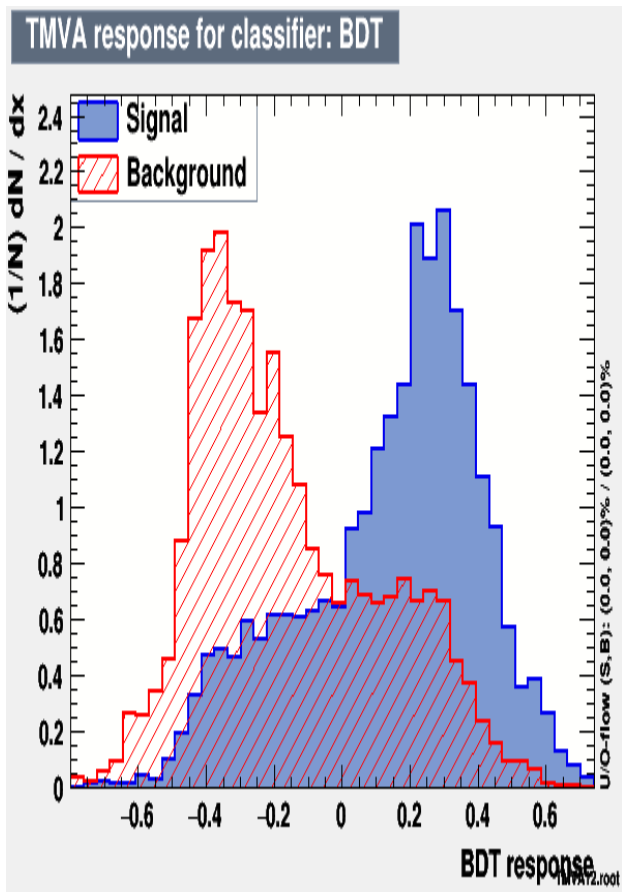


# Update

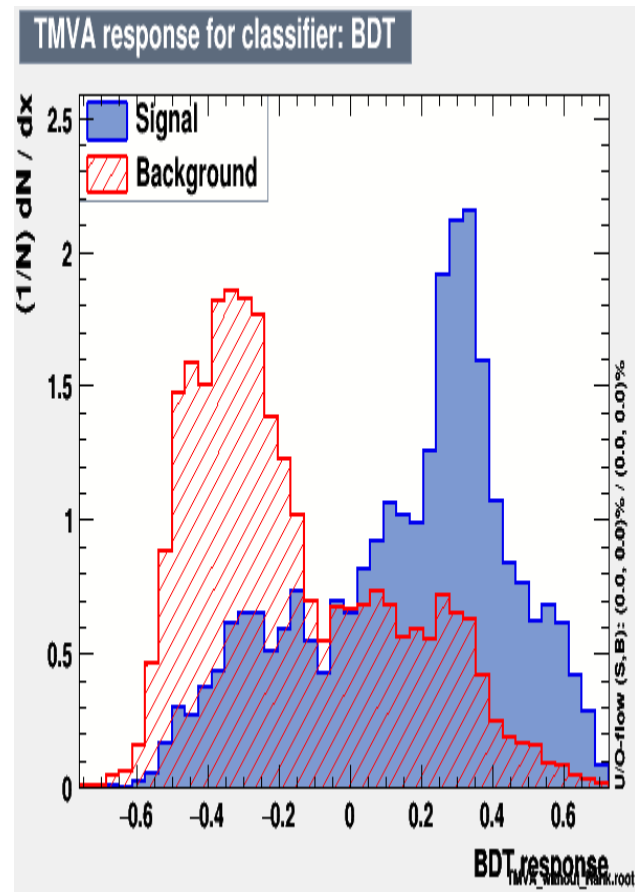
11/09/2024

# TMVA response

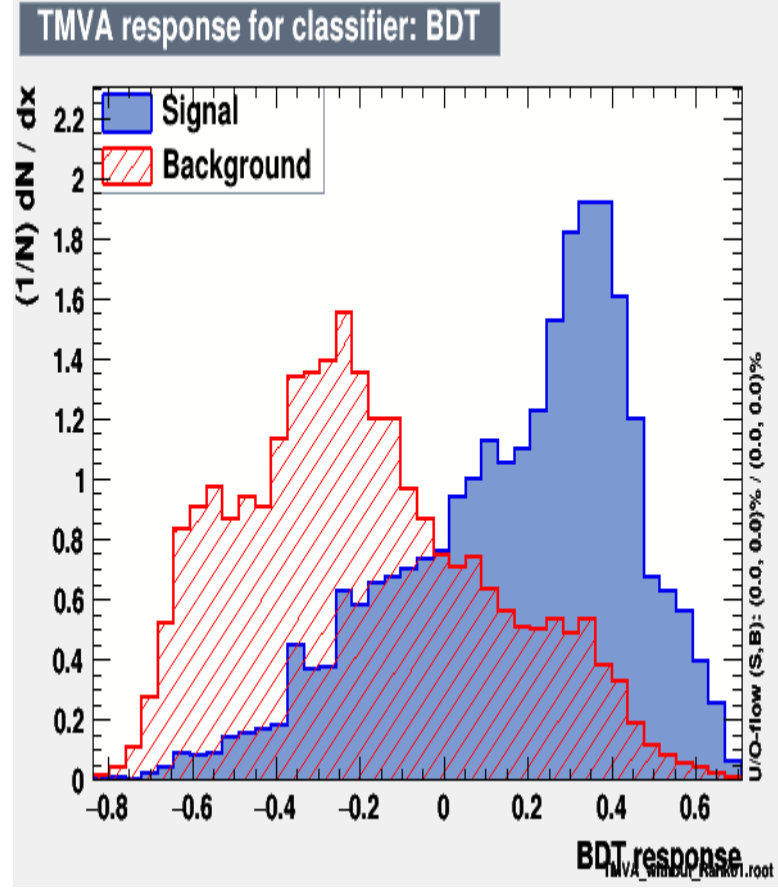
With Rank 01



Without Rank 01

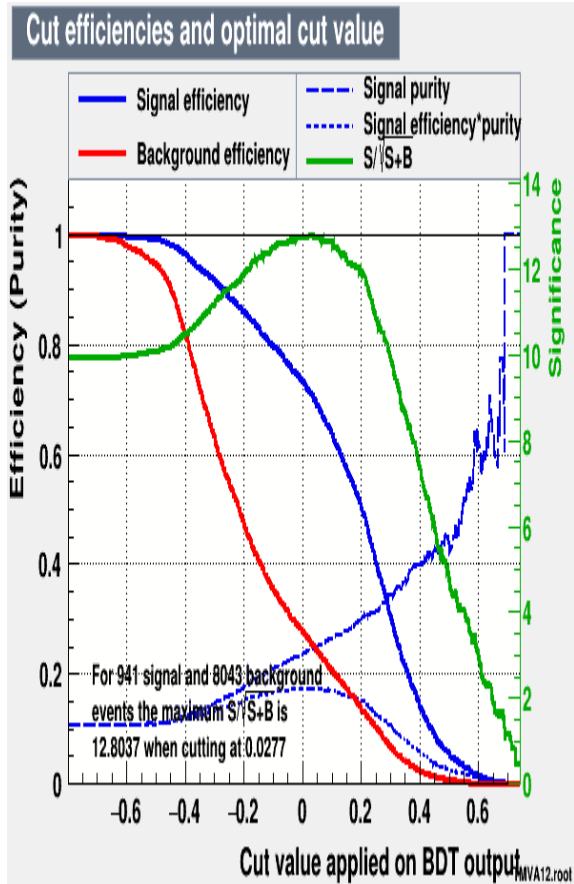


Without rank and with nLepton

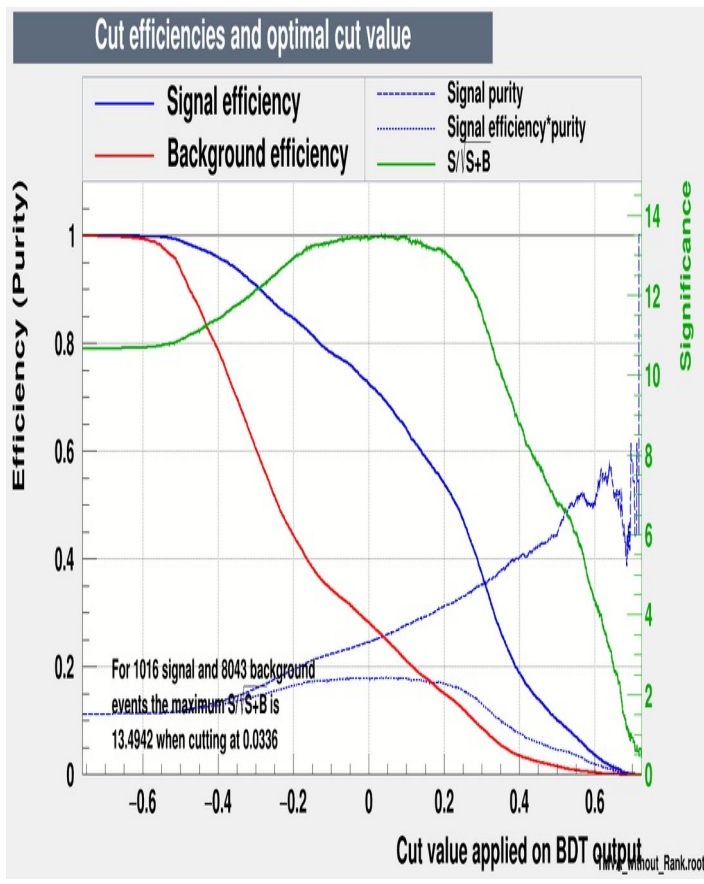


# BDT FOM (BF $10^{-4}$ )

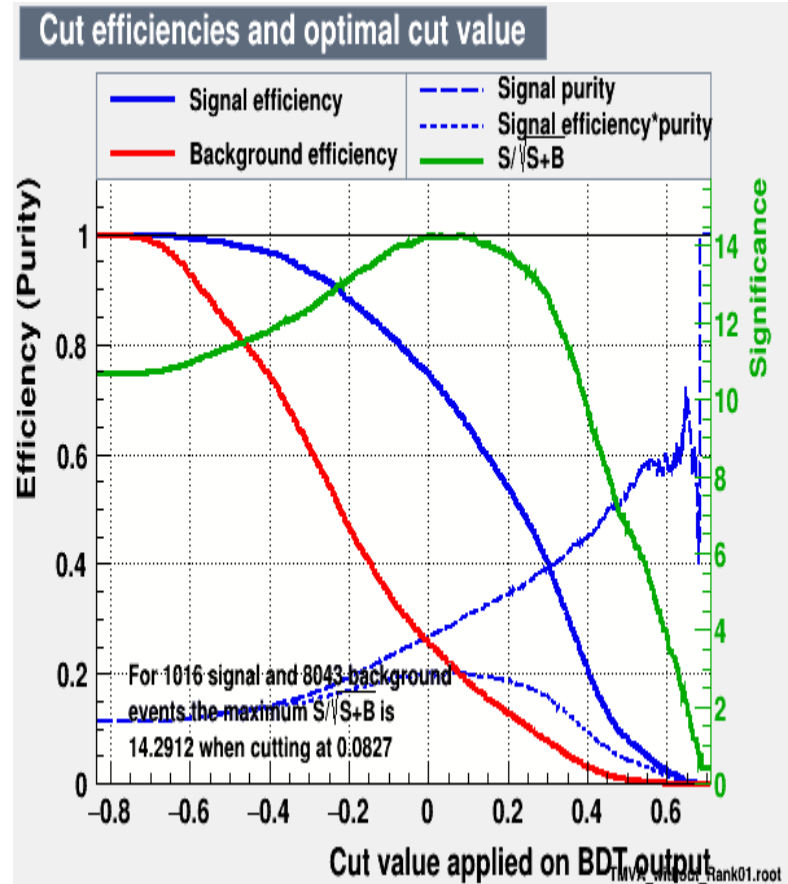
With Rank 01



