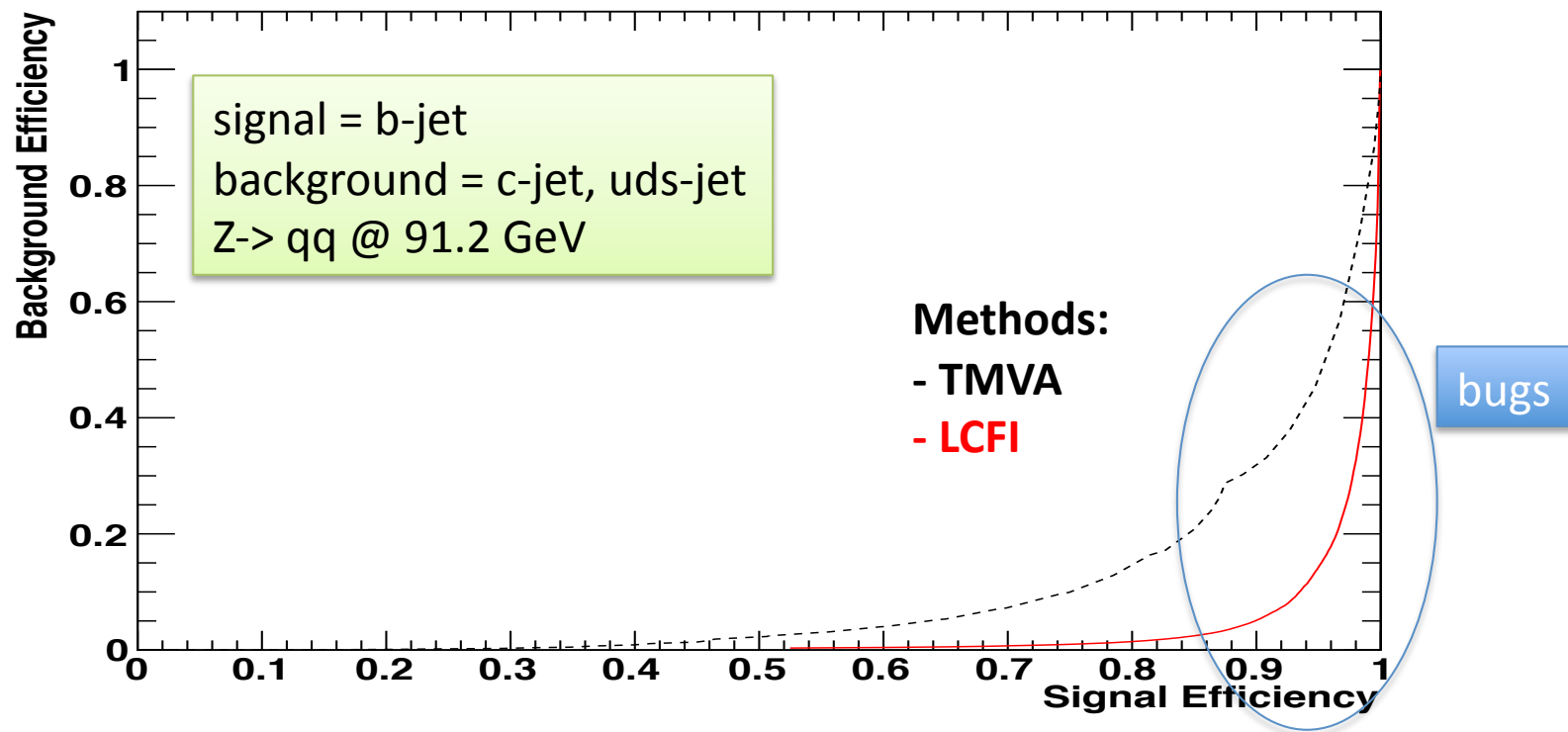


LCFI studies

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December 24, 2010

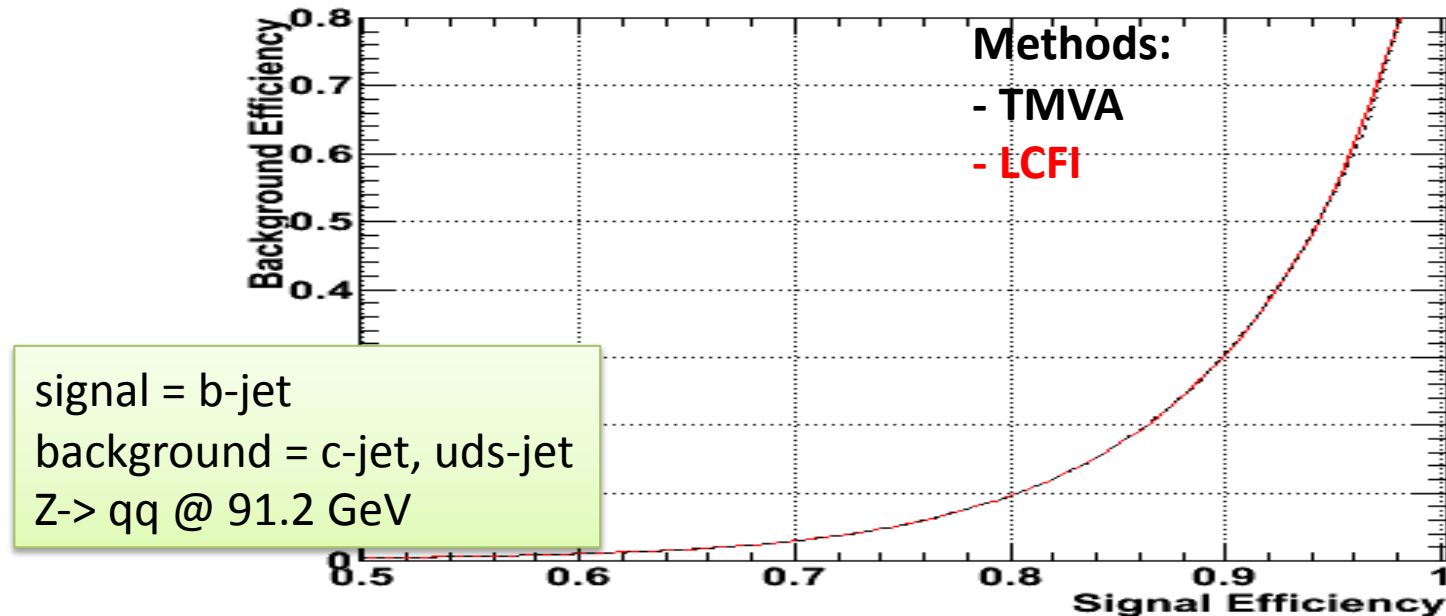
LCFI neural net

- ongoing work to replace LCFI neural net with TMVA (ROOT)
- last time: disagreement between two frameworks



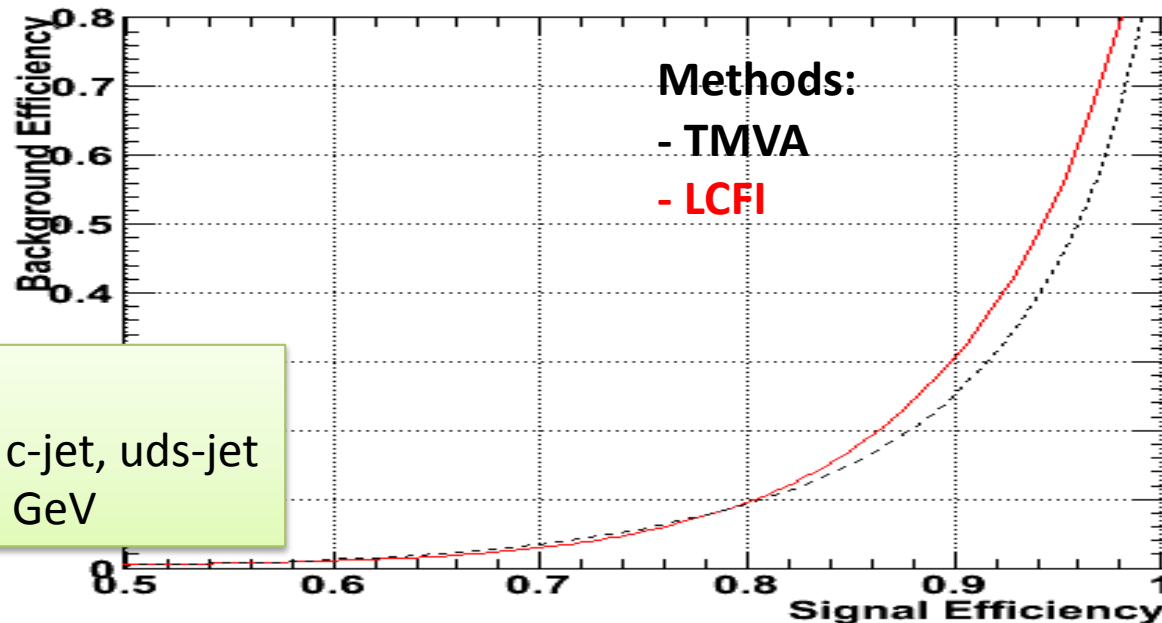
new framework with TMVA

- two bugs were found:
 - in the treatment of LCFI framework, there were double counting in the number of jets
 - in the TMVA framework, the combination of three categories ($n_{\text{vtx}}=0$, $n_{\text{vtx}}=1$, $n_{\text{vtx}}\geq 2$) was not done correctly
- with the bugs fixed, they agree perfectly



improvements

- improvements attempts have already begun by incorporating new variables
 - currently incorporate the vertex ordering information (vertex distance and vertex momentum direction)
 - already see improvement in the high signal efficiency region
- will incorporate other variables & optimize at higher energies



signal = b-jet
background = c-jet, uds-jet
Z-> qq @ 91.2 GeV