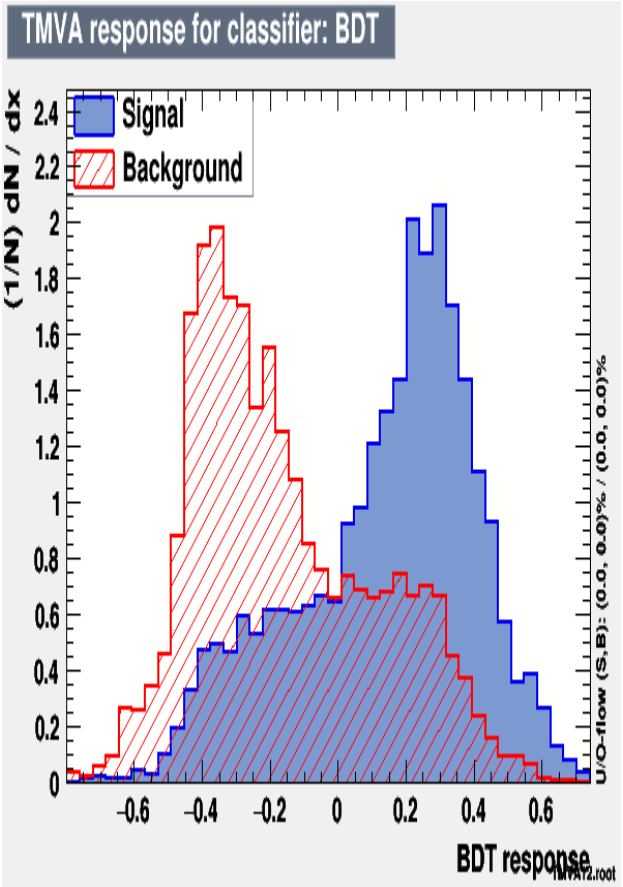
# Update

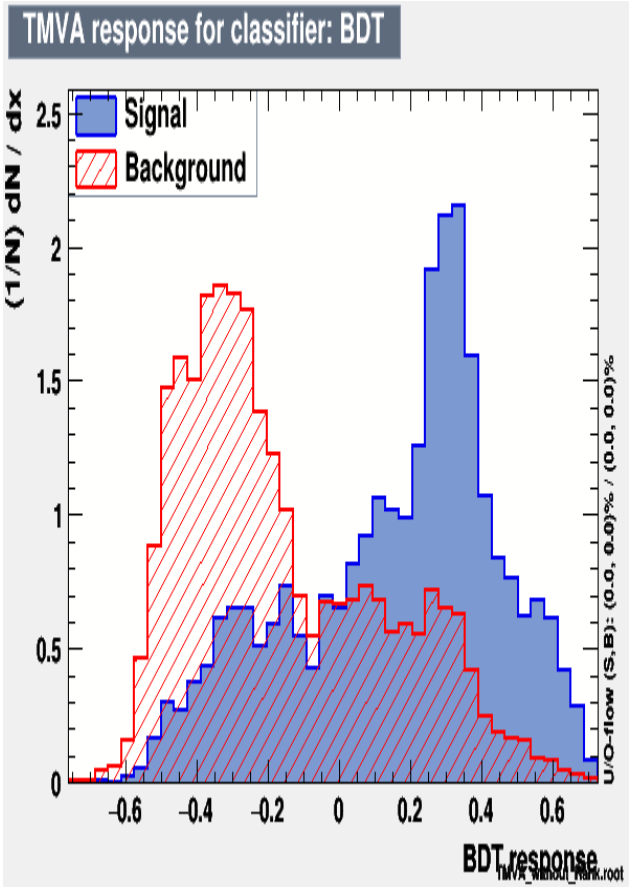
11/09/2024

# TMVA response

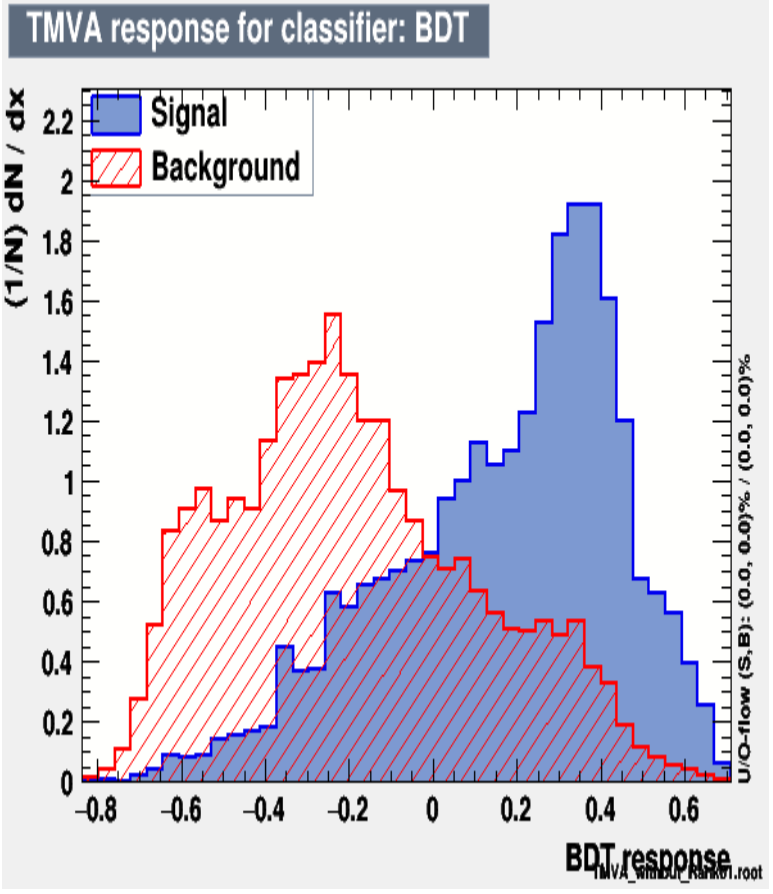
With Rank 01




Without Rank 01

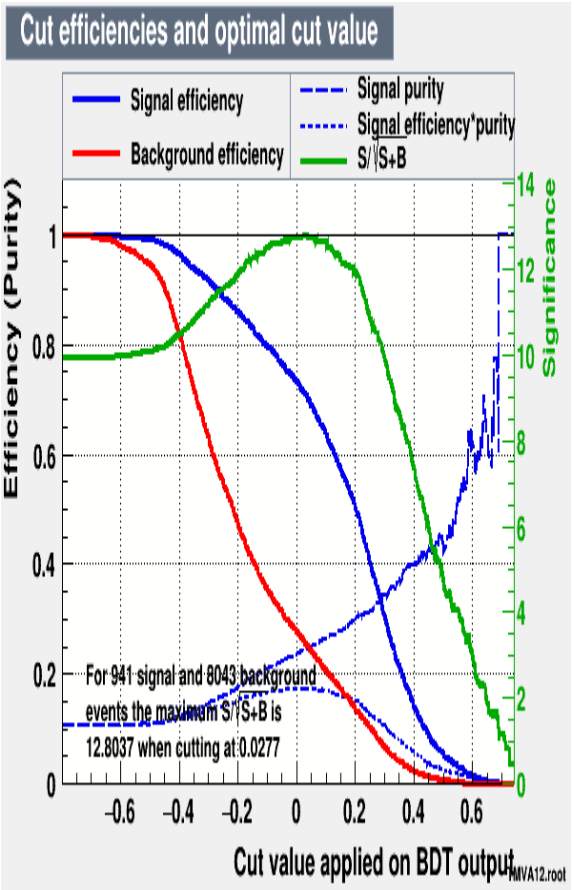



Without rank and with nLepton

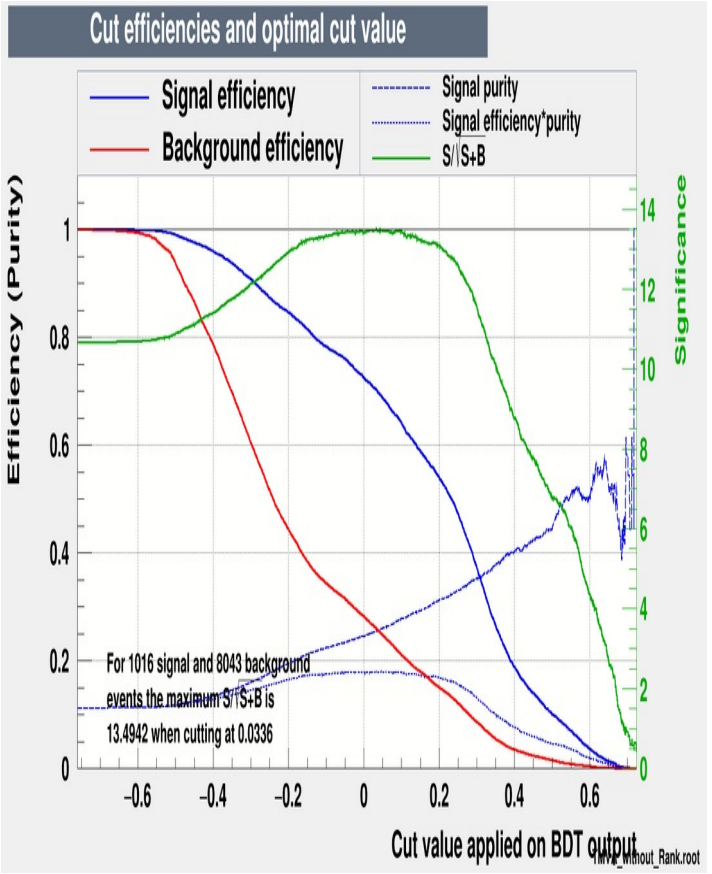


