

Relative Systematic Effect (MultiFold)

ATLAS

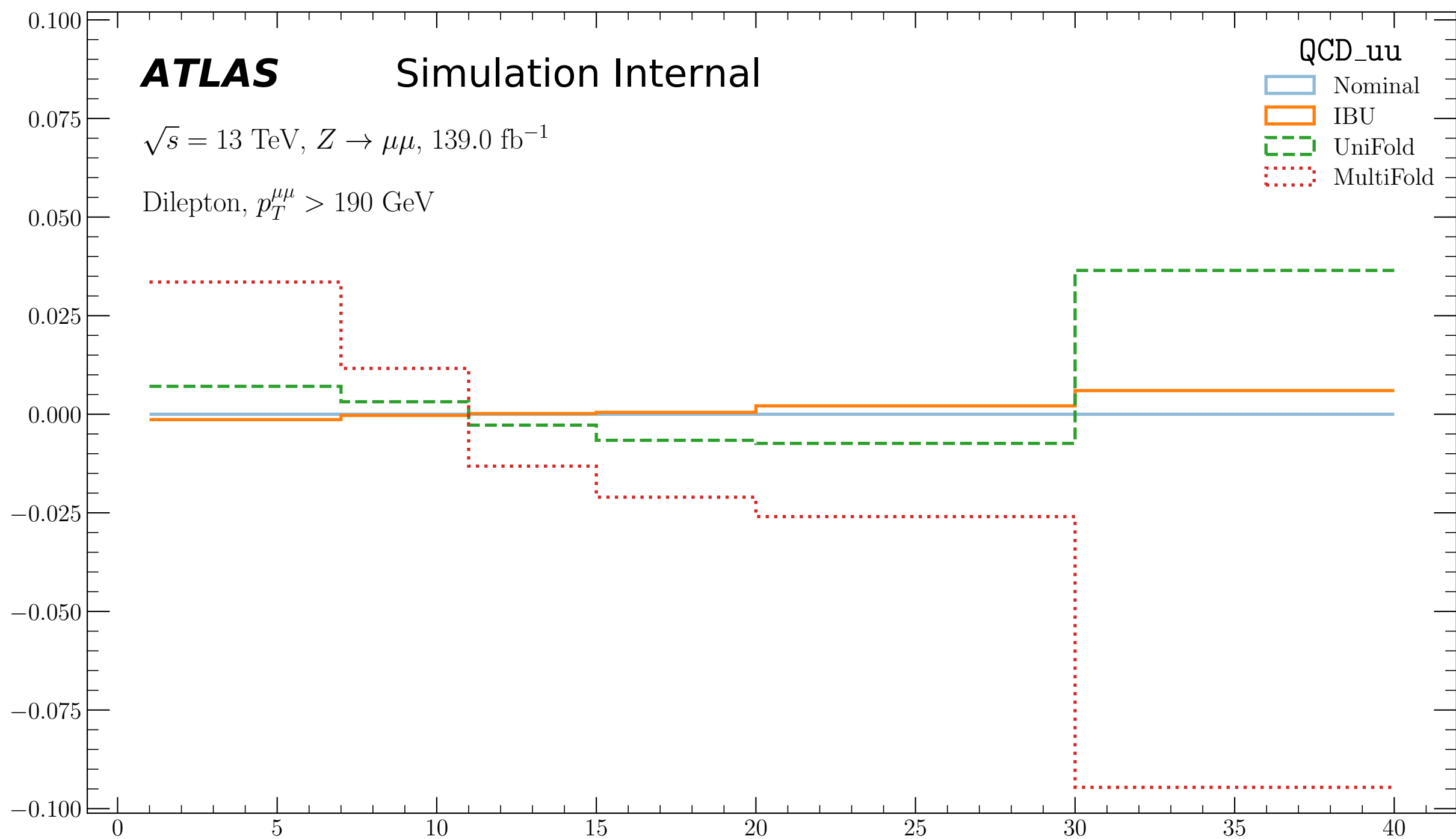
Simulation Internal

$\sqrt{s} = 13 \text{ TeV}$, $Z \rightarrow \mu\mu$, 139.0 fb^{-1}

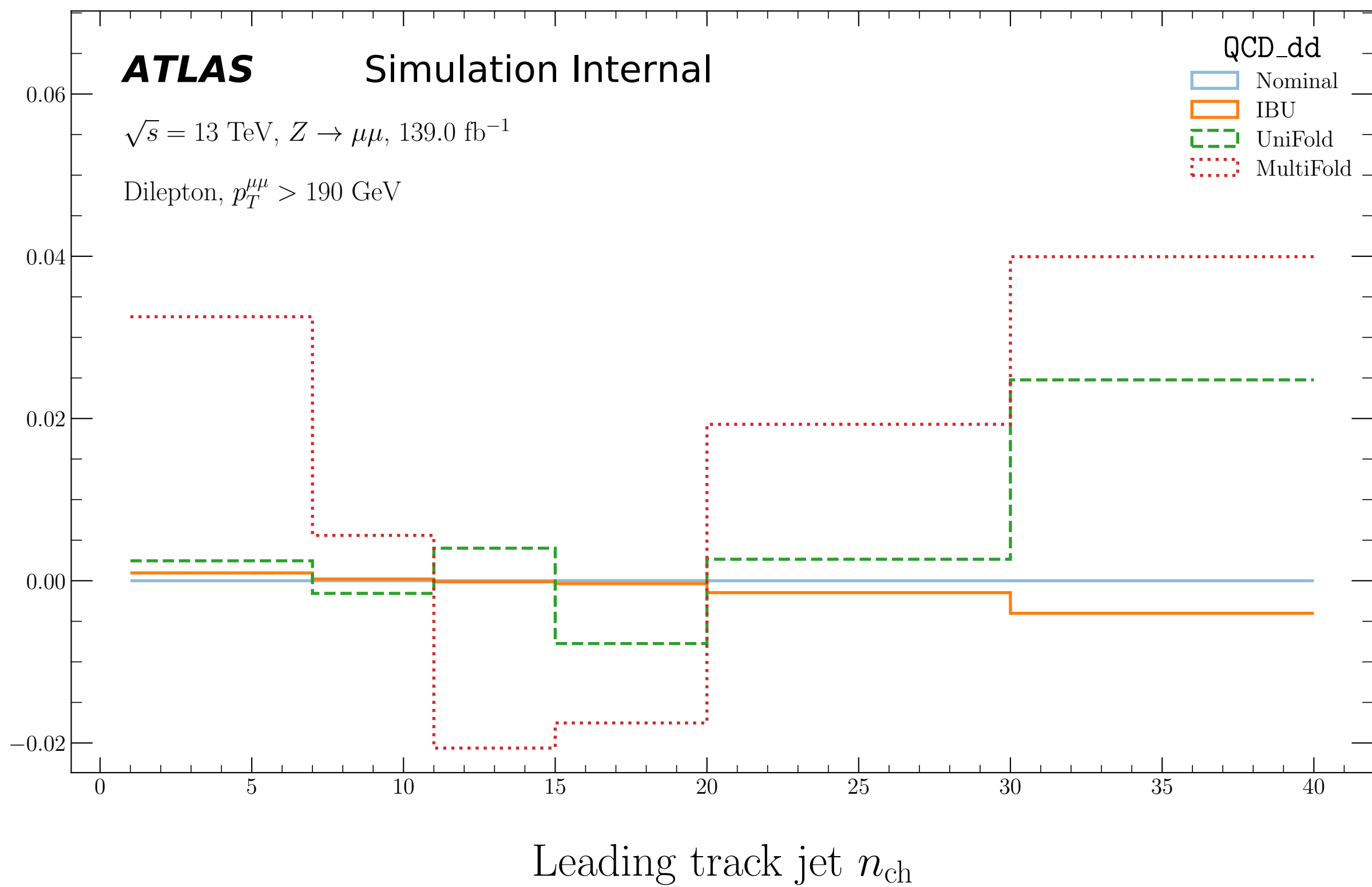
Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

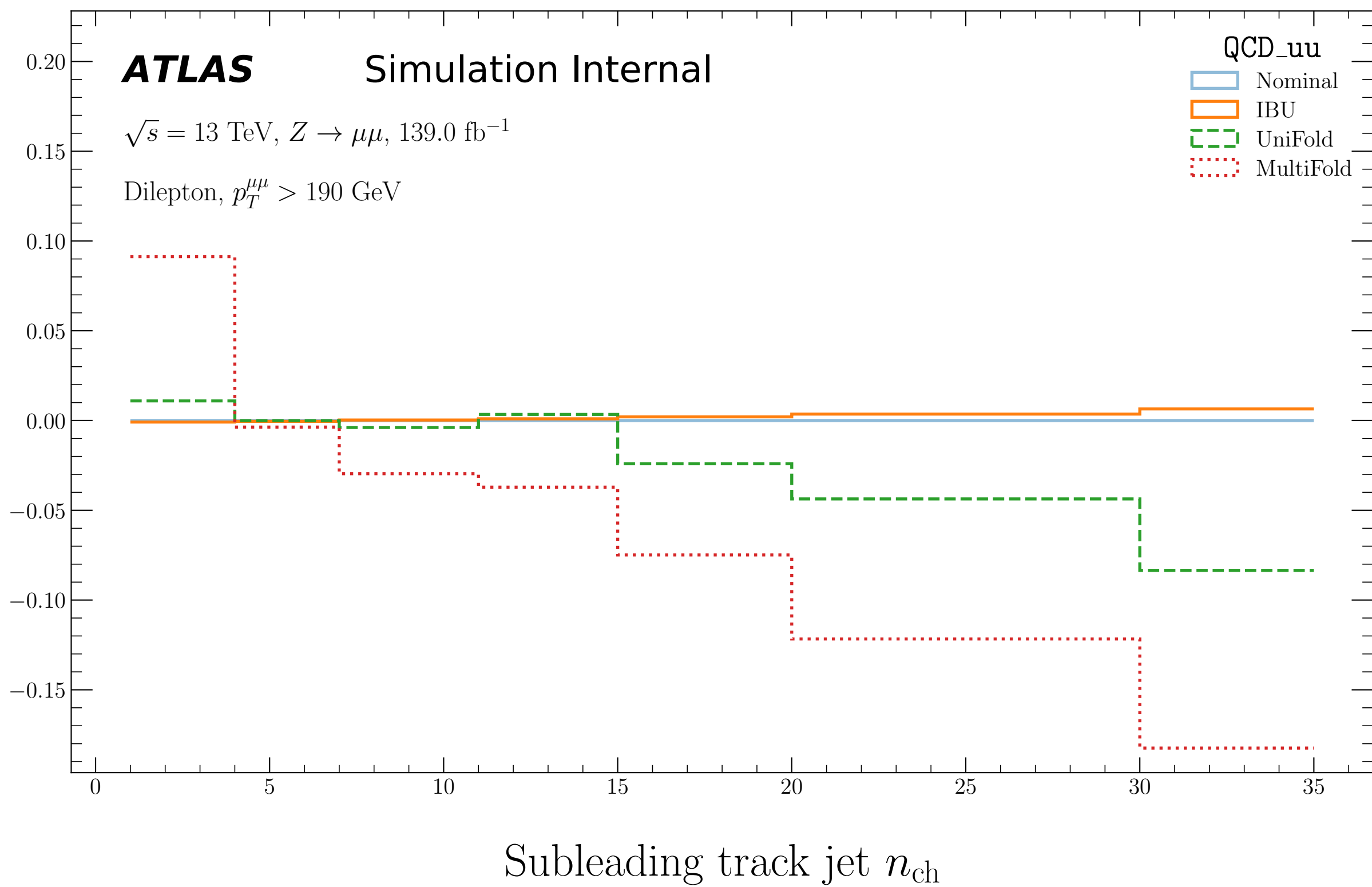
QCD_uu

- Nominal
- IBU
- UniFold
- MultiFold



Leading track jet n_{ch}





Relative Systematic Effect (MultiFold)