Without Rank 01

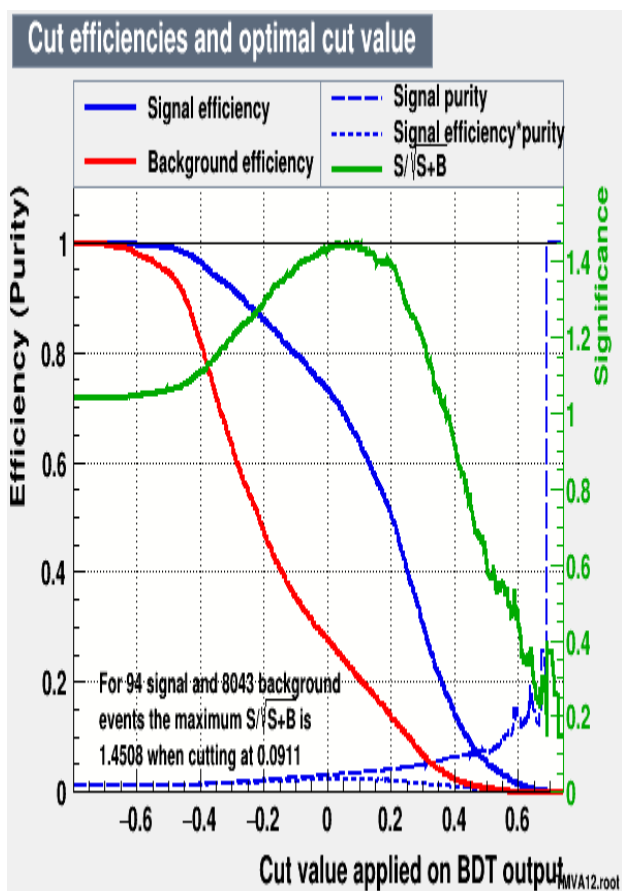


Without rank 01 and with nLepton

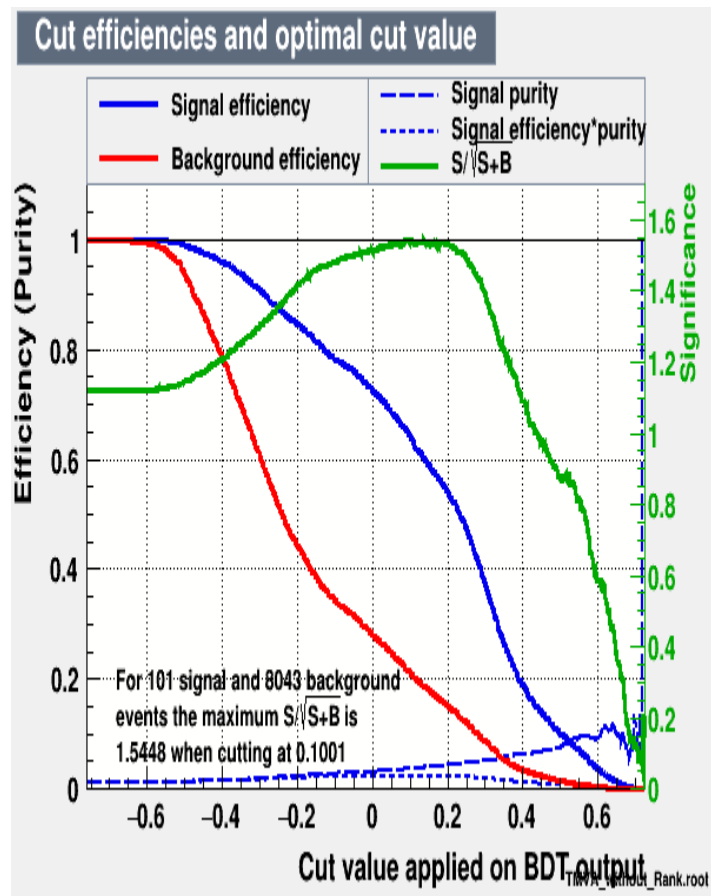


# BDT FOM (BF $10^{-5}$ )

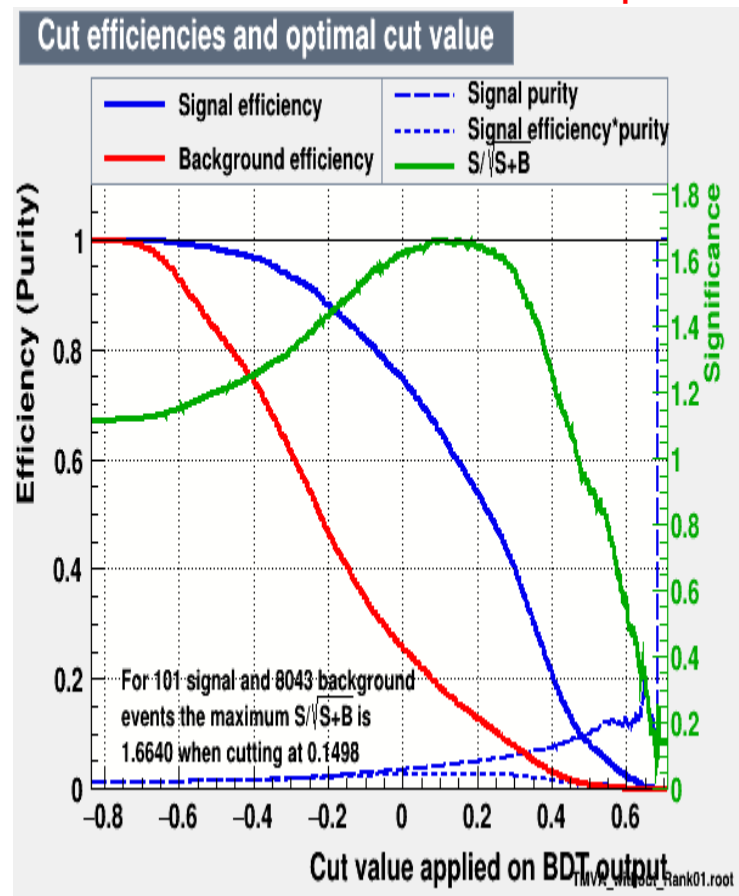
With Rank 01



Without Rank 01



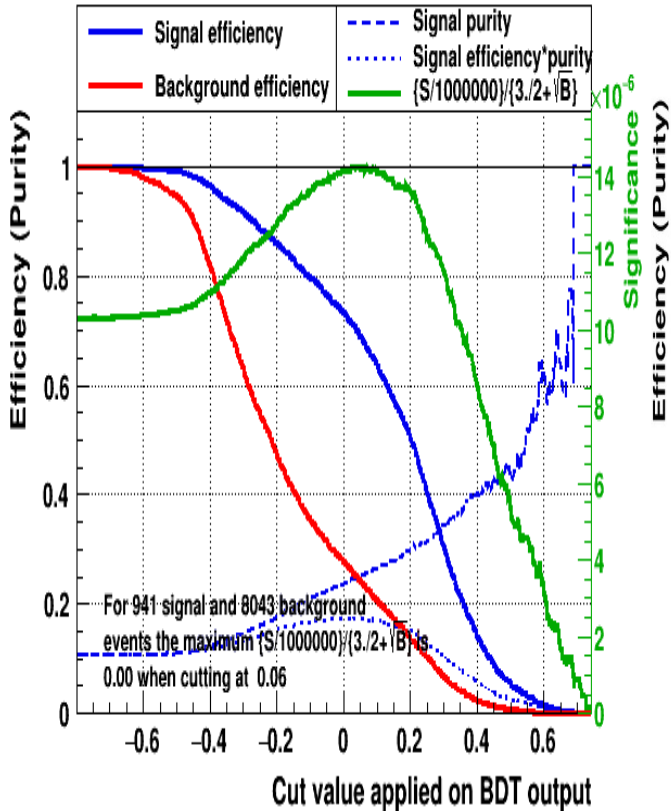
Without rank 01 and with nLepton



# BDT PFOM (BF $10^{-4}$ )

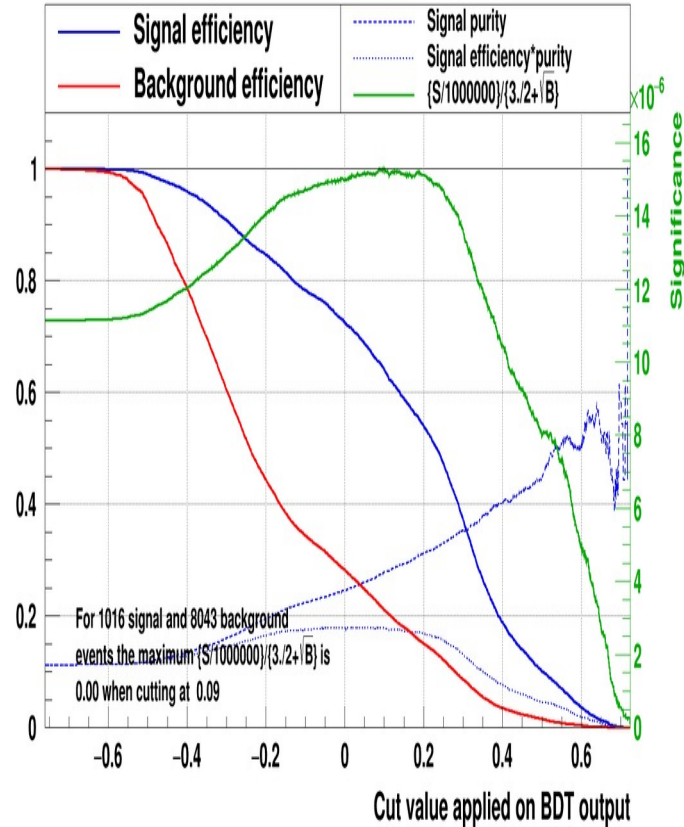