# BDT FOM (BF $10^{-4}$)

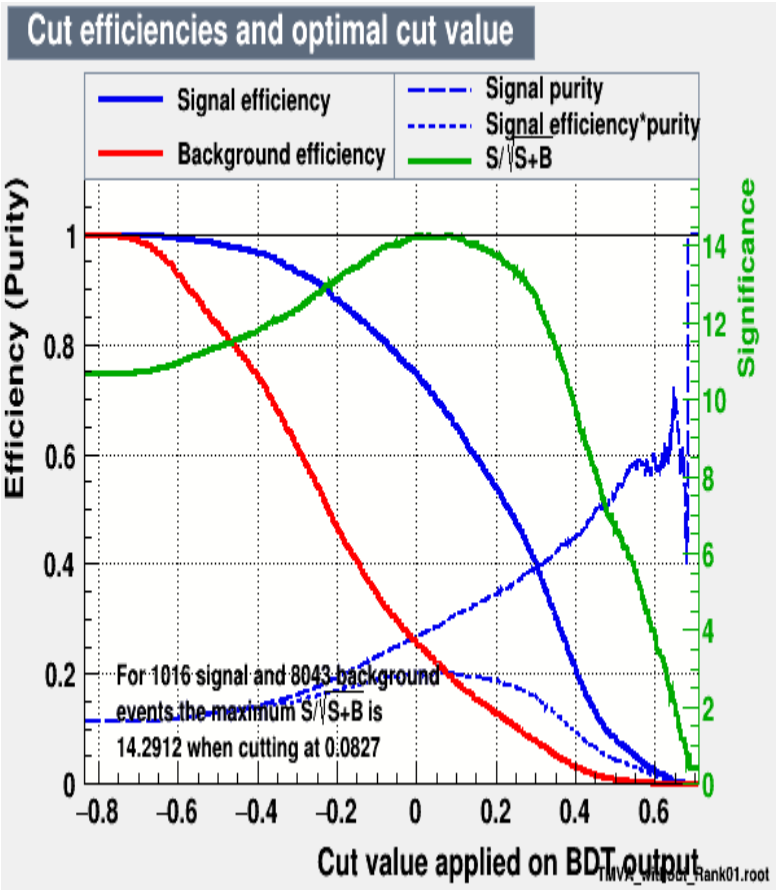
With Rank 01




Without Rank 01

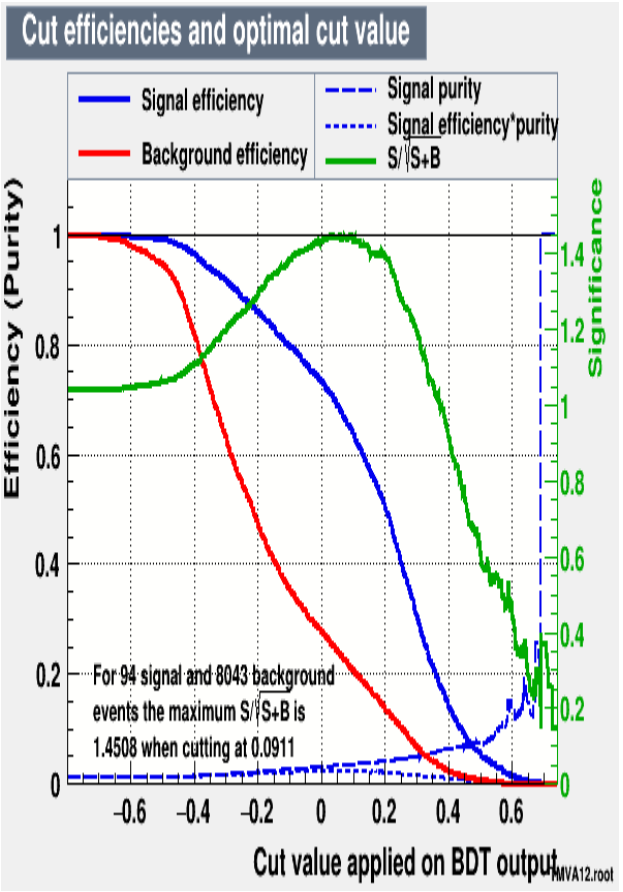



Without rank 01 and with nLepton

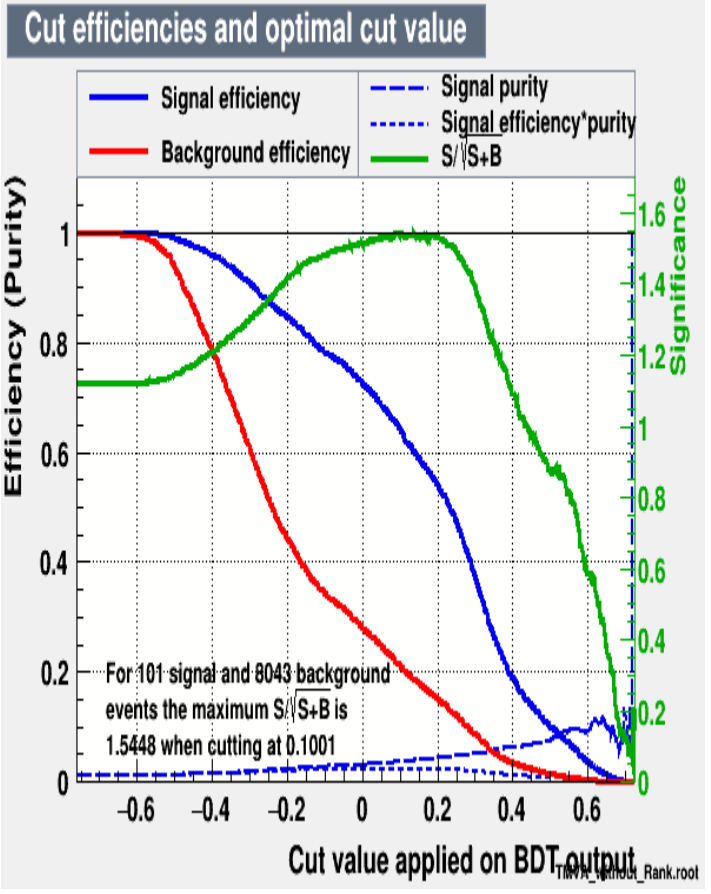


# BDT FOM (BF $10^{-5}$)

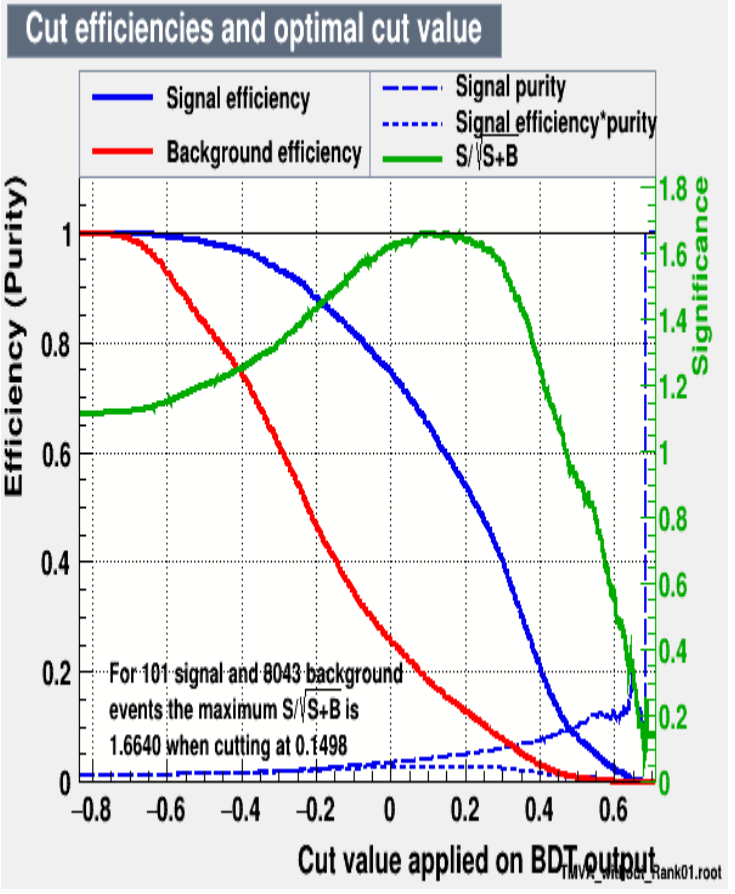
With Rank 01




Without Rank 01

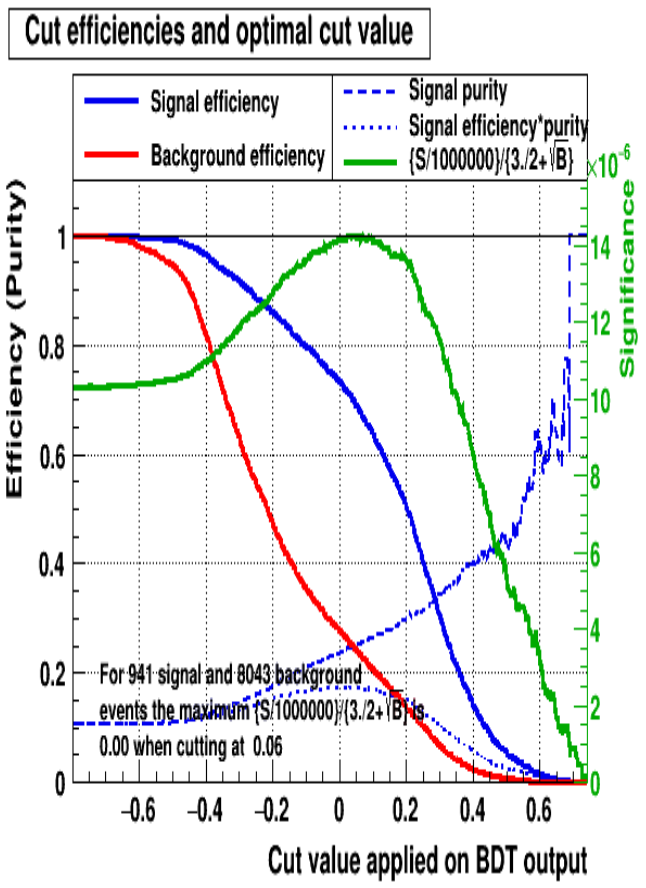