ATLAS

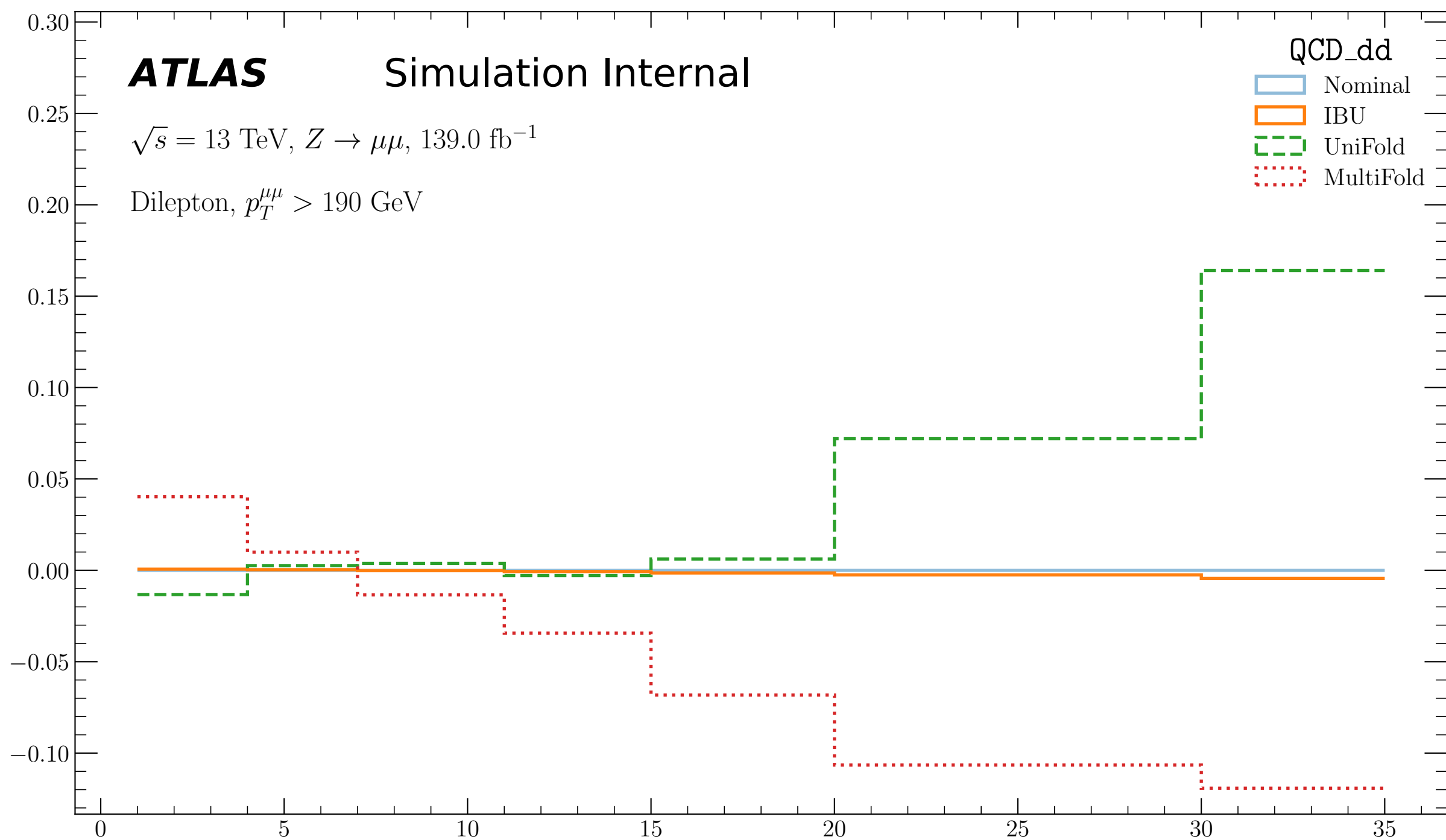
Simulation Internal

$\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$

Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold



Subleading track jet n_{ch}

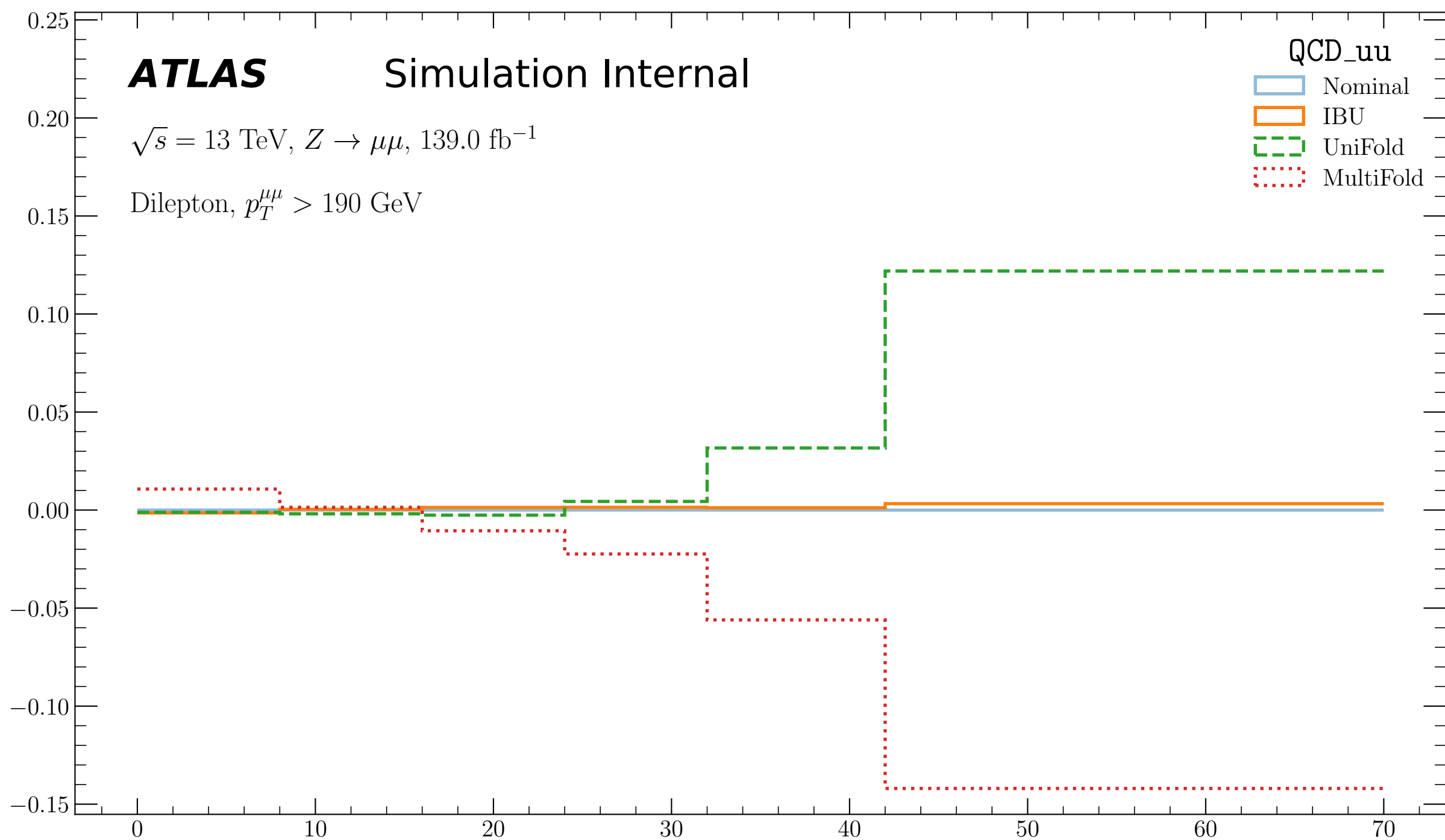
ATLAS

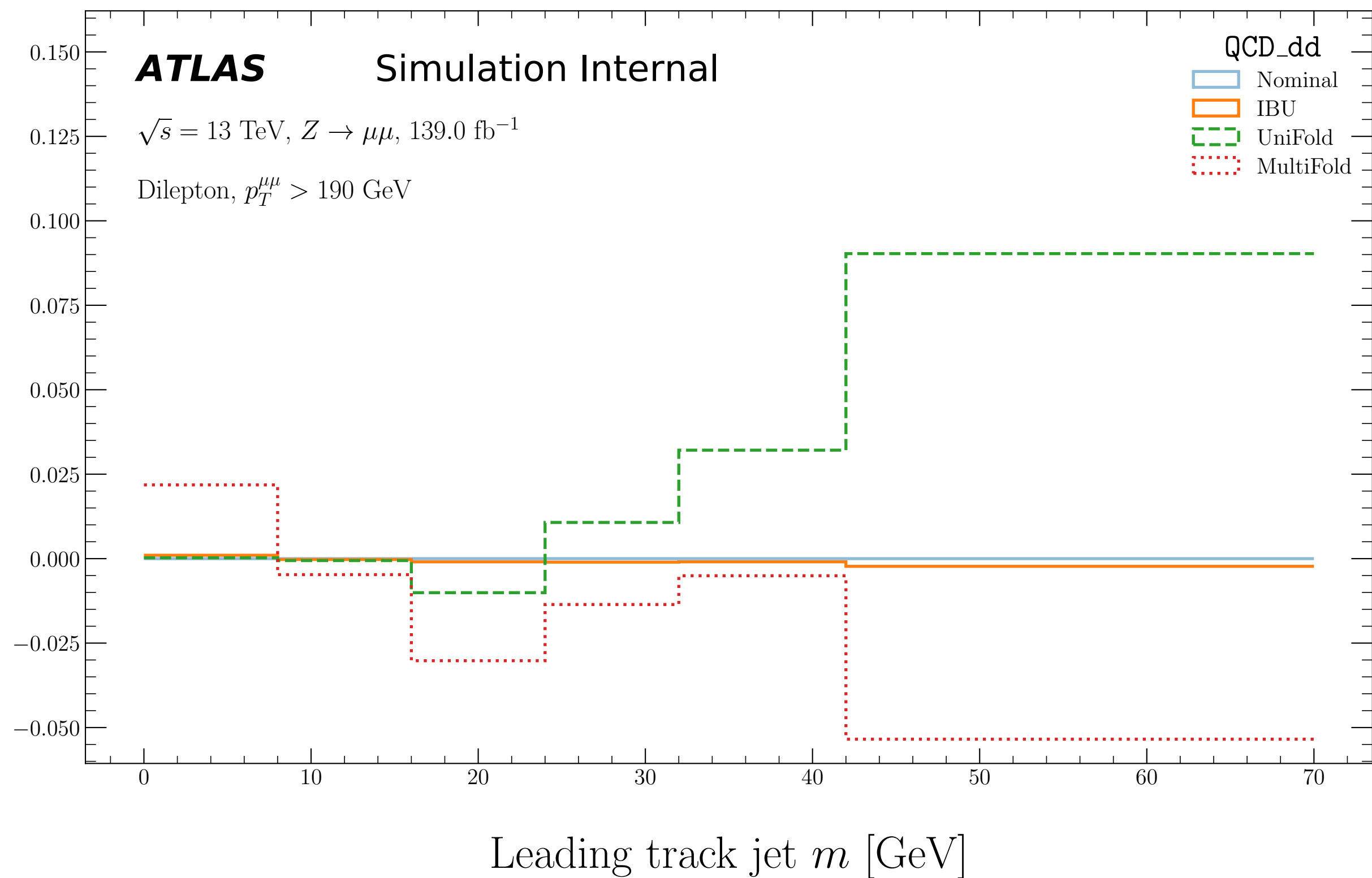
