# Update on $b\bar{b}g$ Analysis

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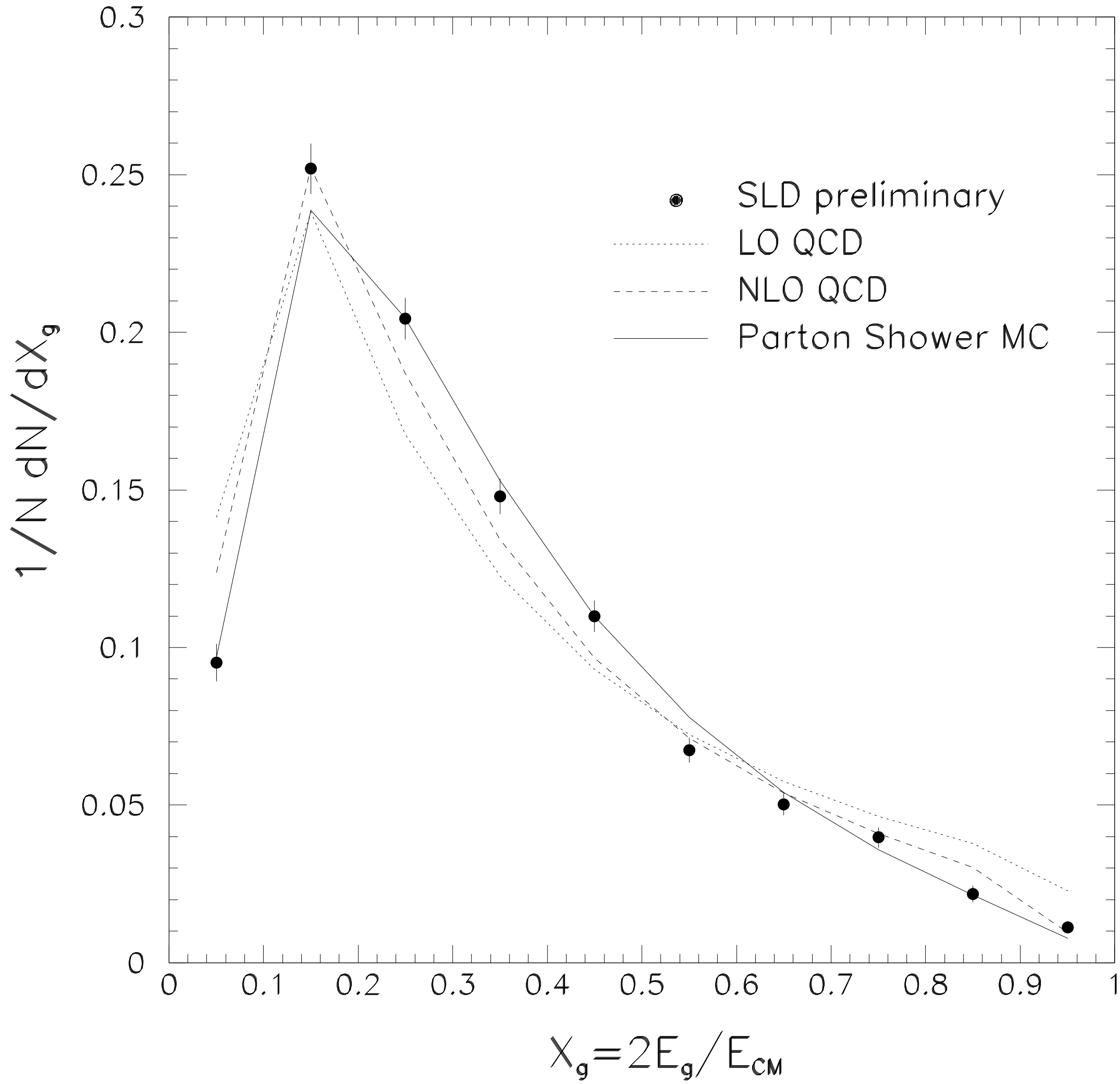
QCD meeting
February 25, 2000

## Outline

- Current status
  - From Impact Parameter to Topological
- Changes since before Christmas
  - Vertex mass with 1997 Data/MC sample
  - Preparation for optimization
- Optimization
  - $b\bar{b}g$ id criterion
  - Efficiency check VS $y_{cut}$ value
- To do