Without rank 01 and with nLepton

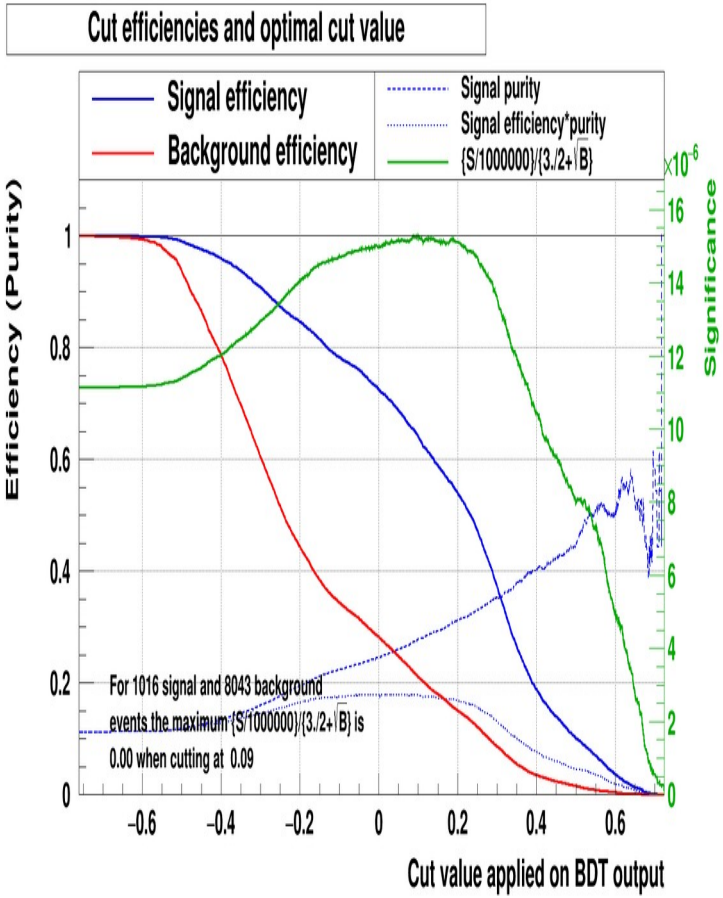


# BDT PFOM (BF $10^{-4}$)

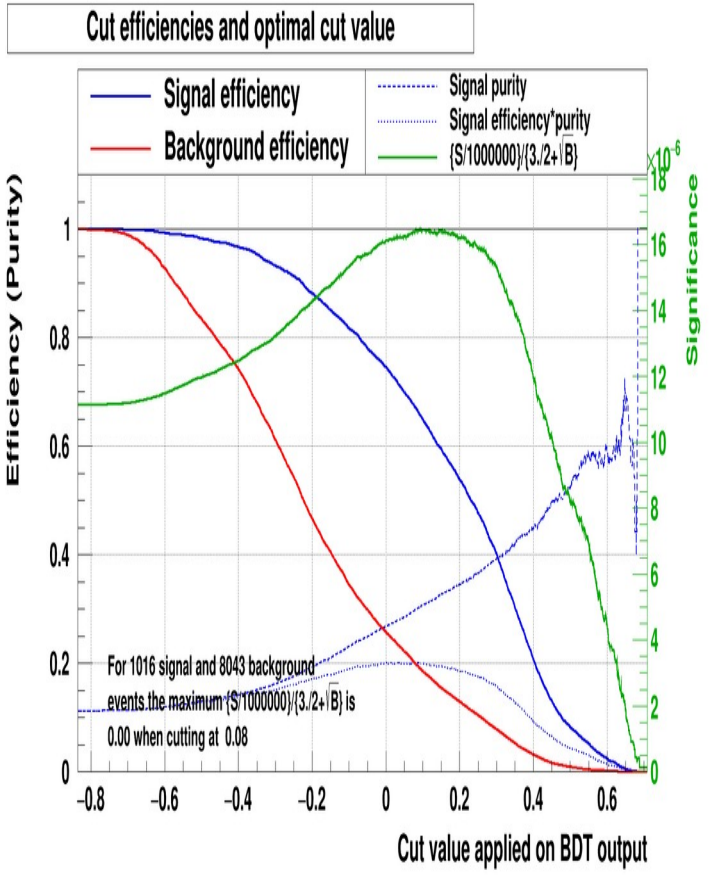
With Rank 01




Without Rank 01

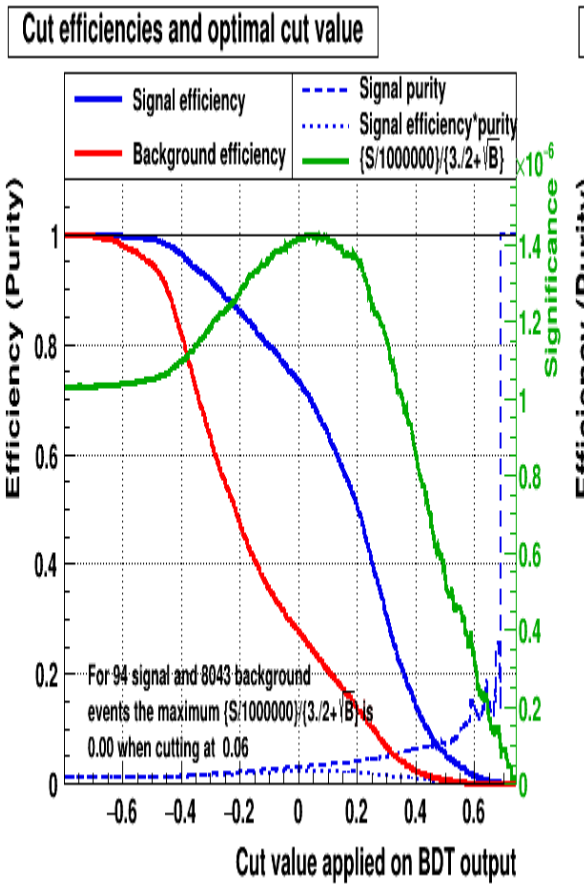



Without rank 01 and with nLepton

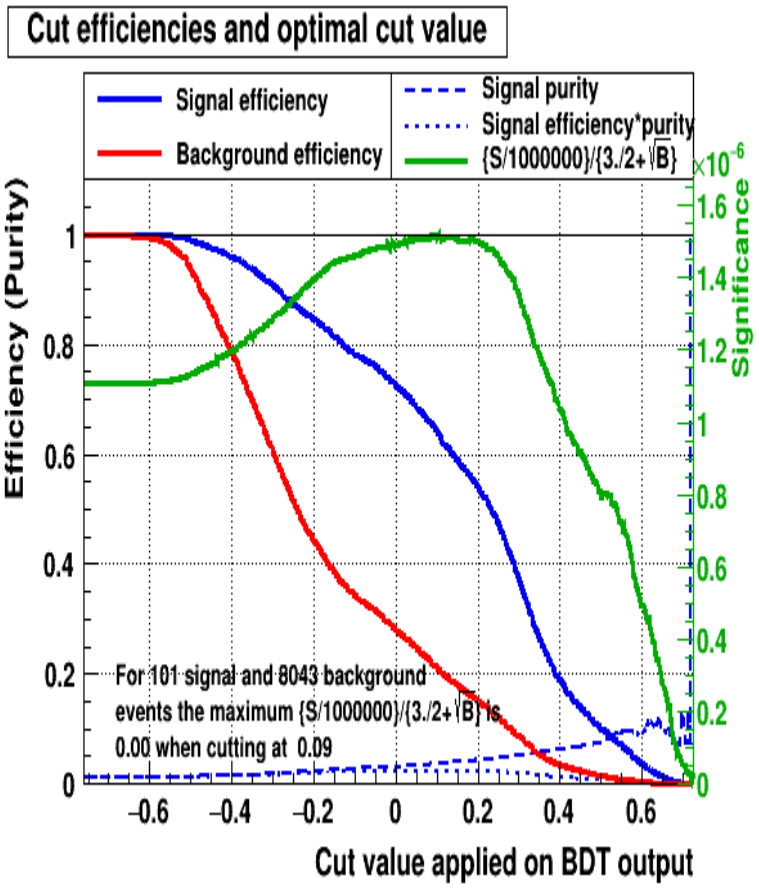