With Rank 01

Cut efficiencies and optimal cut value



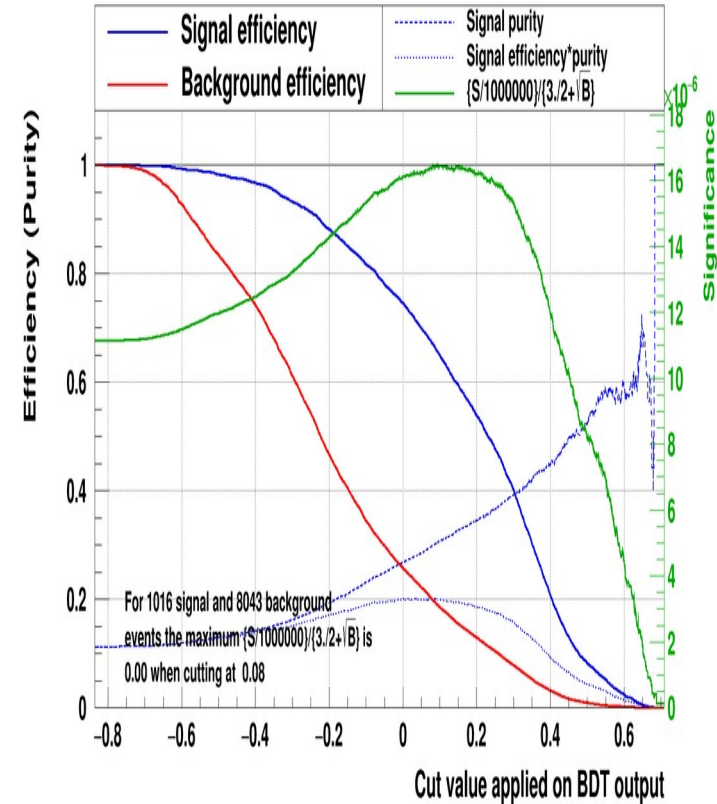
Without Rank 01

Cut efficiencies and optimal cut value



Without rank 01 and with nLepton

Cut efficiencies and optimal cut value



# BDT PFOM (BF $10^{-5}$ )

With Rank 01

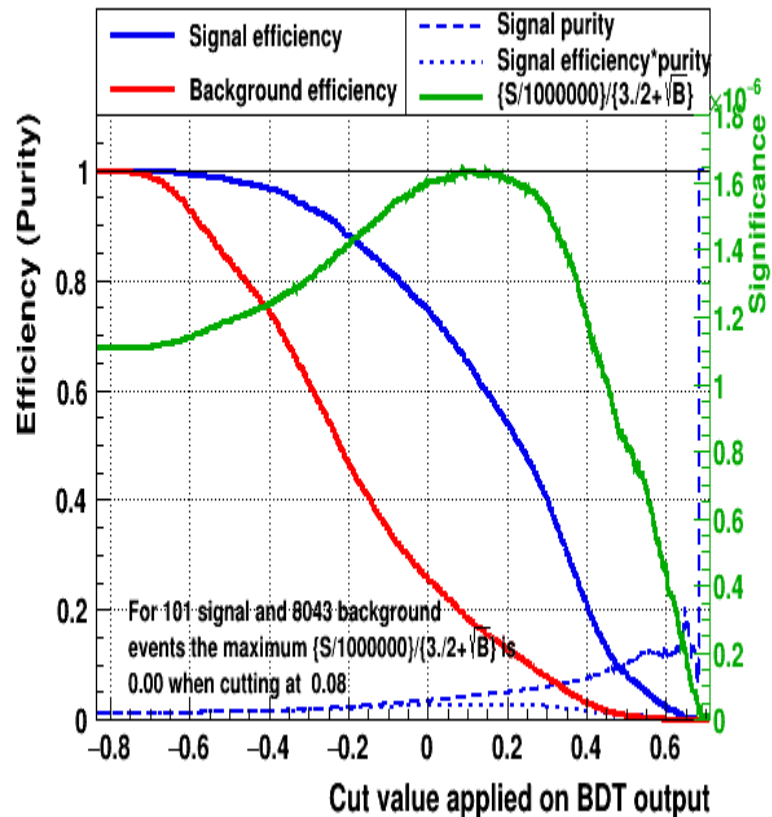
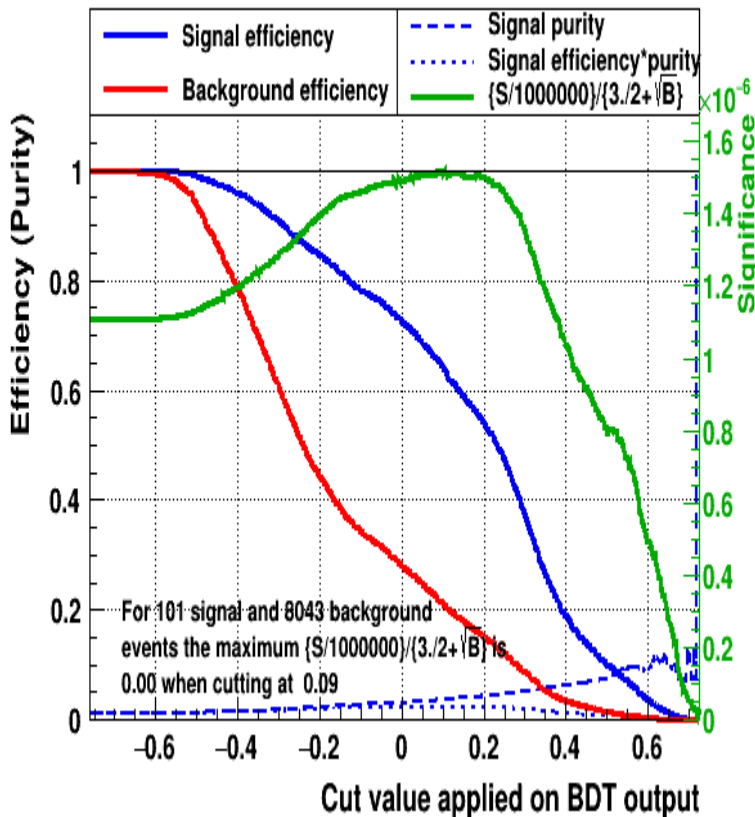
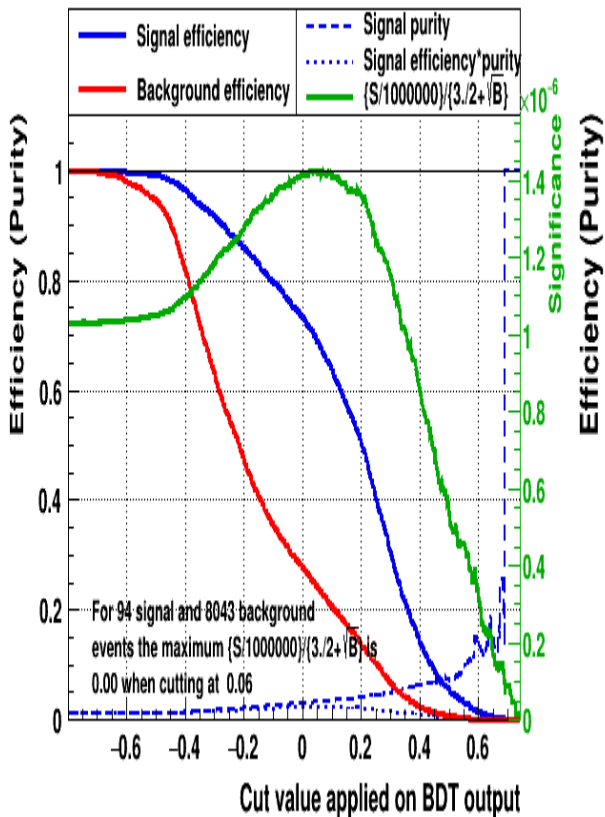