Simulation Internal

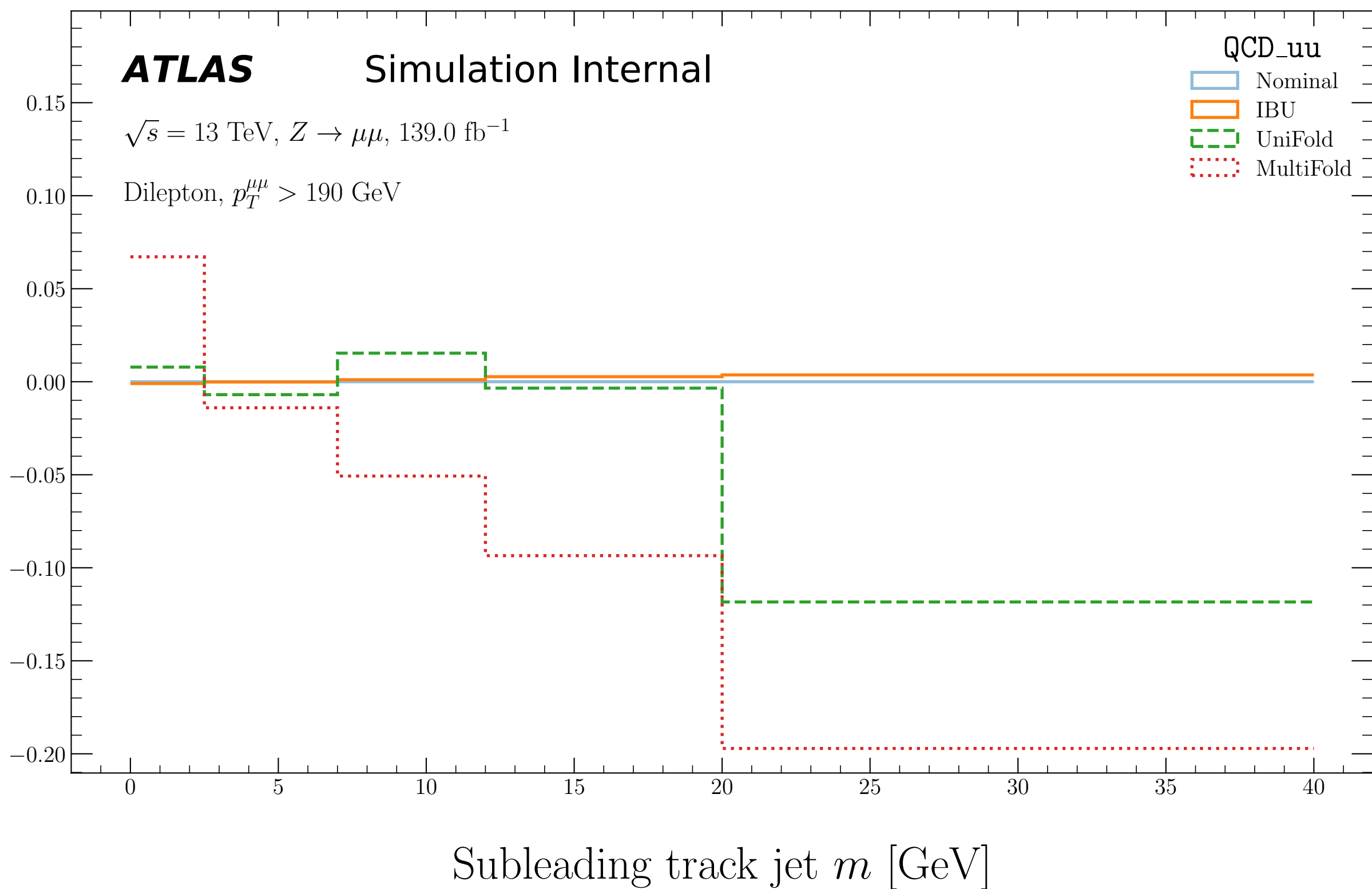
 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

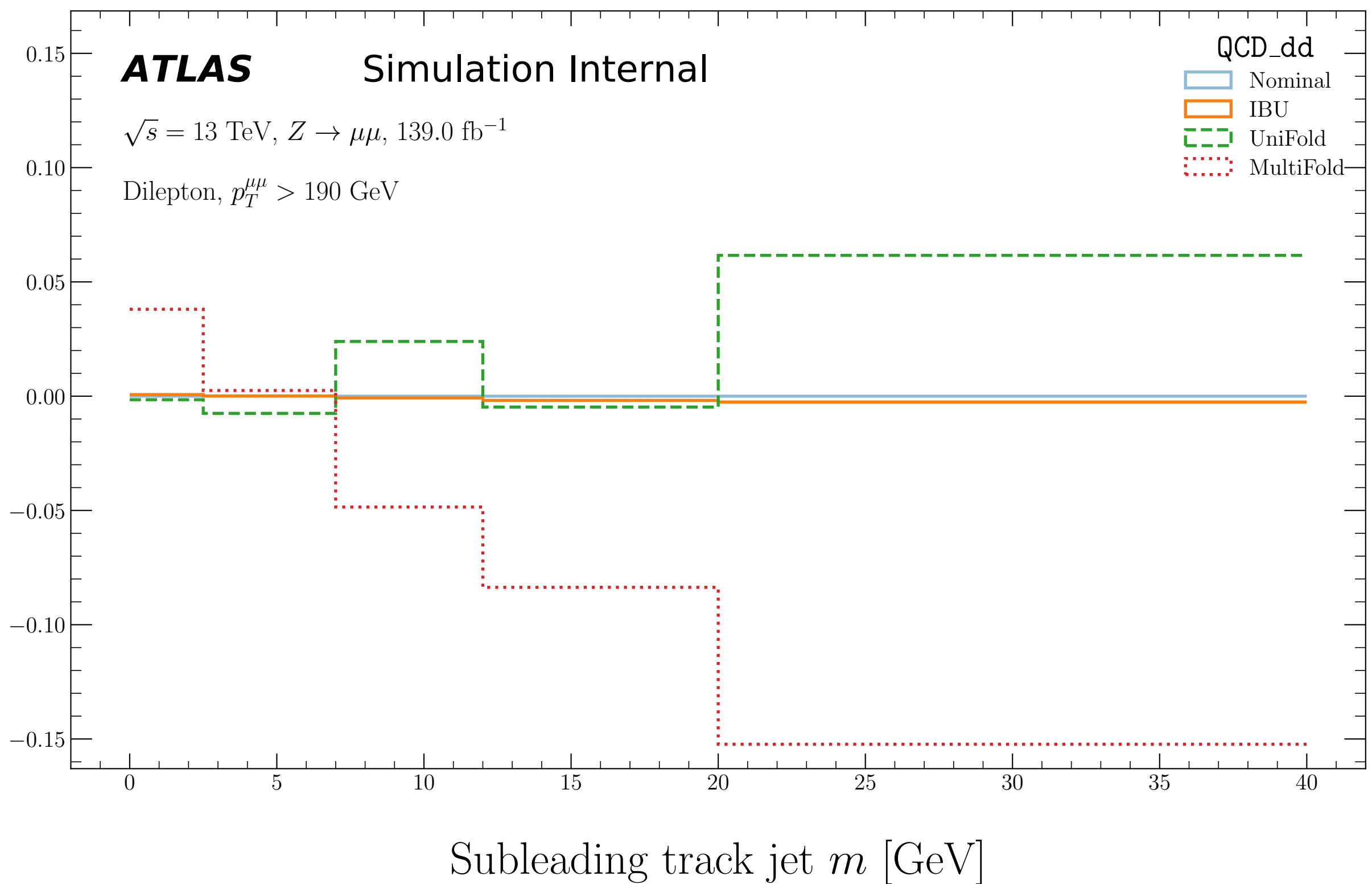
QCD_uu

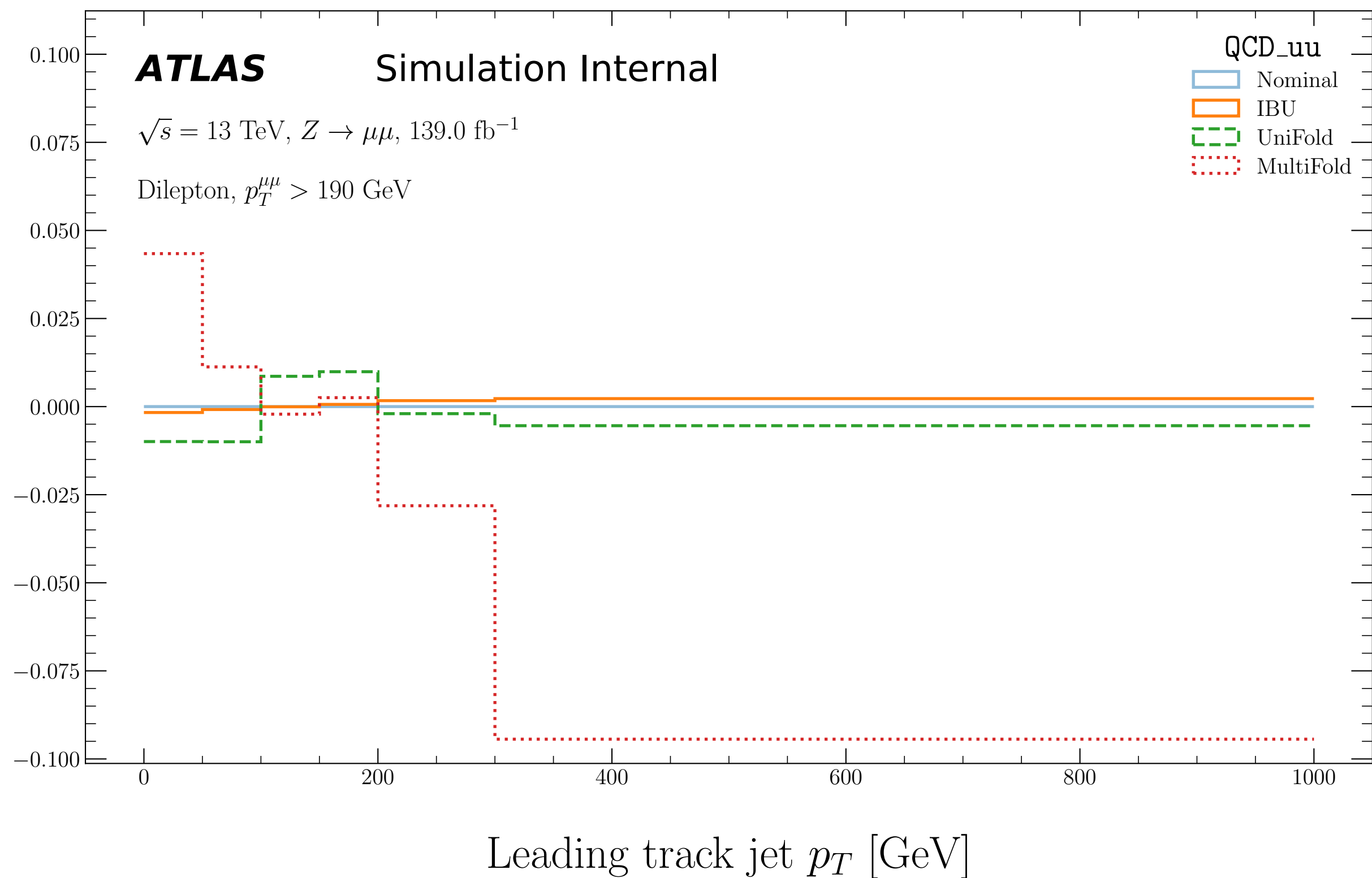
- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet m [GeV]