# BDT PFOM (BF $10^{-5}$)

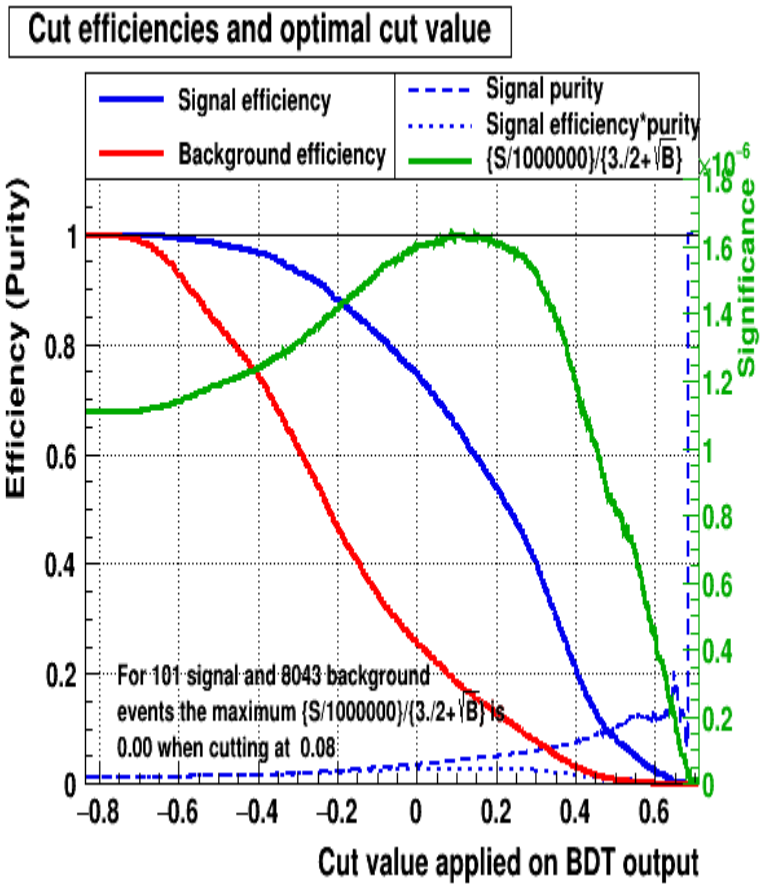
With Rank 01




Without Rank 01




Without rank 01 and with nLepton



# 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

  - $p_{ltag} > 0.3$ GeV && $p_{ltag} < 2.5$ GeV
  - $1.3 < m_{ROE} < 2.1$ GeV

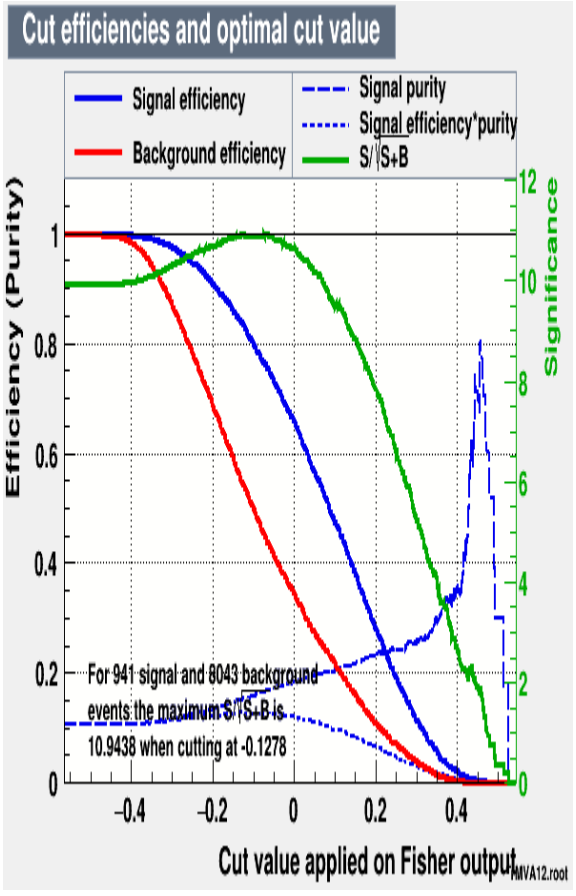
Signal side cuts