Without Rank 01

Without rank 01 and with nLepton

Cut efficiencies and optimal cut value

Cut efficiencies and optimal cut value

Cut efficiencies and optimal cut value



Back up

# TMVA

- Using the following input variables.  
 $p_{ltag}$ ,  $m_{ROE}$ ,  $\cos(p_{Btag}, p_{vis.tag})$ ,  $nLeptons$
- Applied some loose selections on tag side
  - $p_{ltag} > 0.3 \text{ GeV} \ \&\& \ p_{ltag} < 2.5 \text{ GeV}$
  - $1.3 < m_{ROE} < 2.1 \text{ GeV}$

## Signal side cuts

$$\sin\phi < 1$$

$$m_{k\pi} > 1.91 \text{ GeV}$$

$$|m_{\mu\pi} - 3.1| > 0.05 \ \& \ |m_{\mu\pi} - 3.69| > 0.05 \text{ GeV}$$

$$|m_{\mu\mu} - 3.1| > 0.05 \ \& \ |m_{\mu\mu} - 3.69| > 0.05 \text{ GeV}$$

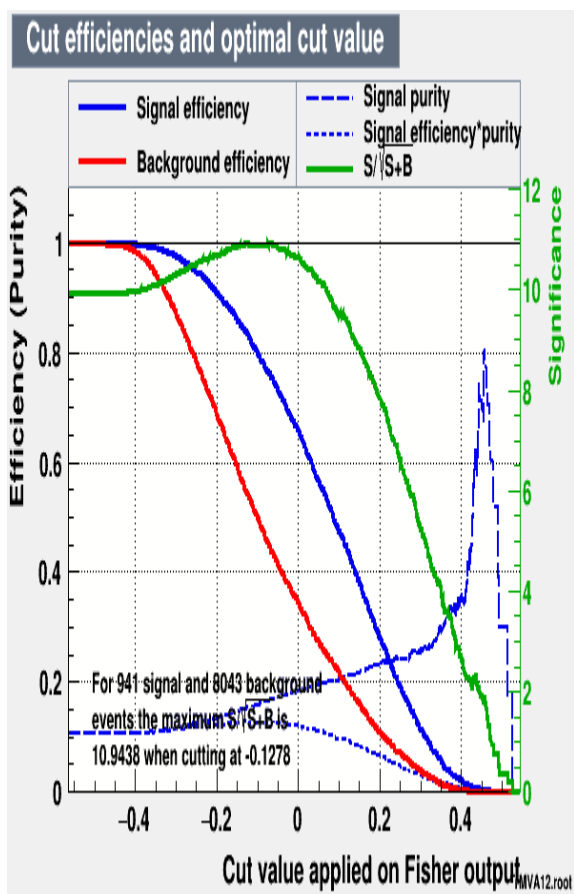
$$N_{sig} = 1,016 \text{ (BF} = 10^{-4}\text{)}$$