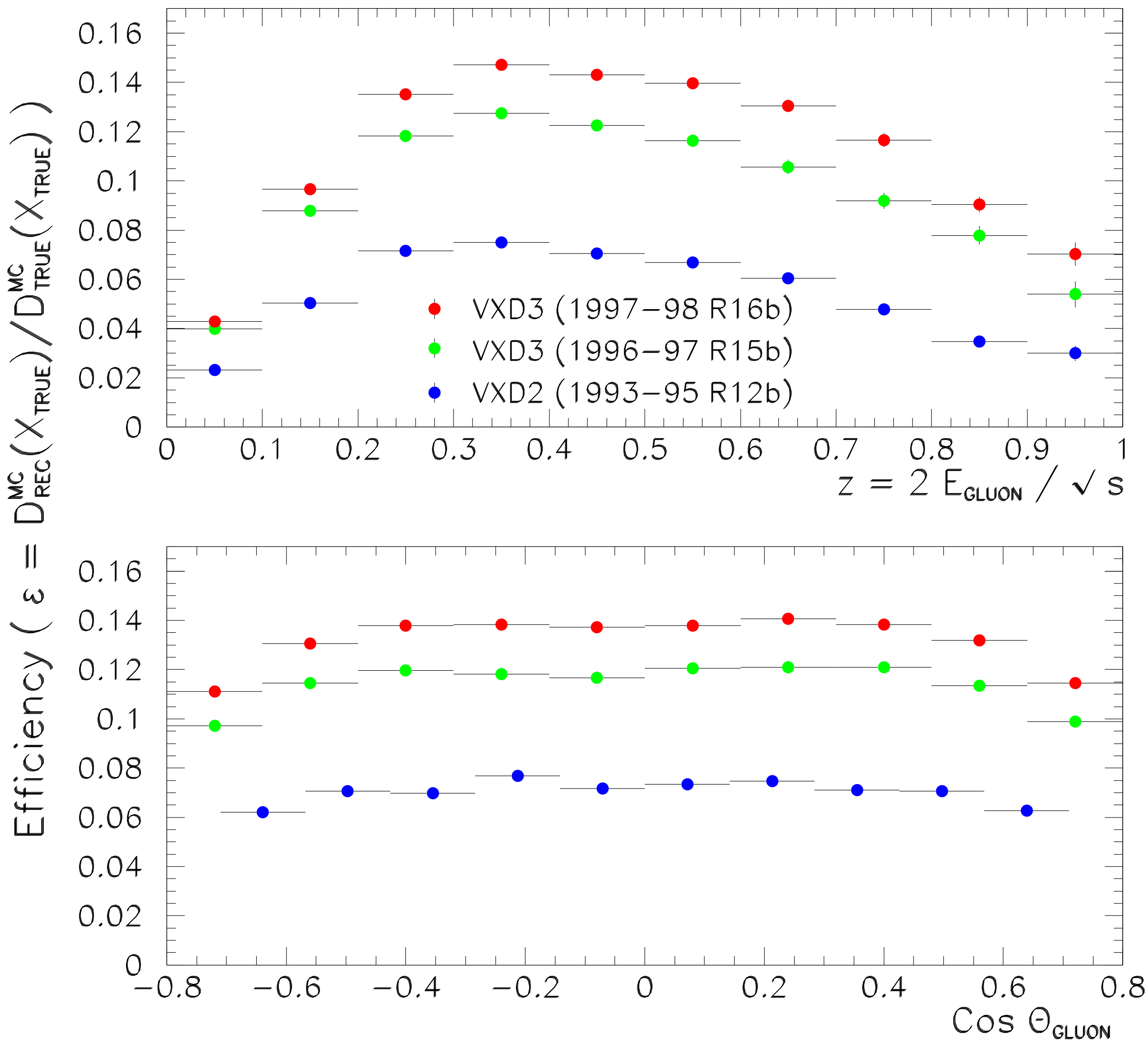
# Gluon Energy




- Select 3-jet evt: Jade at $y_{cut} = 0.02$.
- $b/\bar{b}$ jets tagged with $\geq$2 tracks missing IP by $3\sigma$.
- $b\bar{b}g$ selection: Exactly two of 3-jets