| |
|---|
| $\sin\varphi < 1$ |
| $m_{k\pi} > 1.91$ GeV |
| $\lvert m_{\mu\pi} - 3.1\rvert > 0.05$ & $\lvert m_{\mu\pi} - 3.69\rvert > 0.05$GeV |
| $\lvert m_{\mu\mu} - 3.1\rvert > 0.05$ & $\lvert m_{\mu\mu} - 3.69\rvert > 0.05$ GeV |

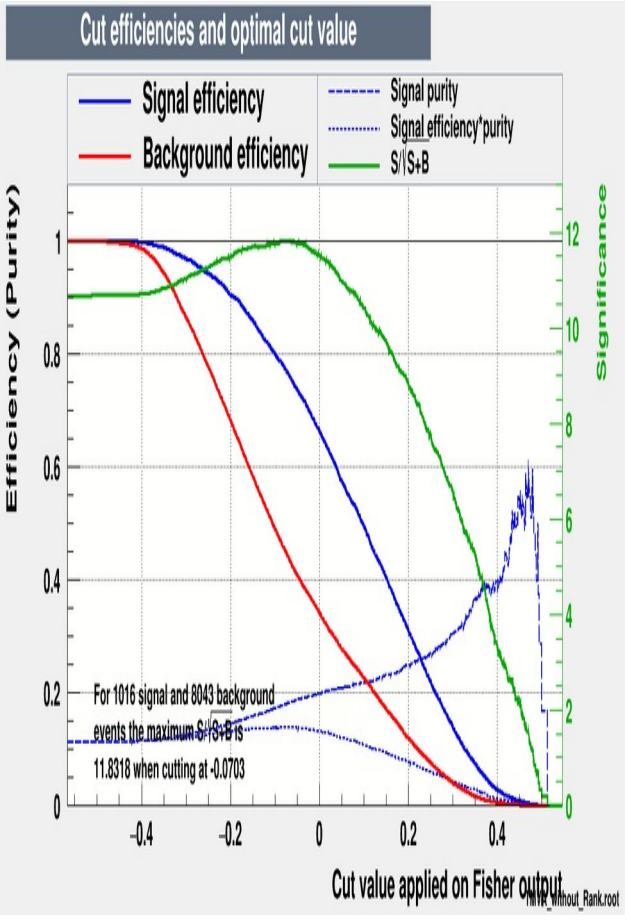
$N_{sig}$ = 1,016 (BF = $10^{-4}$)
$N_{bg}$ = 8,043