$$N_{bg} = 8,043$$

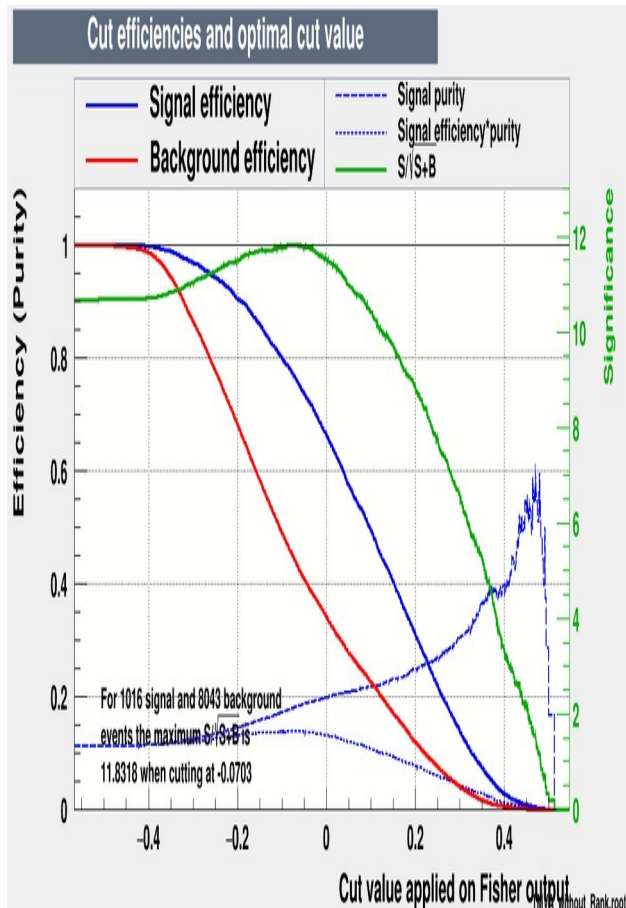


# Fisher FOM (BF $10^{-4}$ )

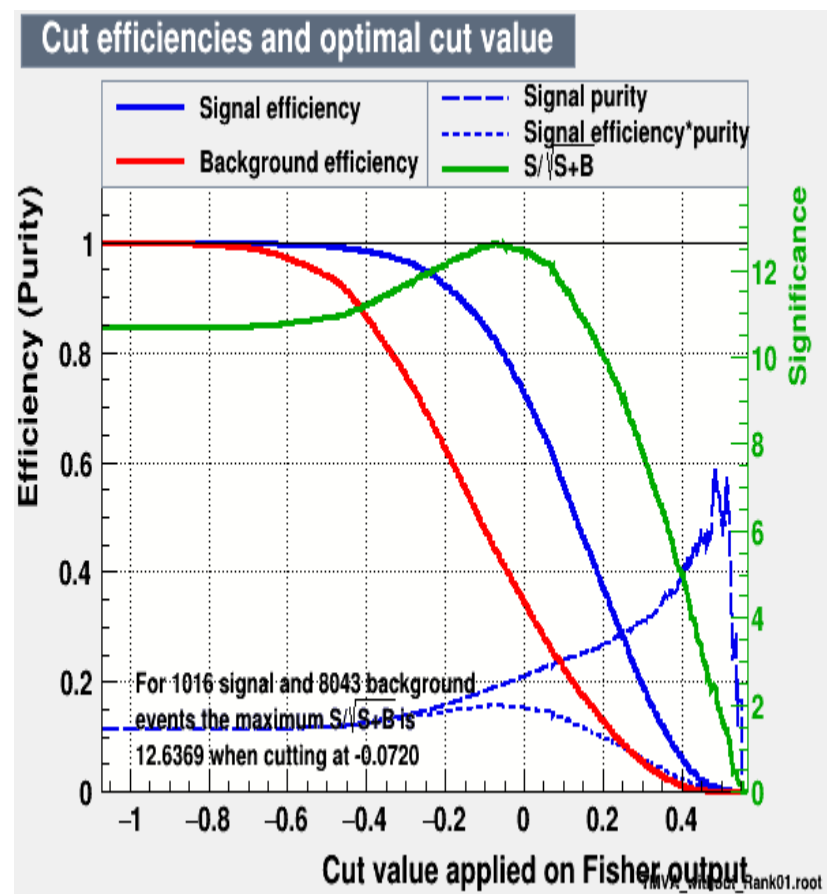
With Rank 01



Without Rank 01

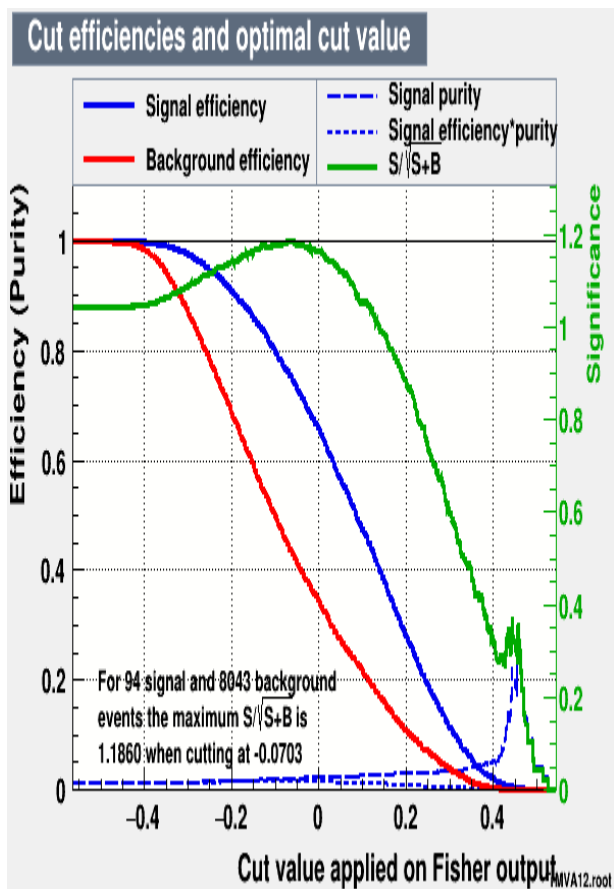


Without rank 01 and with nLepton

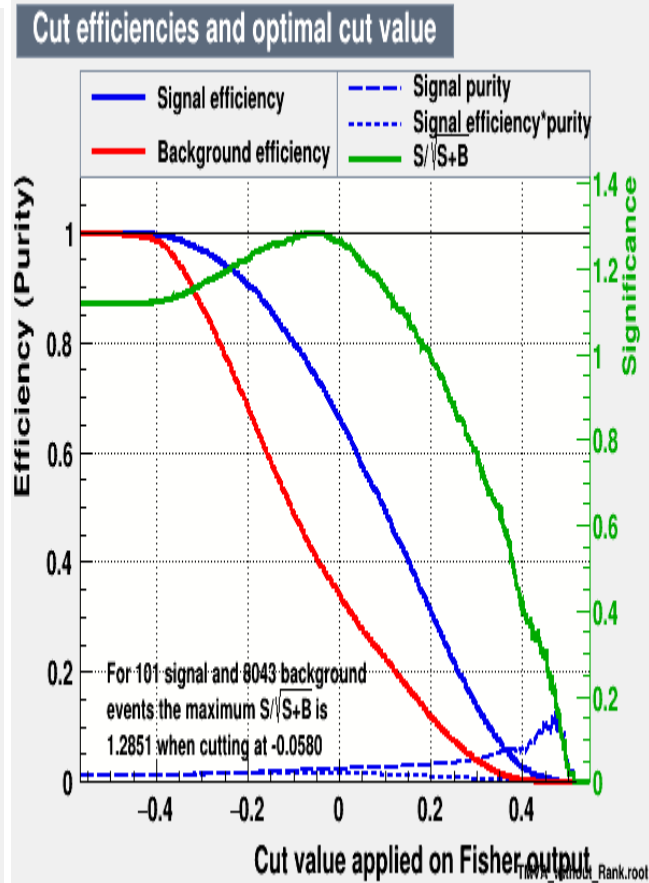


# Fisher FOM (BF $10^{-5}$ )

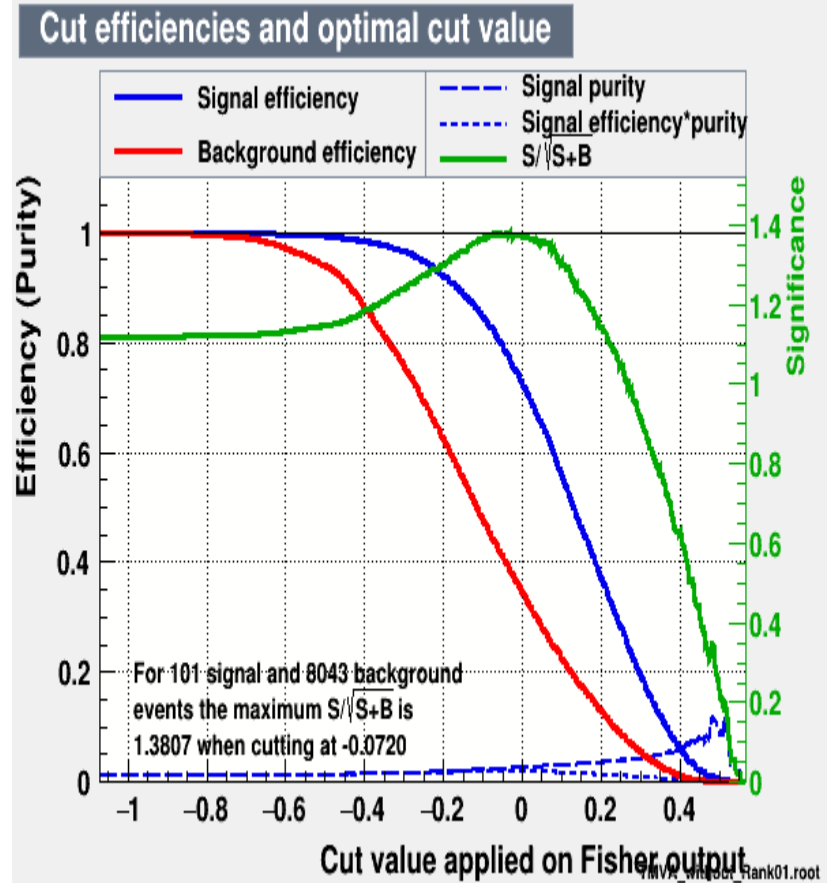