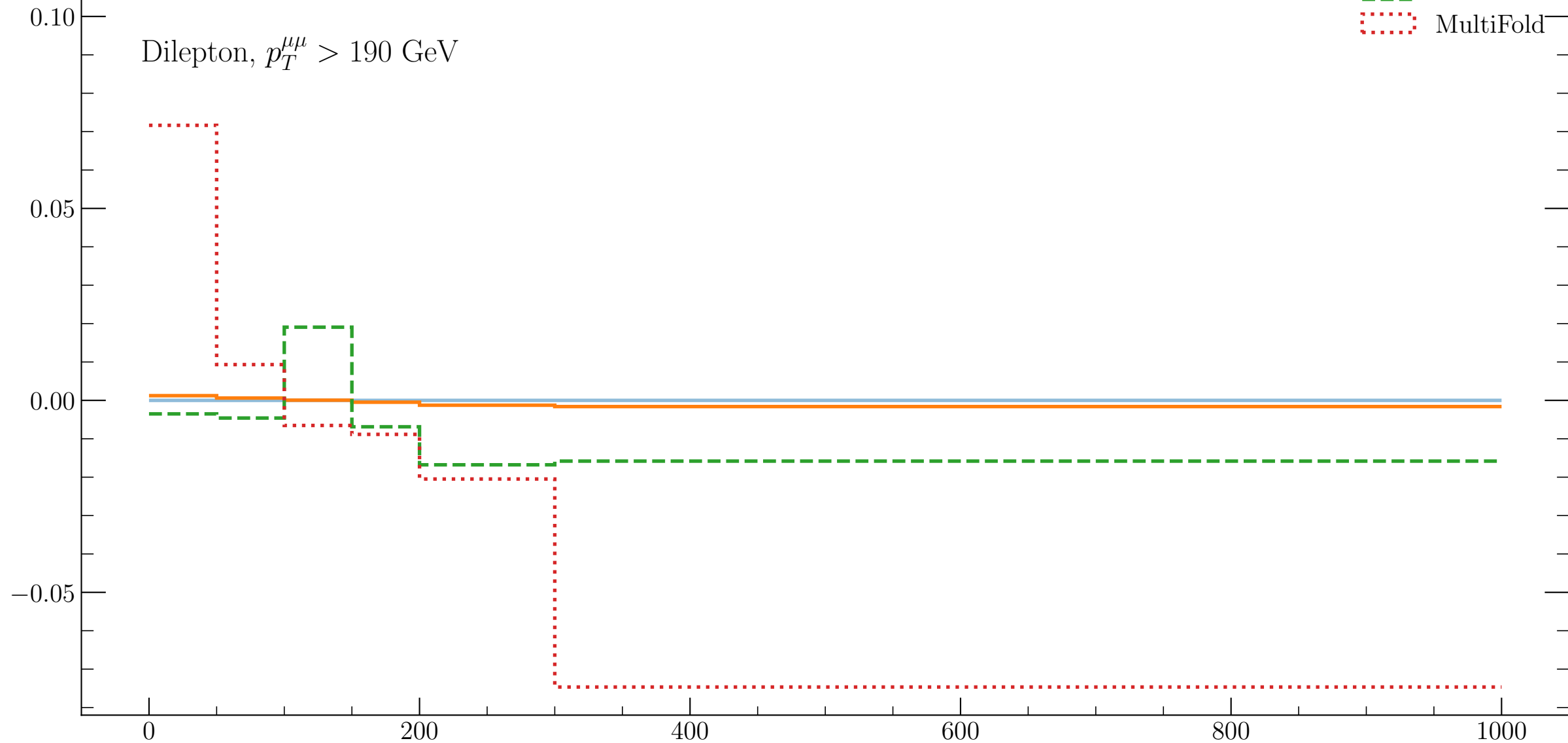
ATLAS

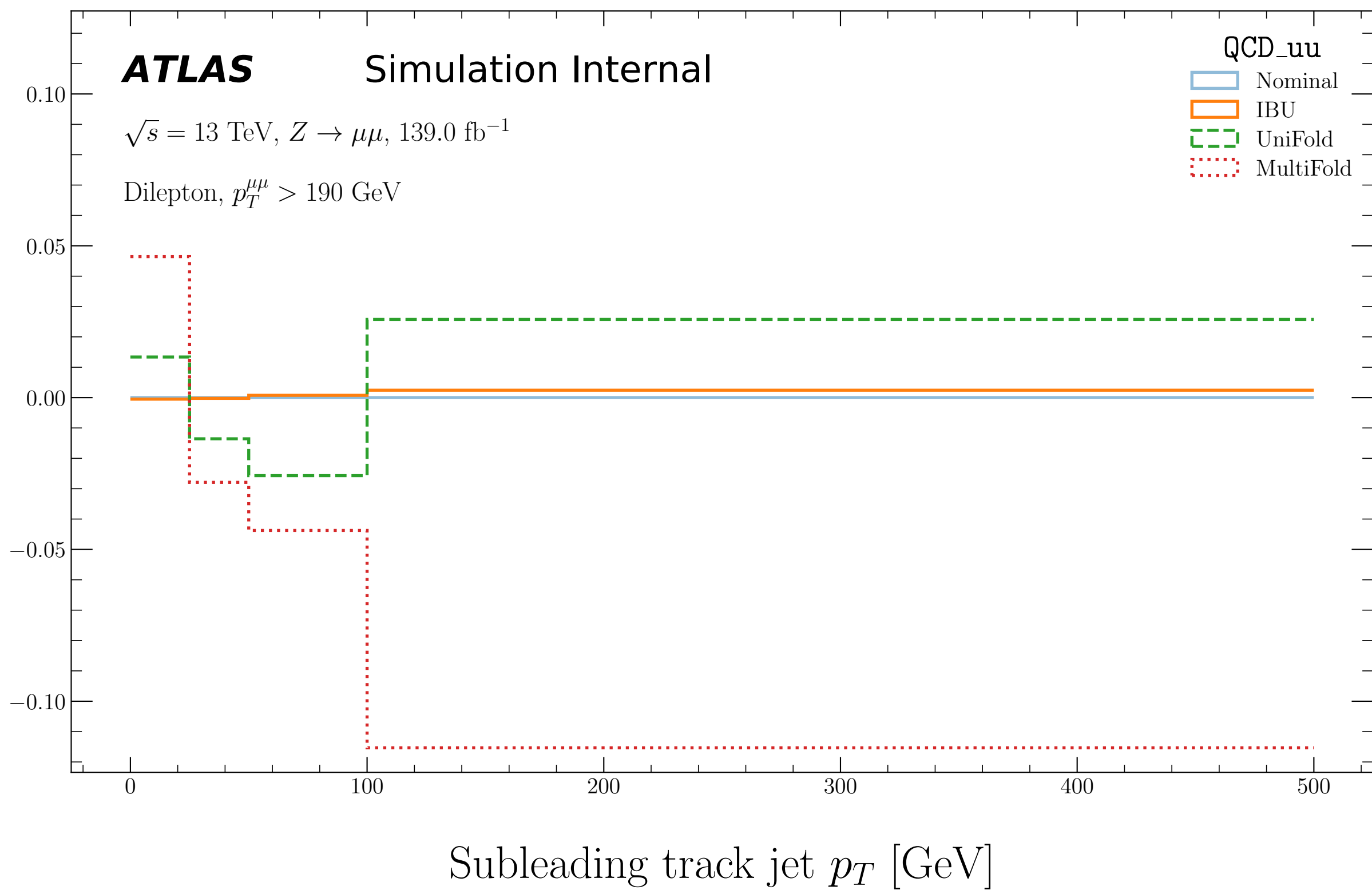
Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
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- MultiFold

Leading track jet p_T [GeV]



Relative Systematic Effect (MultiFold)