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

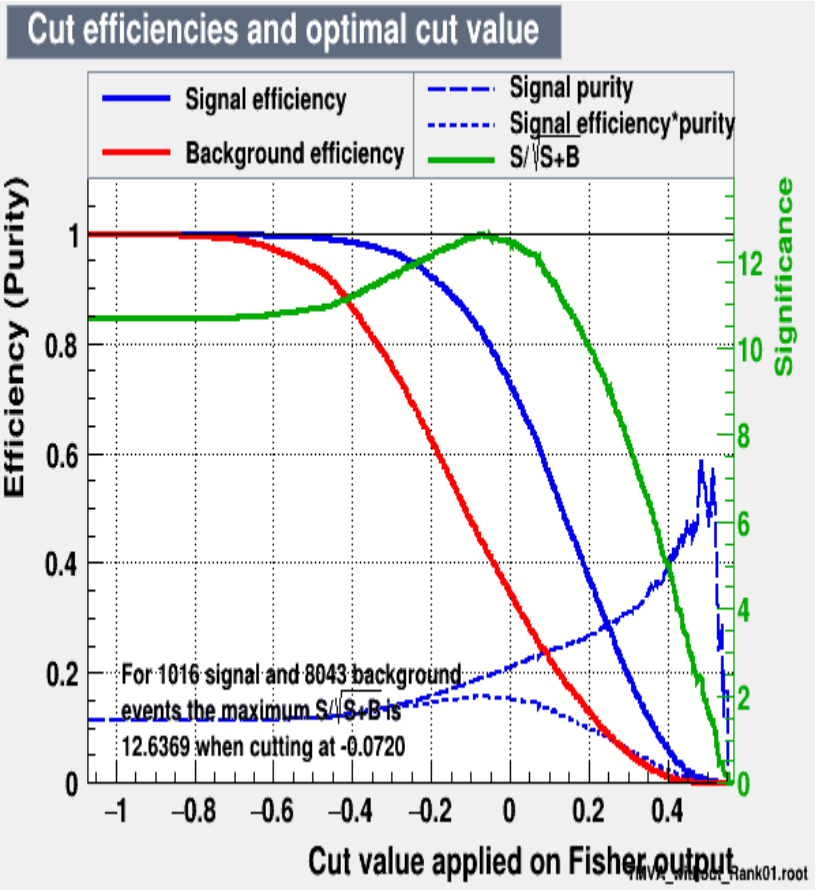
With Rank 01




Without Rank 01

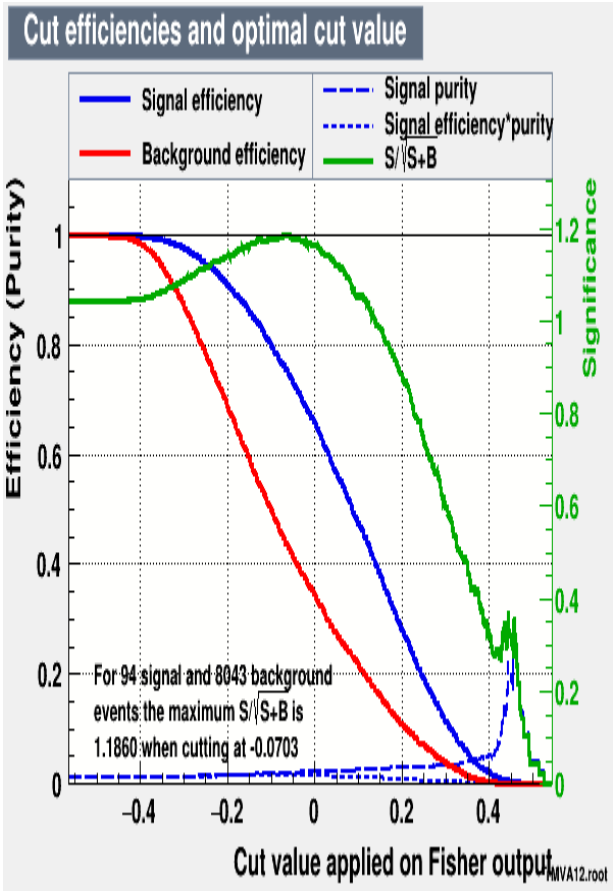



Without rank 01 and with nLepton

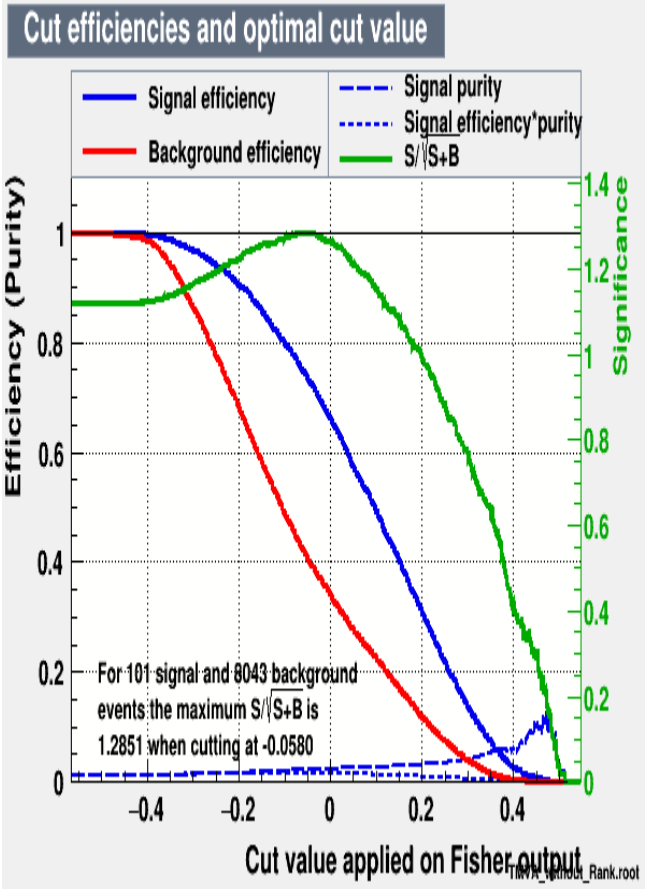