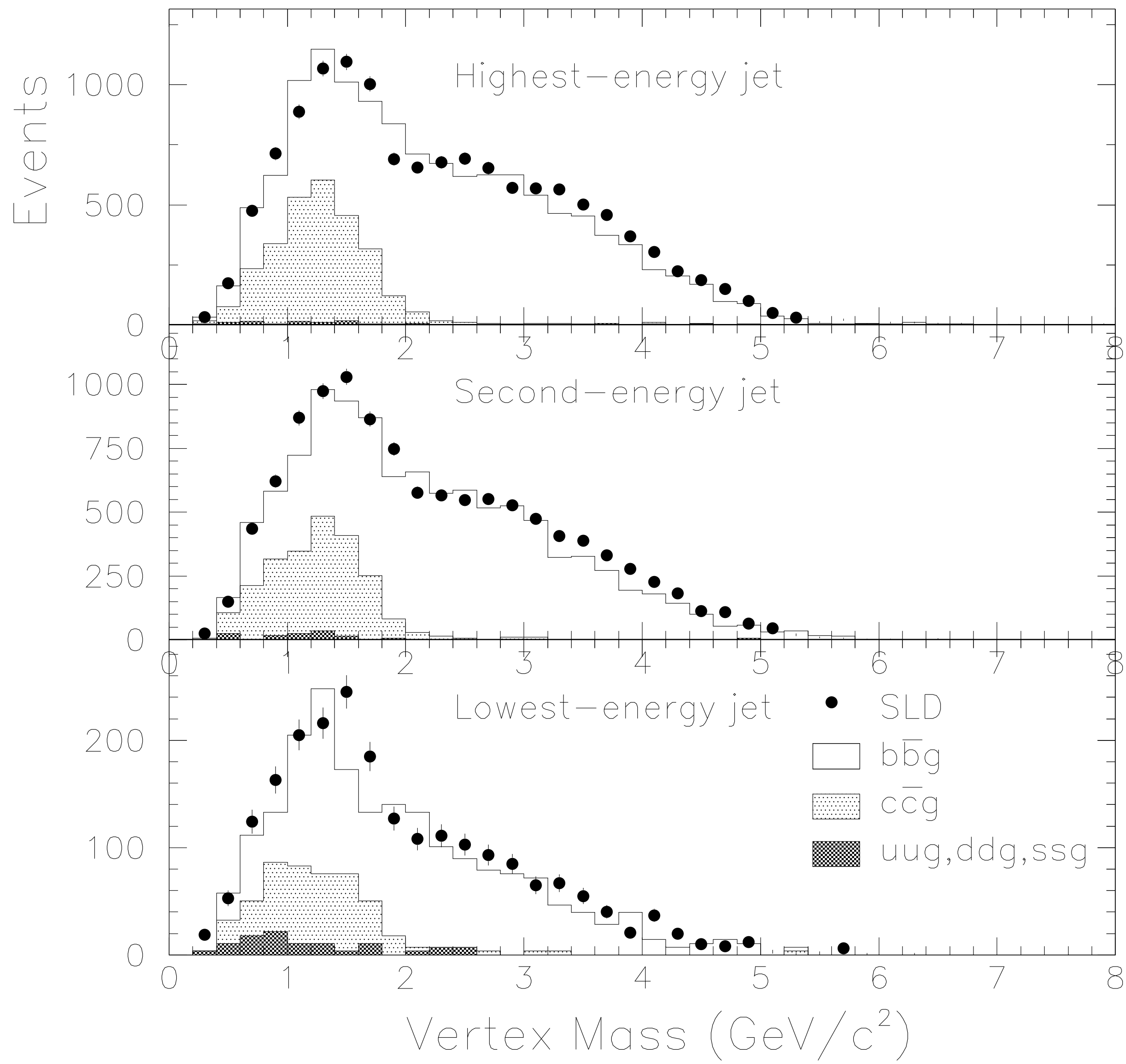
  $\Rightarrow$ The other $\rightarrow$ gluon jet