ATLAS

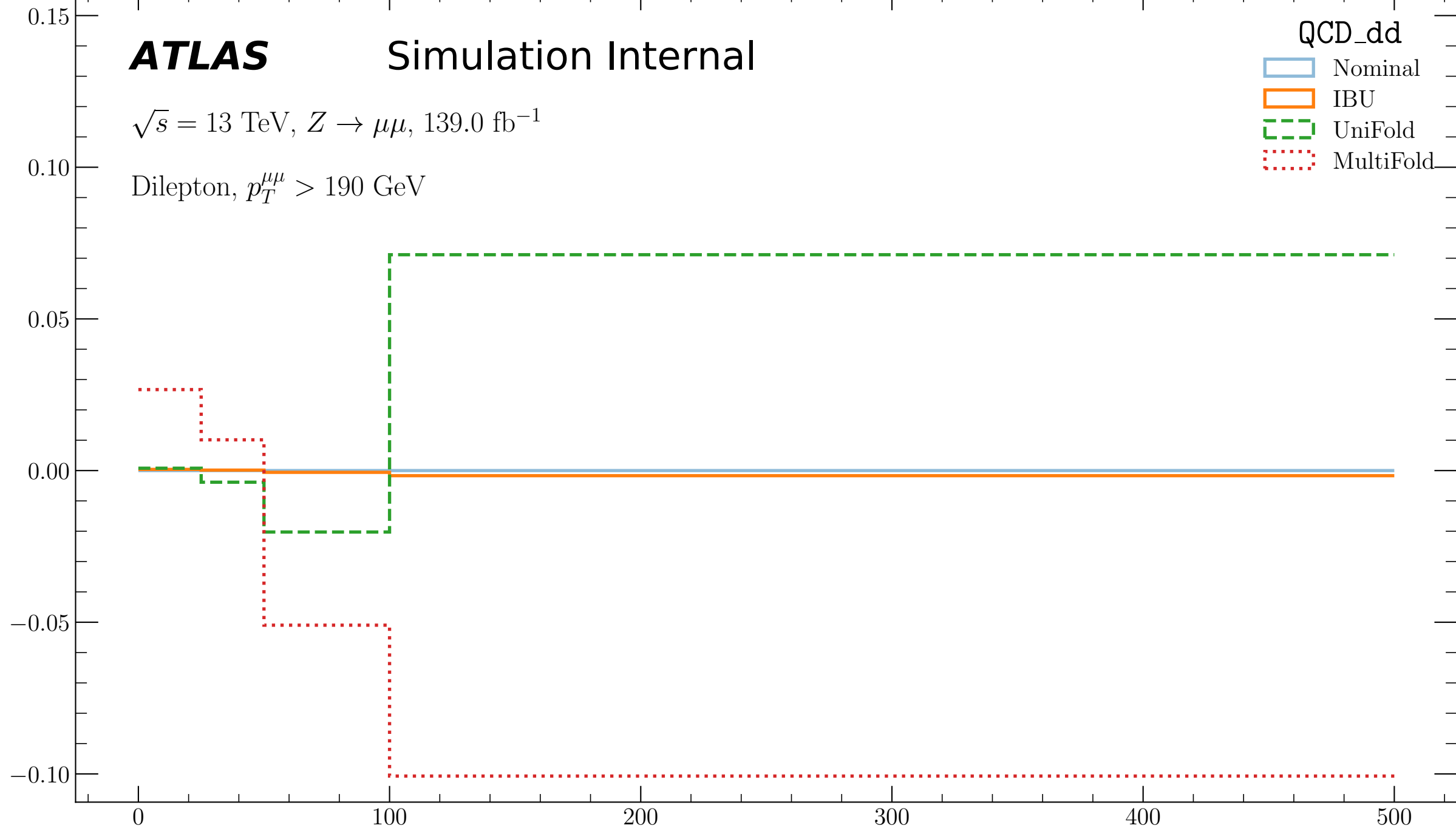
Simulation Internal

$\sqrt{s} = 13 \text{ TeV}$, $Z \rightarrow \mu\mu$, 139.0 fb^{-1}

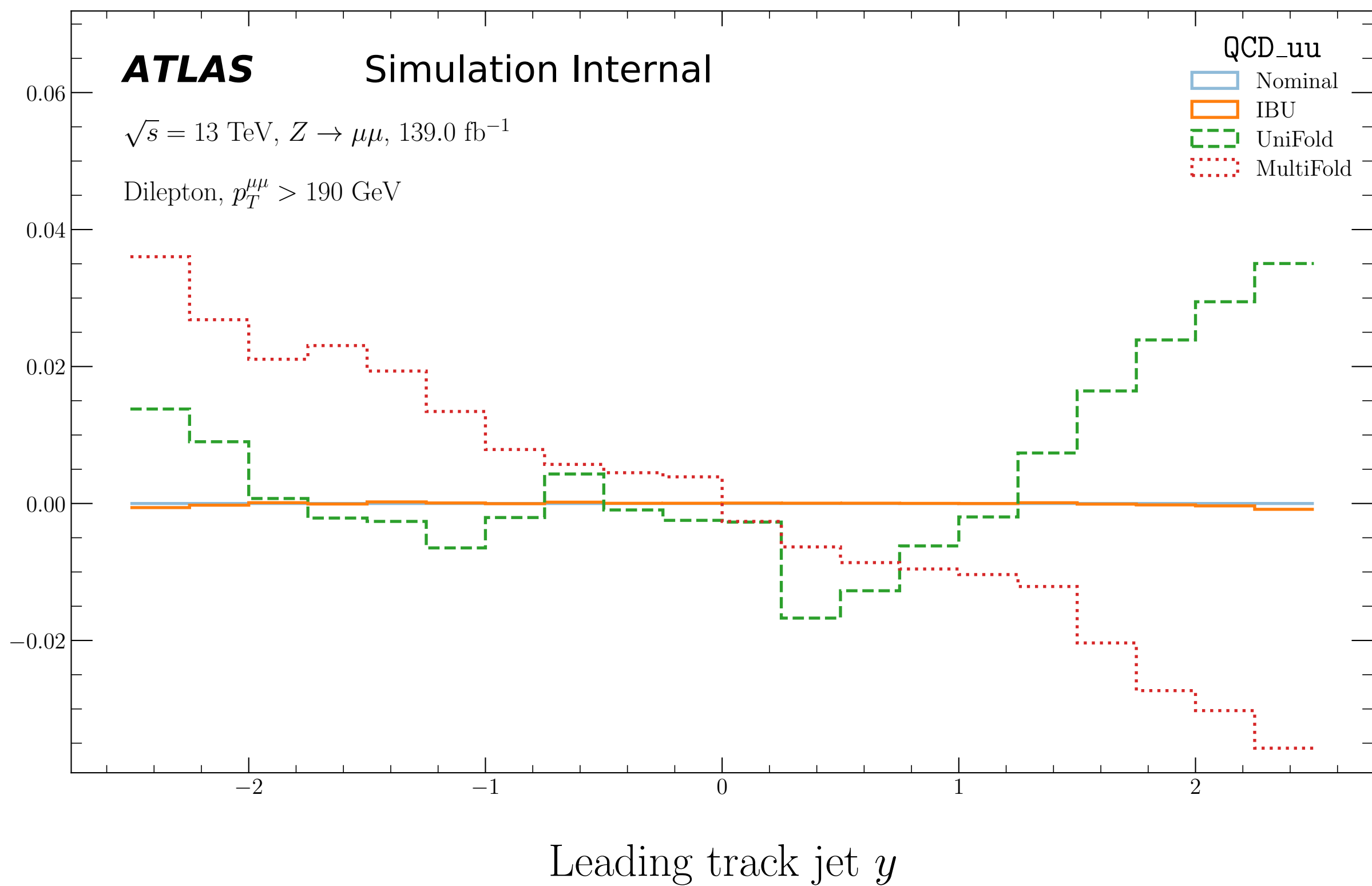
Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

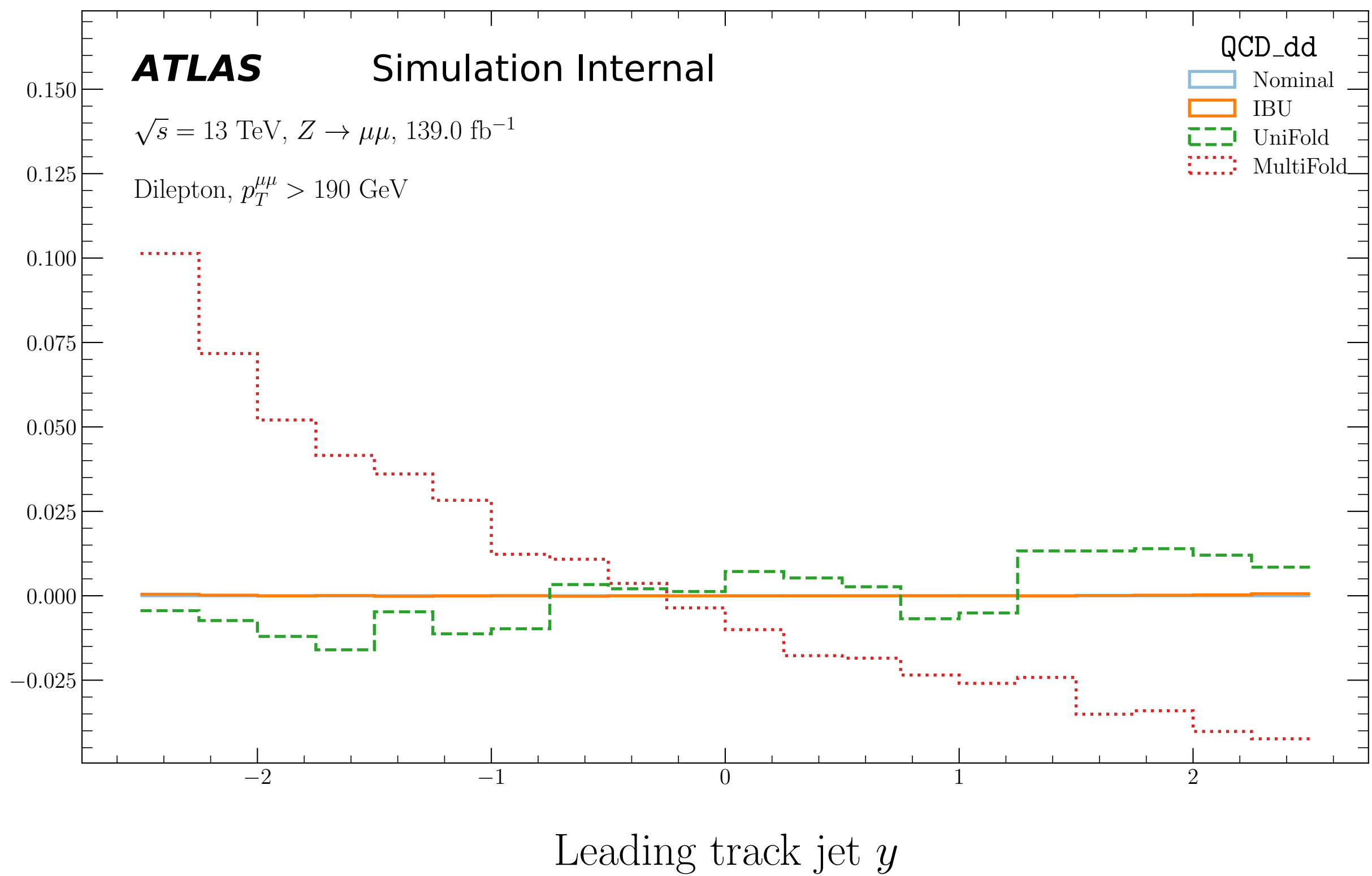
QCD_dd

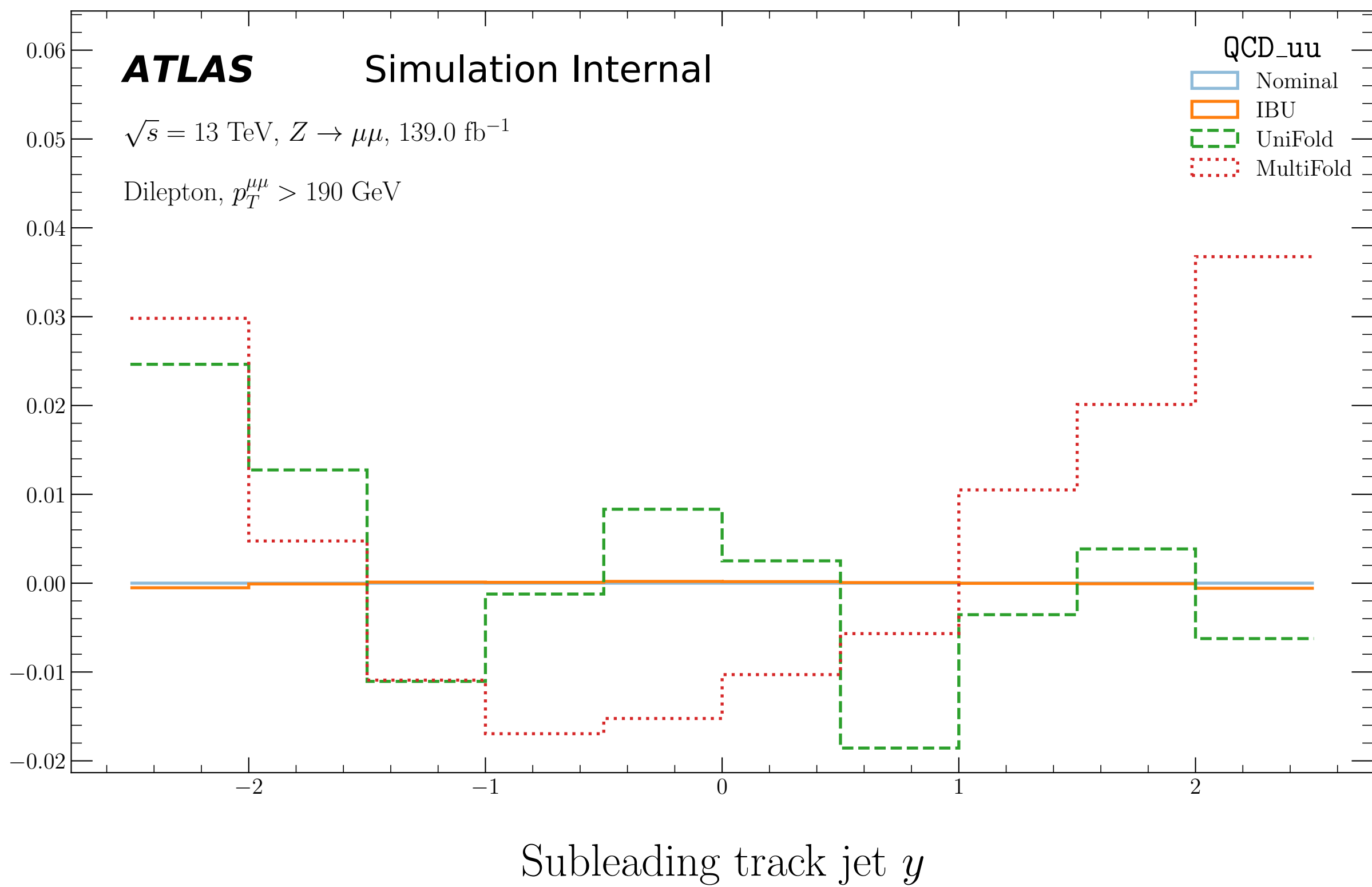
- Nominal
- IBU
- UniFold
- MultiFold



Subleading track jet p_T [GeV]