# Fisher FOM (BF $10^{-5}$)

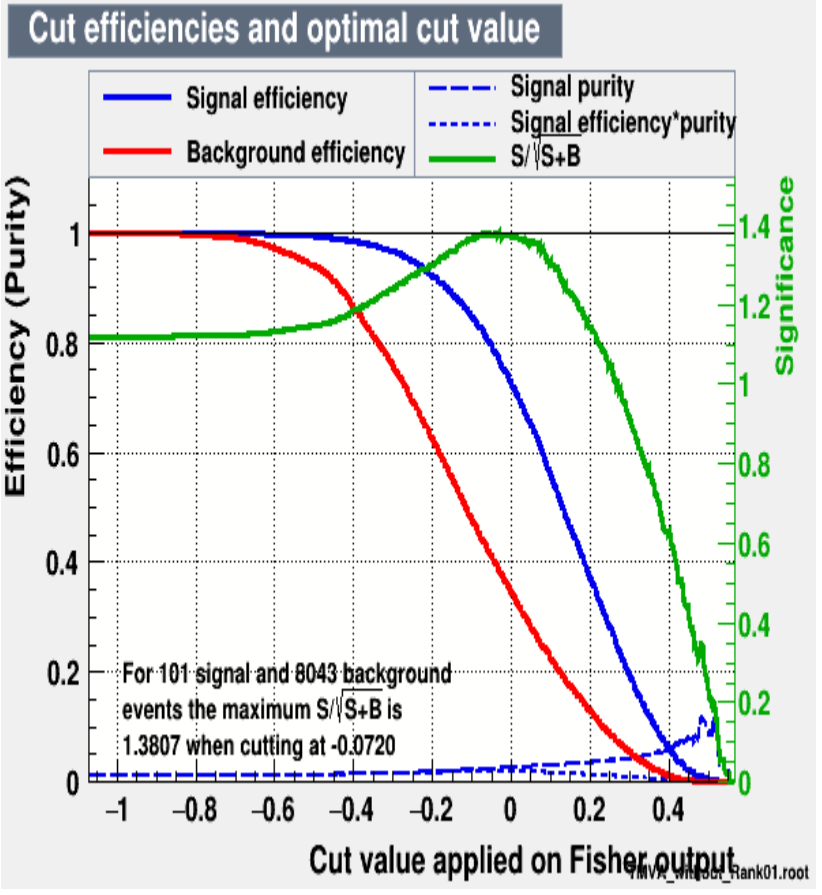
With Rank 01




Without Rank 01

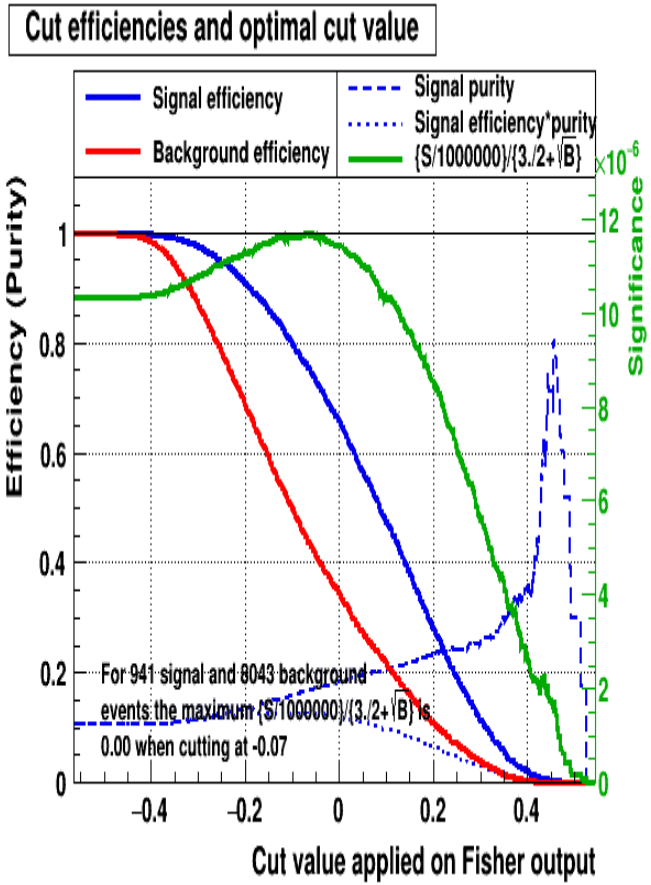



Without rank 01 and with nLepton

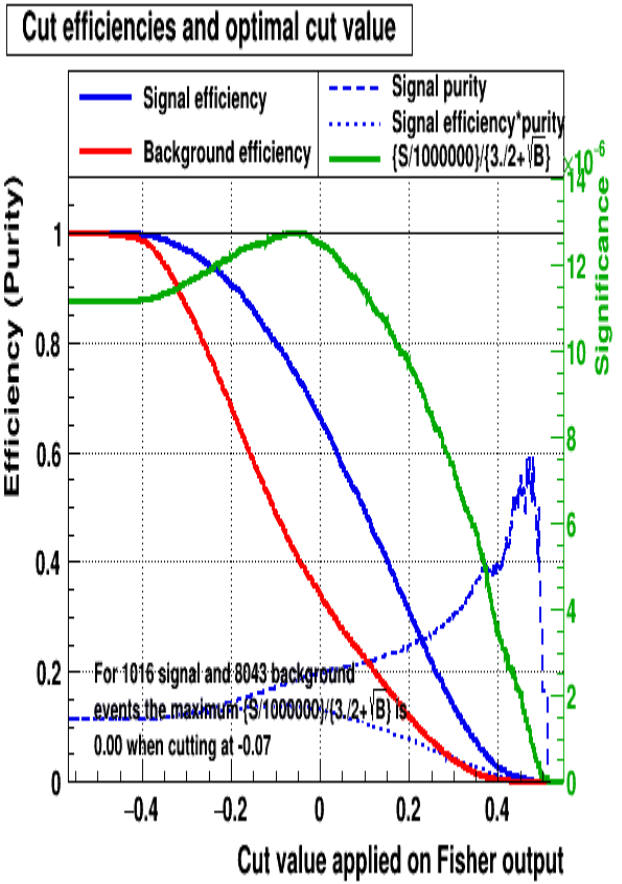


# Fisher PFOM (BF $10^{-4}$)

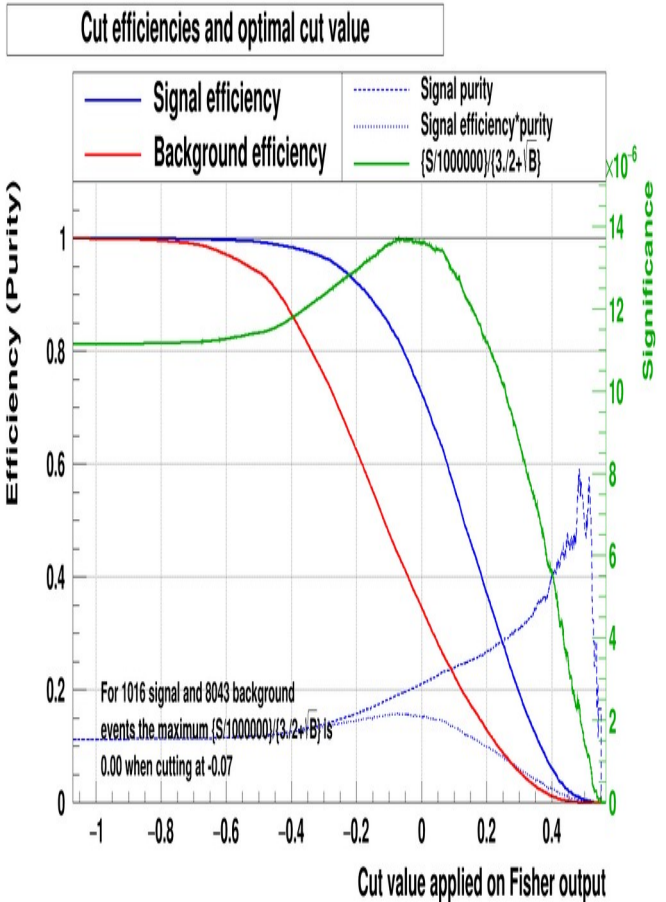
With Rank 01