# Efficiency of true $b\bar{b}g$



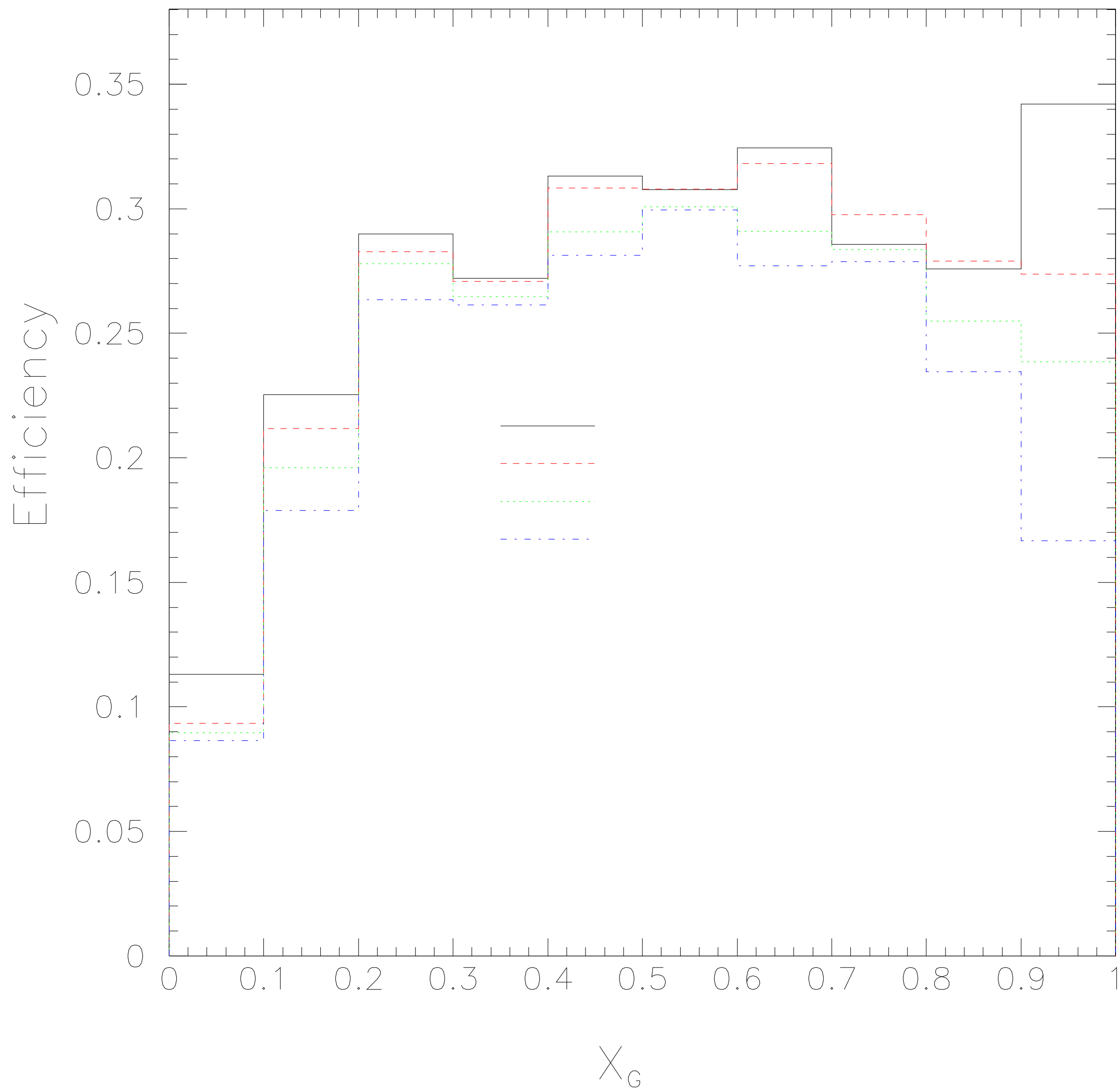

- New VXD3 has about twice better efficiency than VXD2.