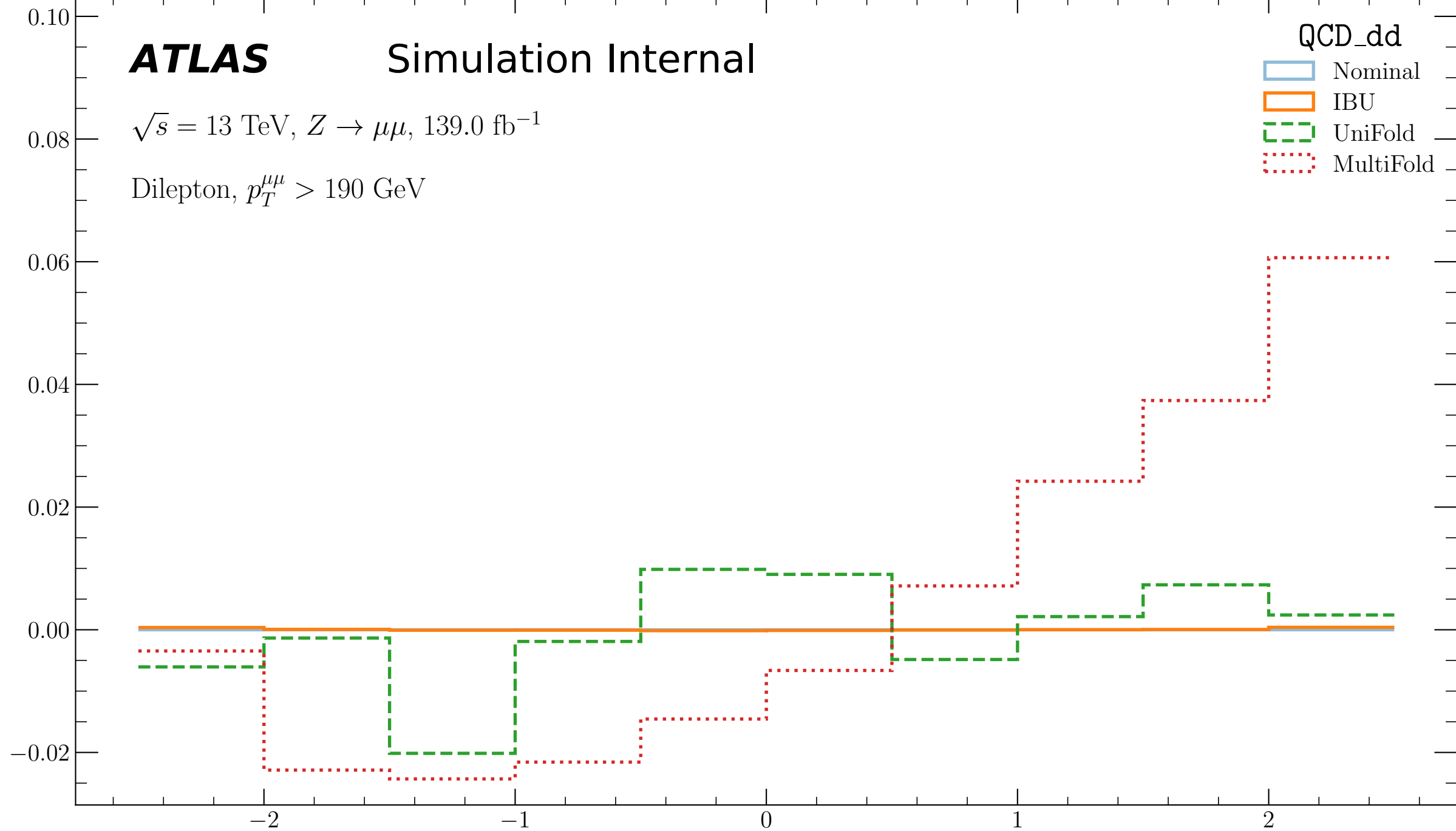
ATLAS

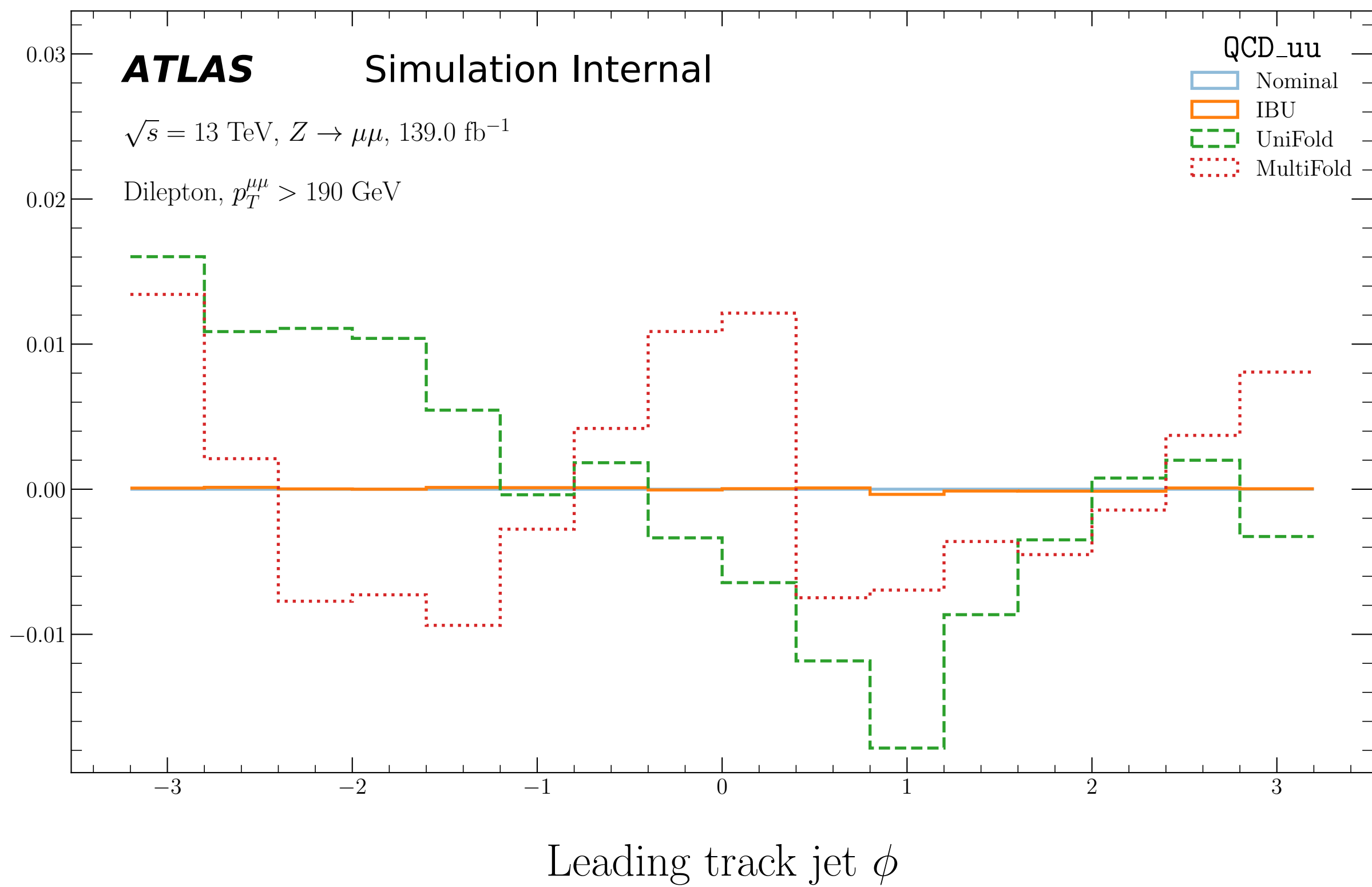
Simulation Internal

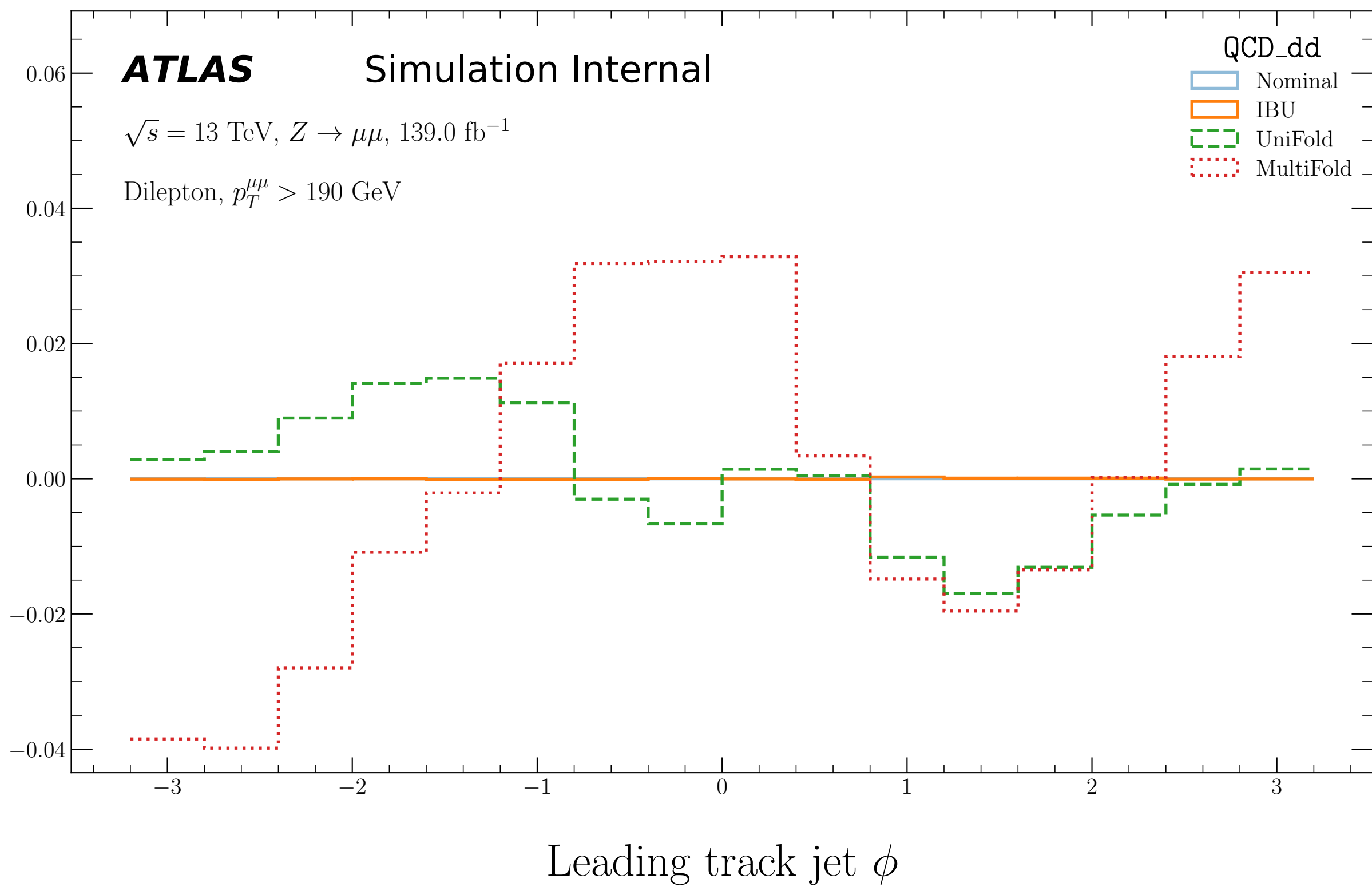
 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
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- UniFold
- MultiFold

