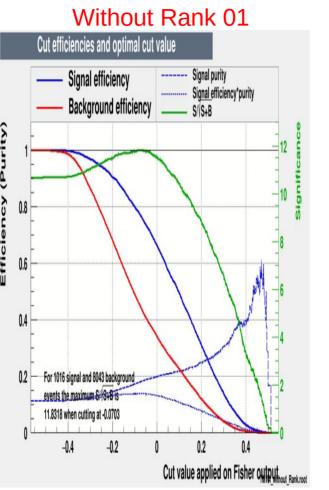
Signal side cuts

$\sin \phi < 1$
m _{kπ} >1.91 GeV
m _{μπ} -3.1 >0.05& m _{μπ} -3.69 >0.05GeV
m _{μμ} -3.1 >0.05& m _{μμ} -3.69 >0.05 GeV

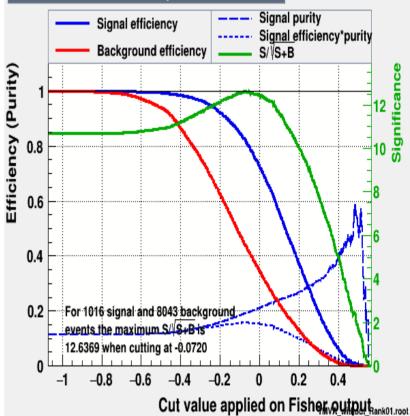
 $N_{sig} = 1,016 \text{ (BF} = 10^{-4})$ $N_{bg} = 8,043$

Fisher FOM (BF 10⁻⁴)

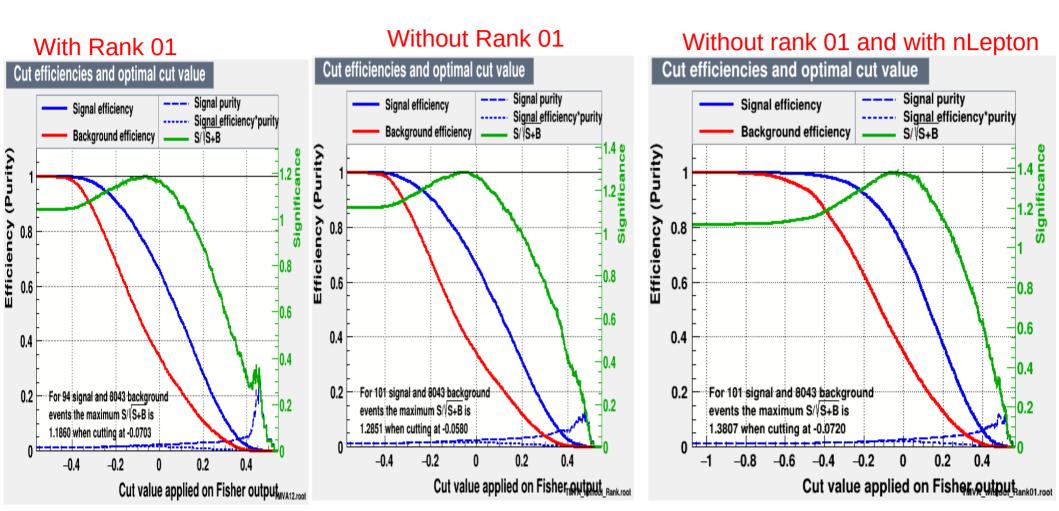




Without rank 01 and with nLepton



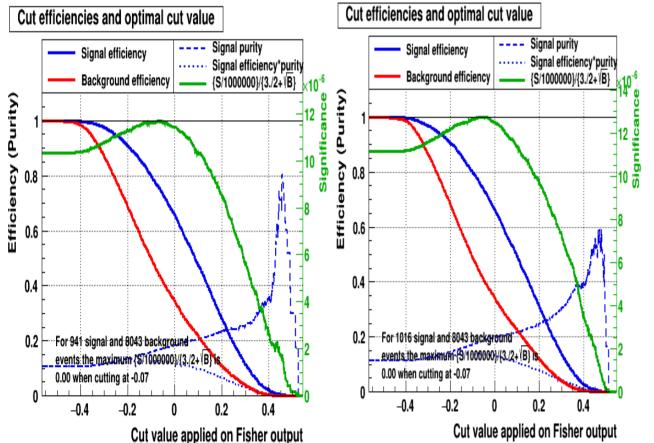
Fisher FOM (BF 10⁻⁵)



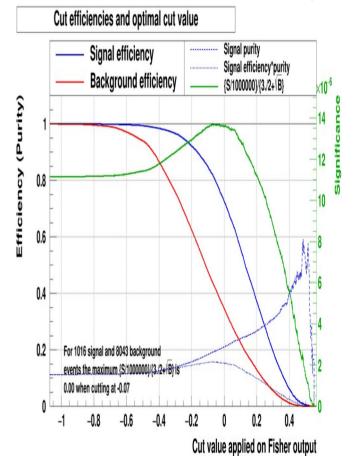
Fisher PFOM (BF 10⁻⁴)

With Rank 01

Without Rank 01



Without rank 01 and with nLepton



Fisher PFOM (BF 10⁻⁵)

Without Rank 01

With Rank 01

Without rank 01 and with nLepton