# Vertex mass for each jet



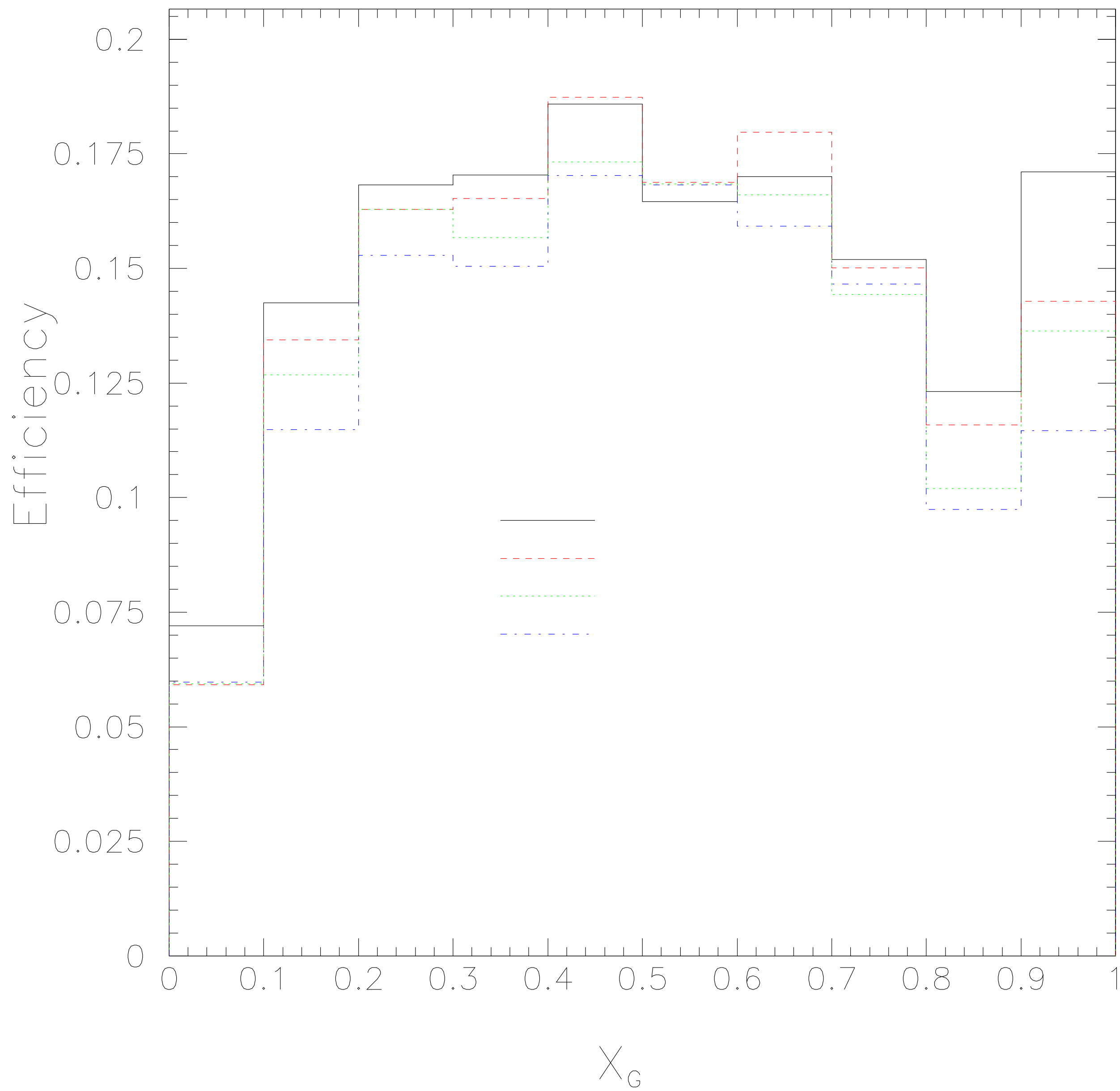

- Data and MC (all flavor R16) are only 1997 sample.
- $N_{had}^{data} = 68$K evts, $N_{had}^{mc} = 19$K evts.