Subleading track jet y





ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_uu

- Nominal
- IBU
- UniFold
- MultiFold

0.03
0.02
0.01
0.00
-0.01

-3

-2

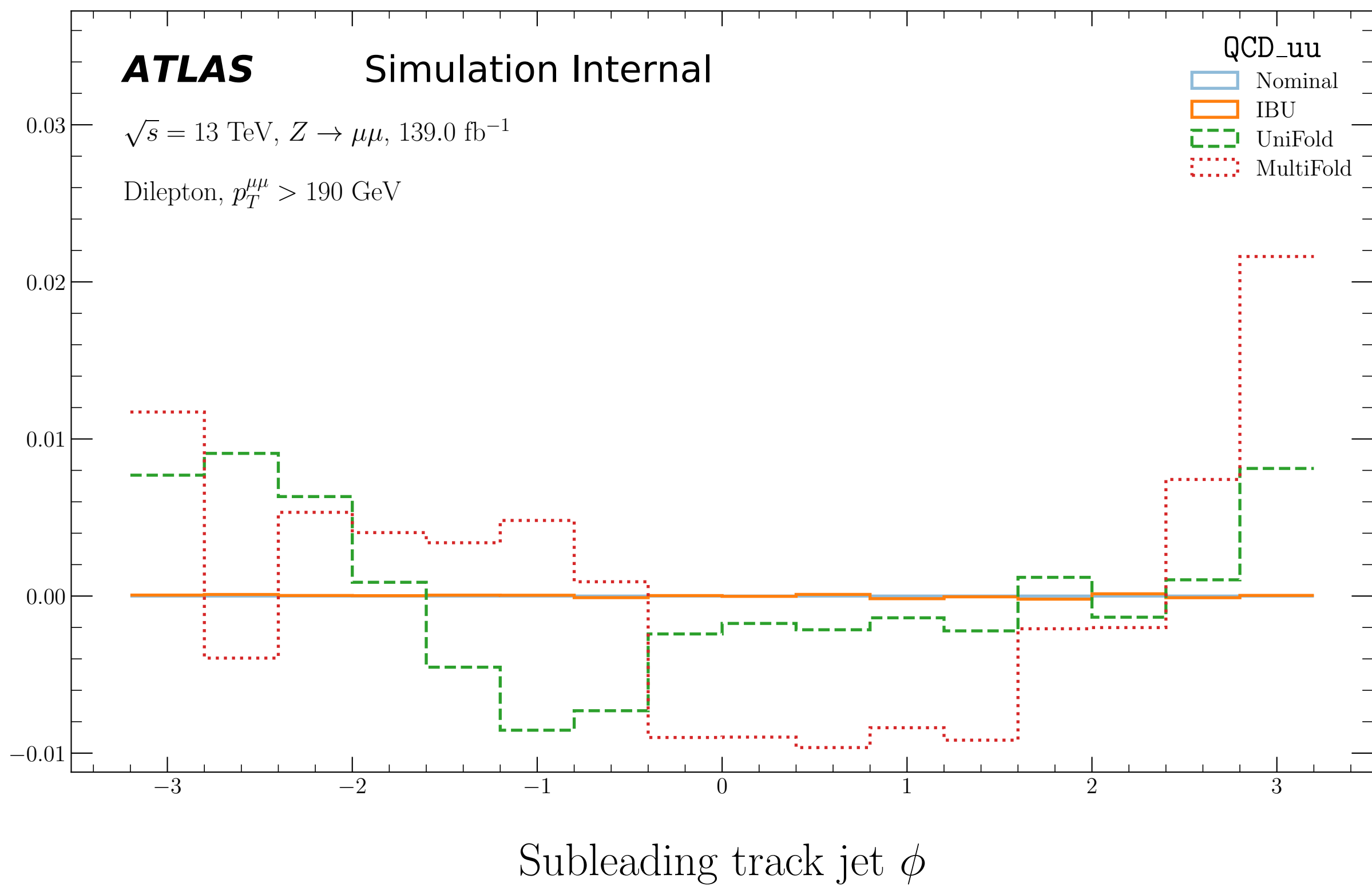
-1

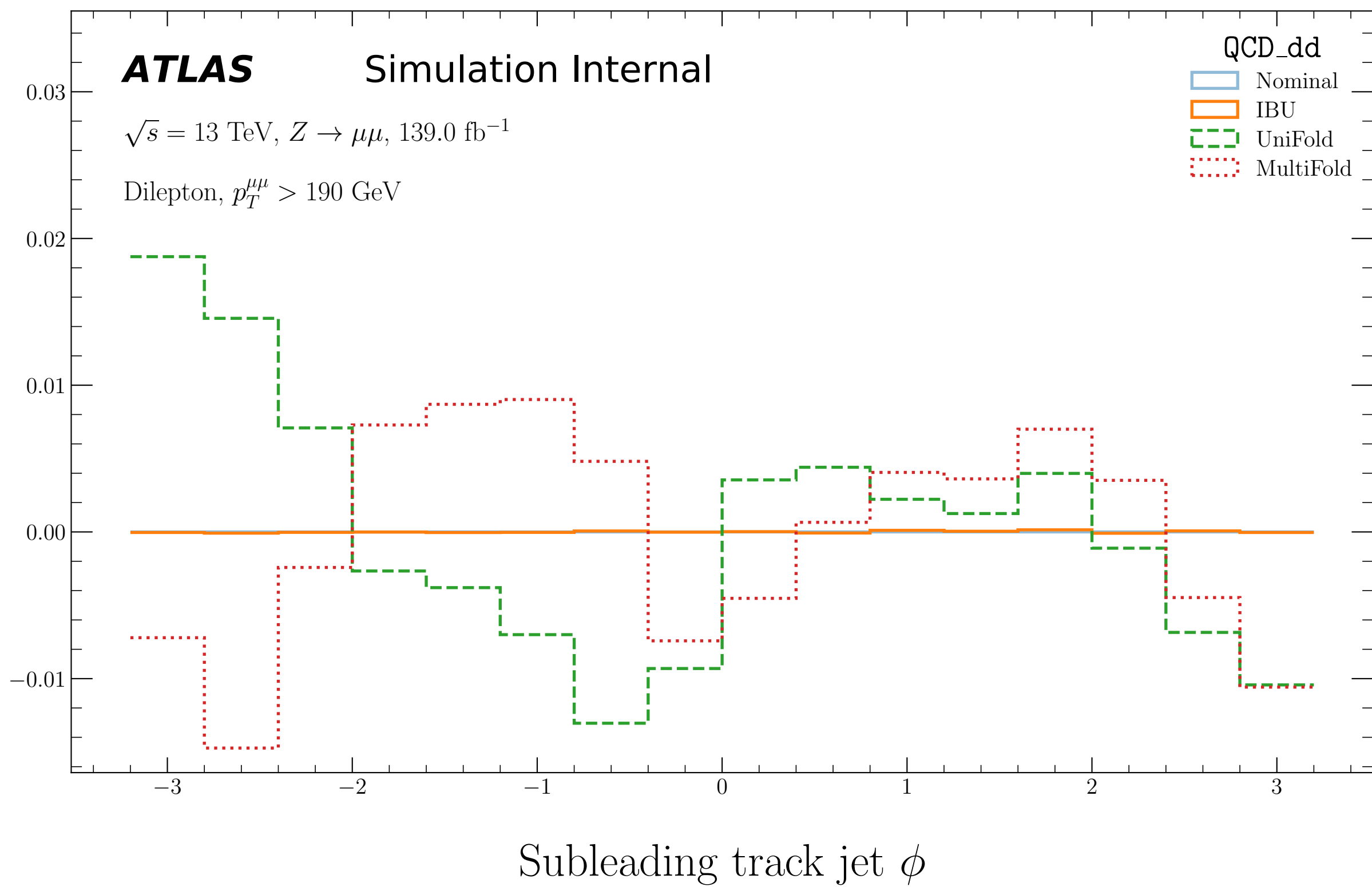
0

1

2

3

Subleading track jet ϕ 



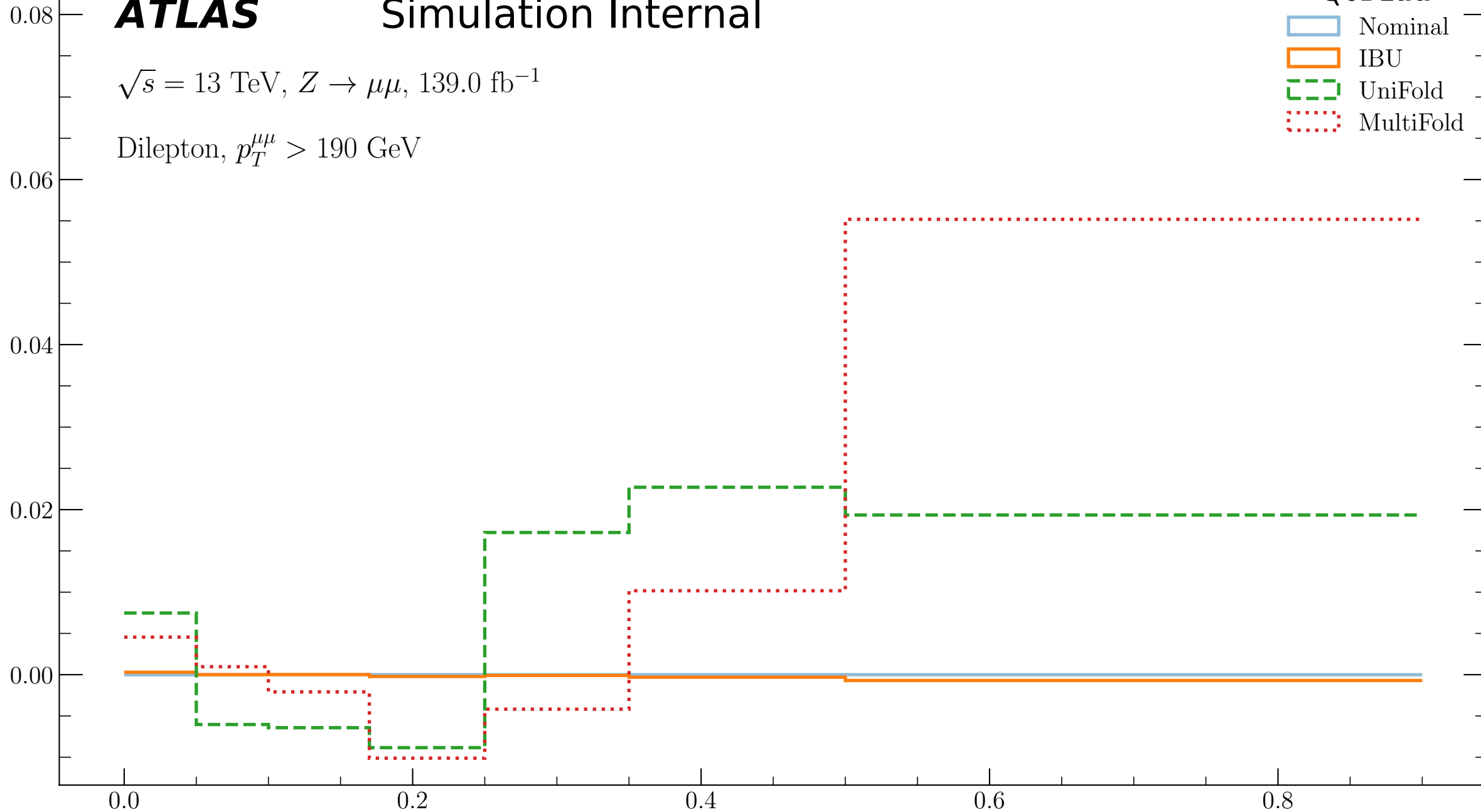
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_uu