With Rank 01



Without Rank 01



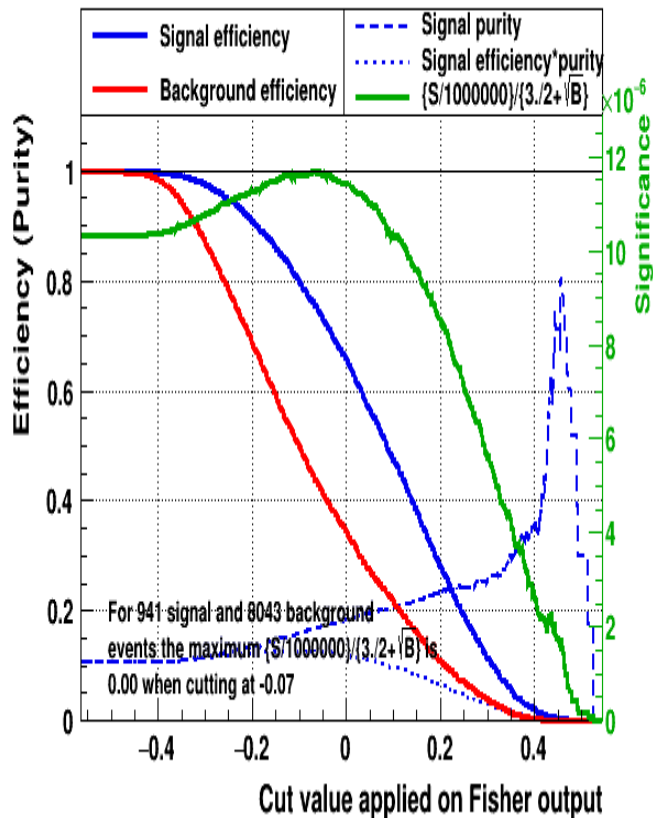
Without rank 01 and with nLepton



# Fisher PFOM (BF $10^{-4}$ )

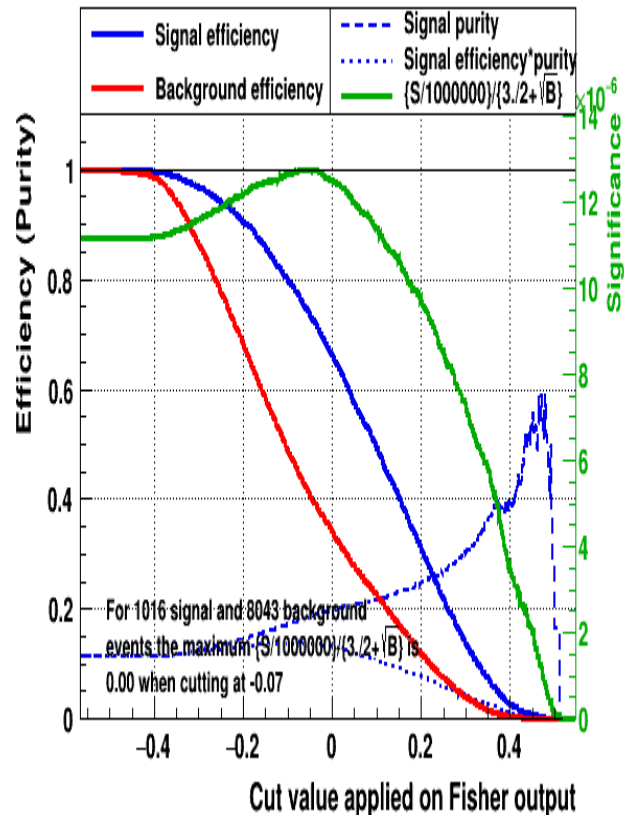
With Rank 01

Cut efficiencies and optimal cut value



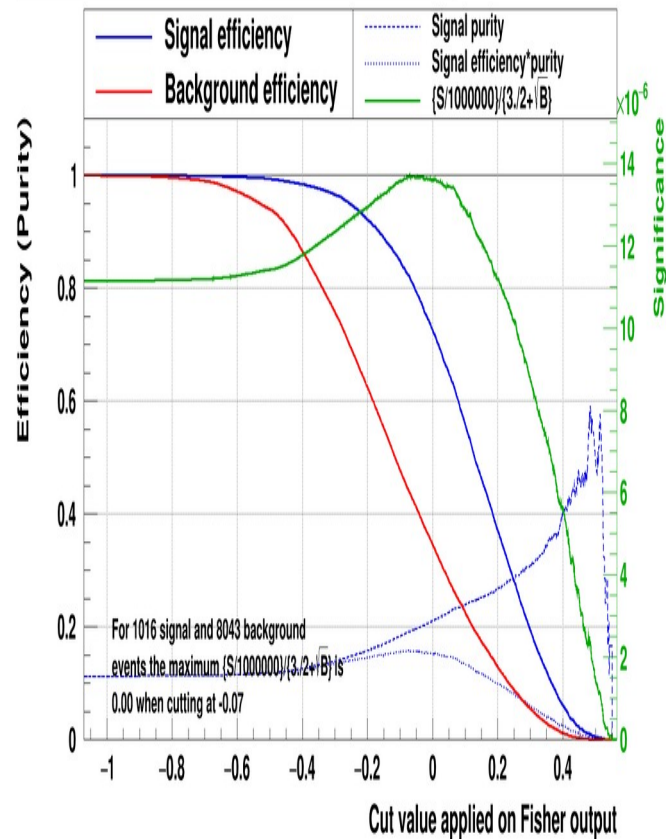
Without Rank 01

Cut efficiencies and optimal cut value



Without rank 01 and with nLepton