# Efficiency for each $y_{cut}$



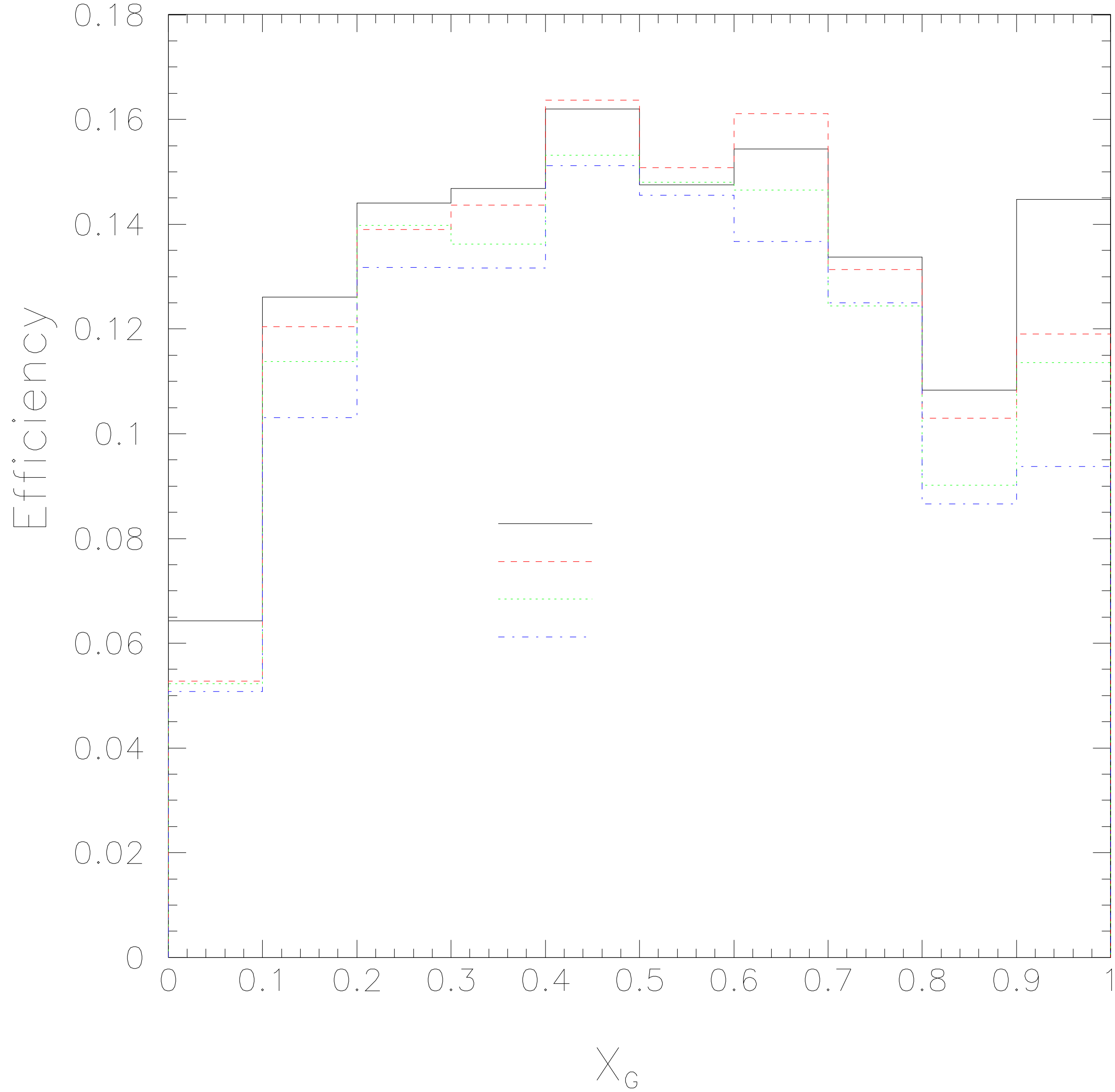

- Ptm(1)>1.5 GeV or Ptm(2)>1.5 GeV or Ptm(3)>1.5.
- Assuming there is no mistagging in $b\bar{b}g$.
- $y_{cut}$ from 0.012 to 0.024
- $N_{b\bar{b}g}$ = 9K evts

# Efficiency for each $y_{cut}$




- $y_{cut}$ from 0.012 to 0.024
- $N_{b\bar{b}g}$ = 9K evts
- ptm(i)>0.5 GeV or ptm(j)>0.5 GeV; the rest k $\rightarrow$ gluon

# Efficiency for each $y_{cut}$




- $y_{cut}$ from 0.012 to 0.024
- $N_{b\bar{b}g} = $ 9K evts
- ptm(i)>1.0 GeV or ptm(j)>1.0 GeV; the rest k $\rightarrow$ gluon

# Todo

- Optimization of $y_{cut}$ with large statistics
- Optimization for other jet finding
- Background estimation on $X_G$
- Systematics