Without Rank 01

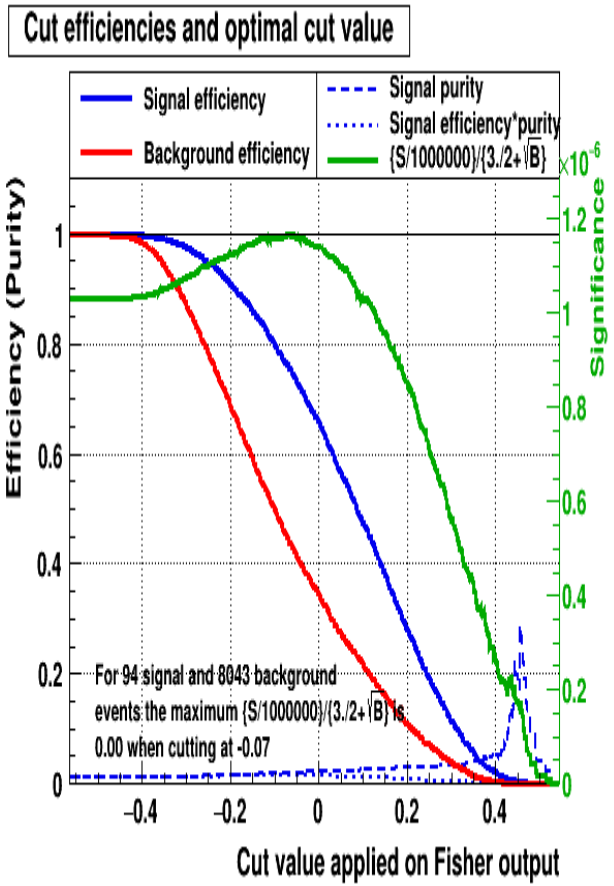



Without rank 01 and with nLepton

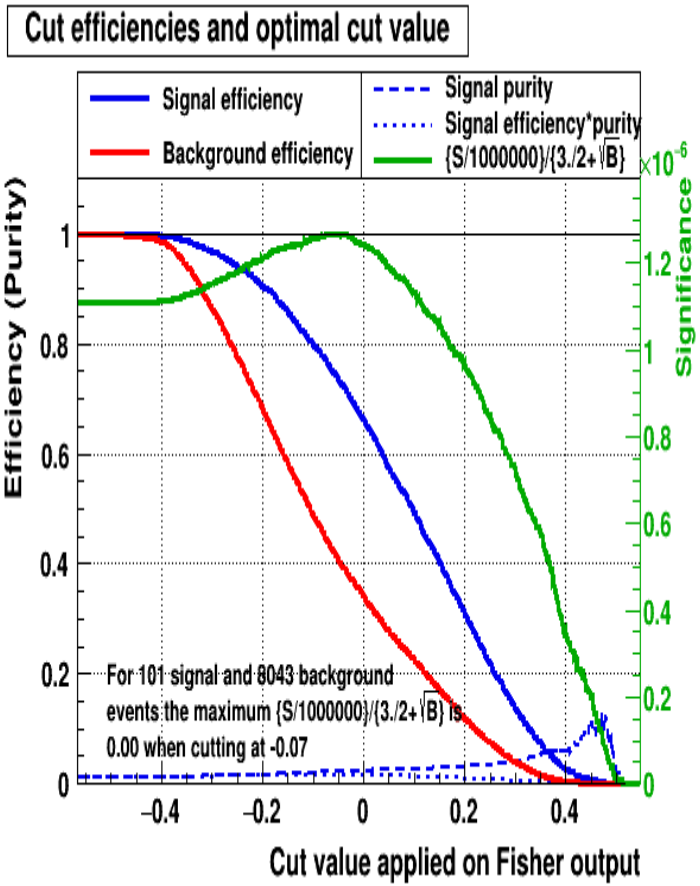


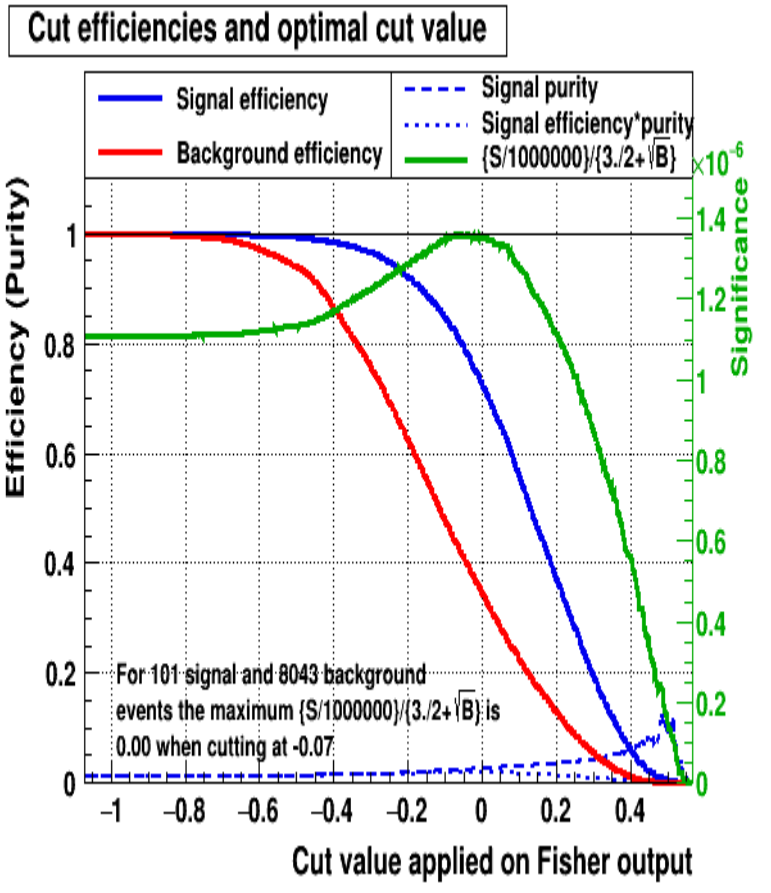
# Fisher PFOM (BF $10^{-5}$)

With Rank 01




Without Rank 01




Without rank 01 and with nLepton