Cut efficiencies and optimal cut value



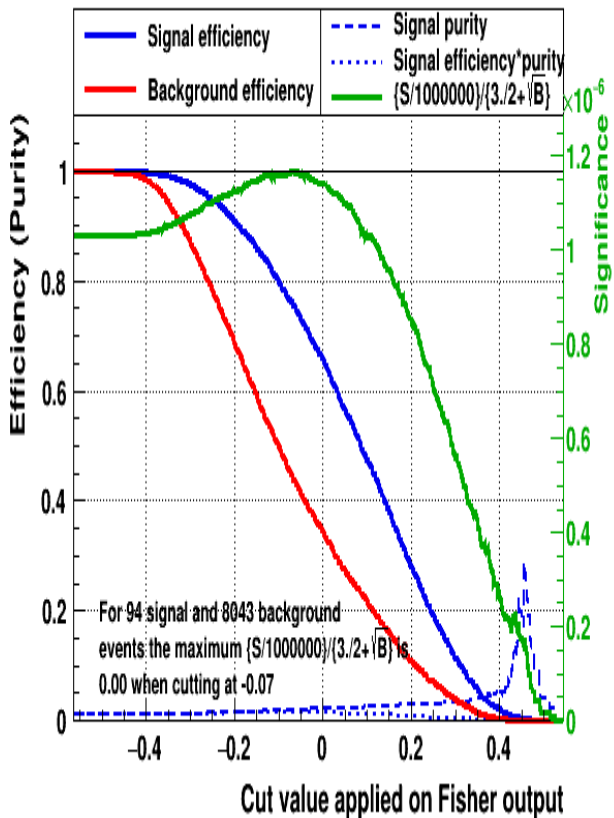
# Fisher PFOM (BF $10^{-5}$ )

With Rank 01

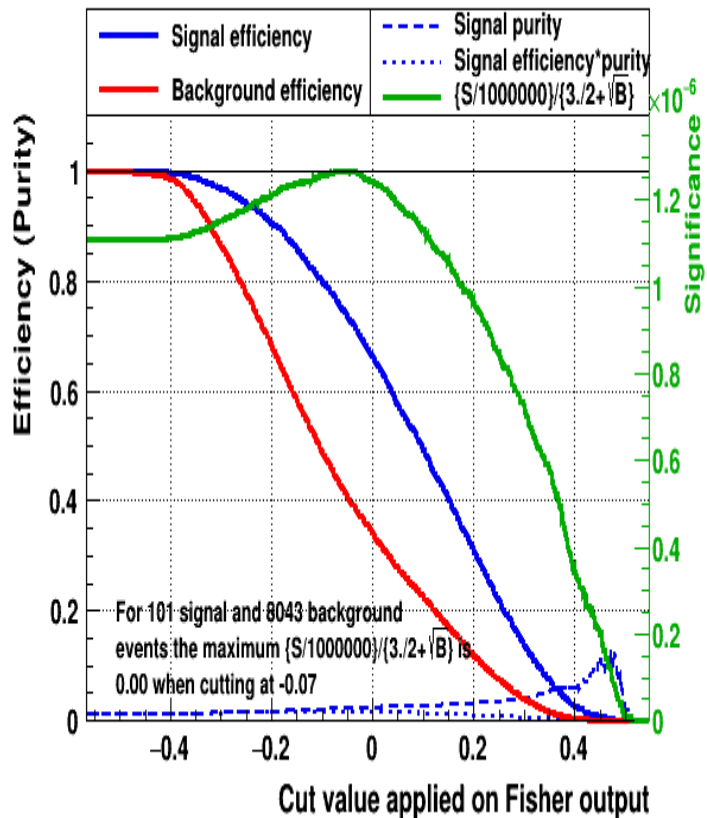
Without Rank 01

Without rank 01 and with nLepton

Cut efficiencies and optimal cut value



Cut efficiencies and optimal cut value



Cut efficiencies and optimal cut value