- Nominal
- IBU
- UniFold
- MultiFold



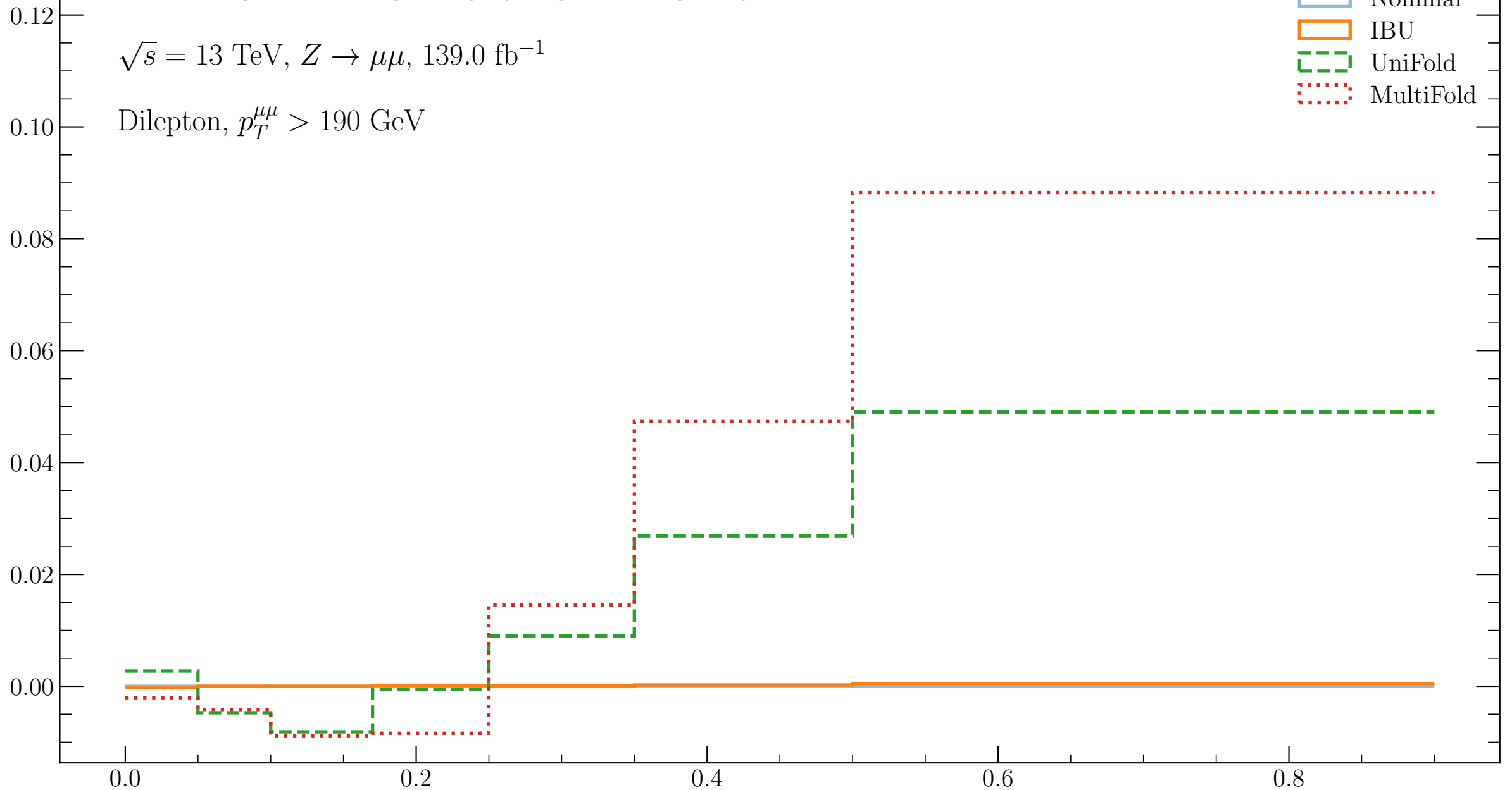
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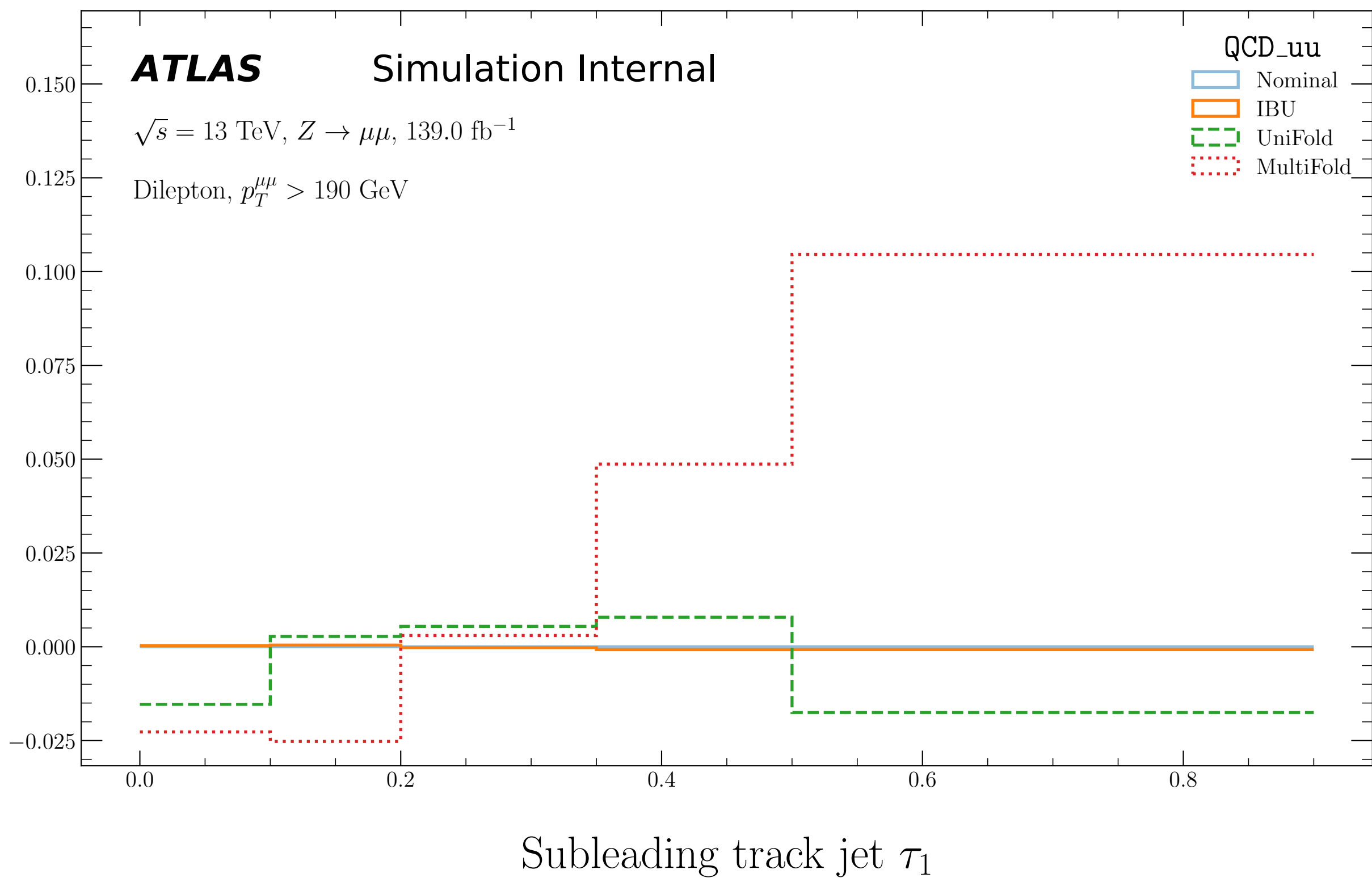
Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_1



Relative Systematic Effect (MultiFold)

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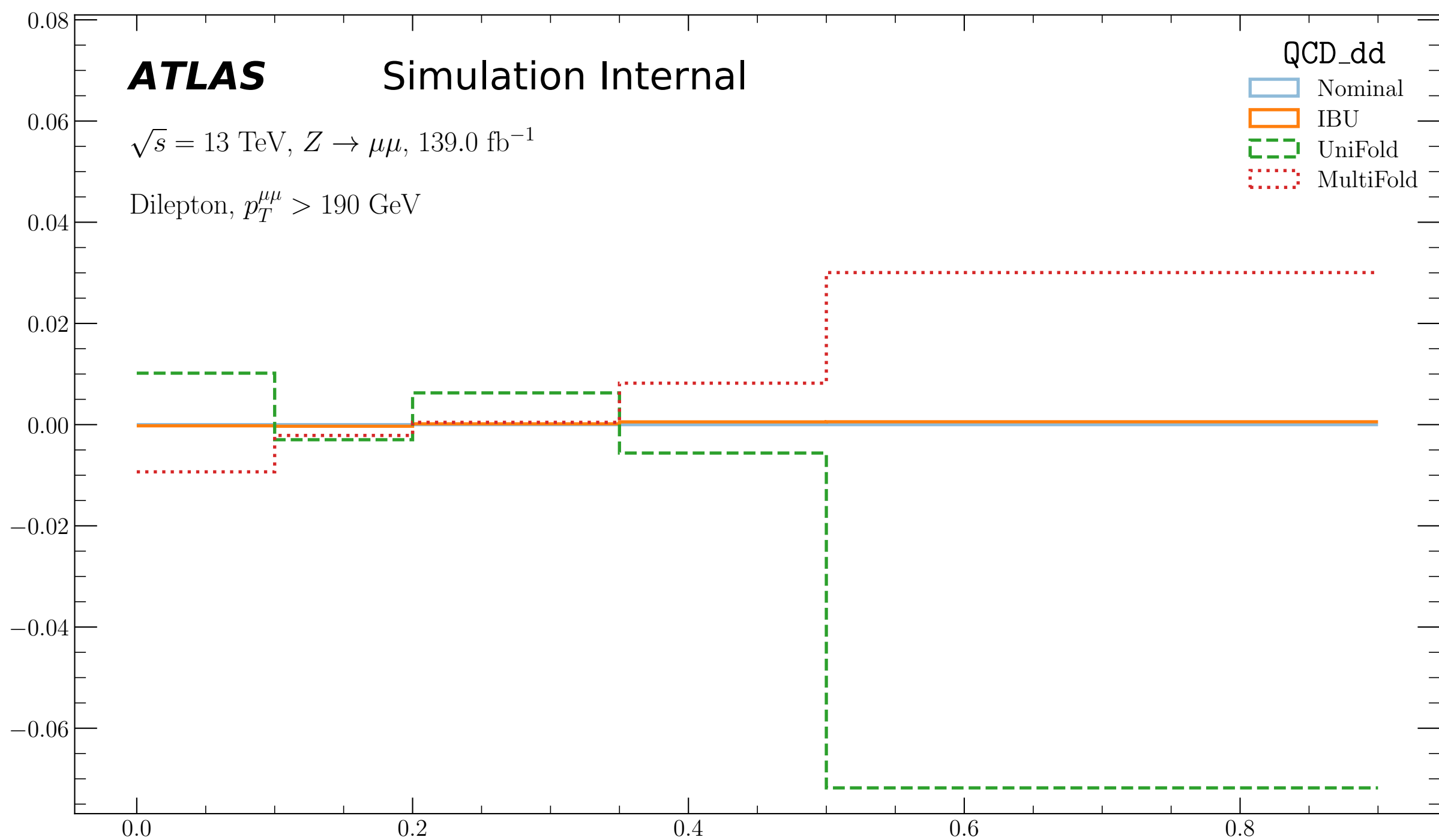
Simulation Internal

$\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$

Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold



Subleading track jet τ_1

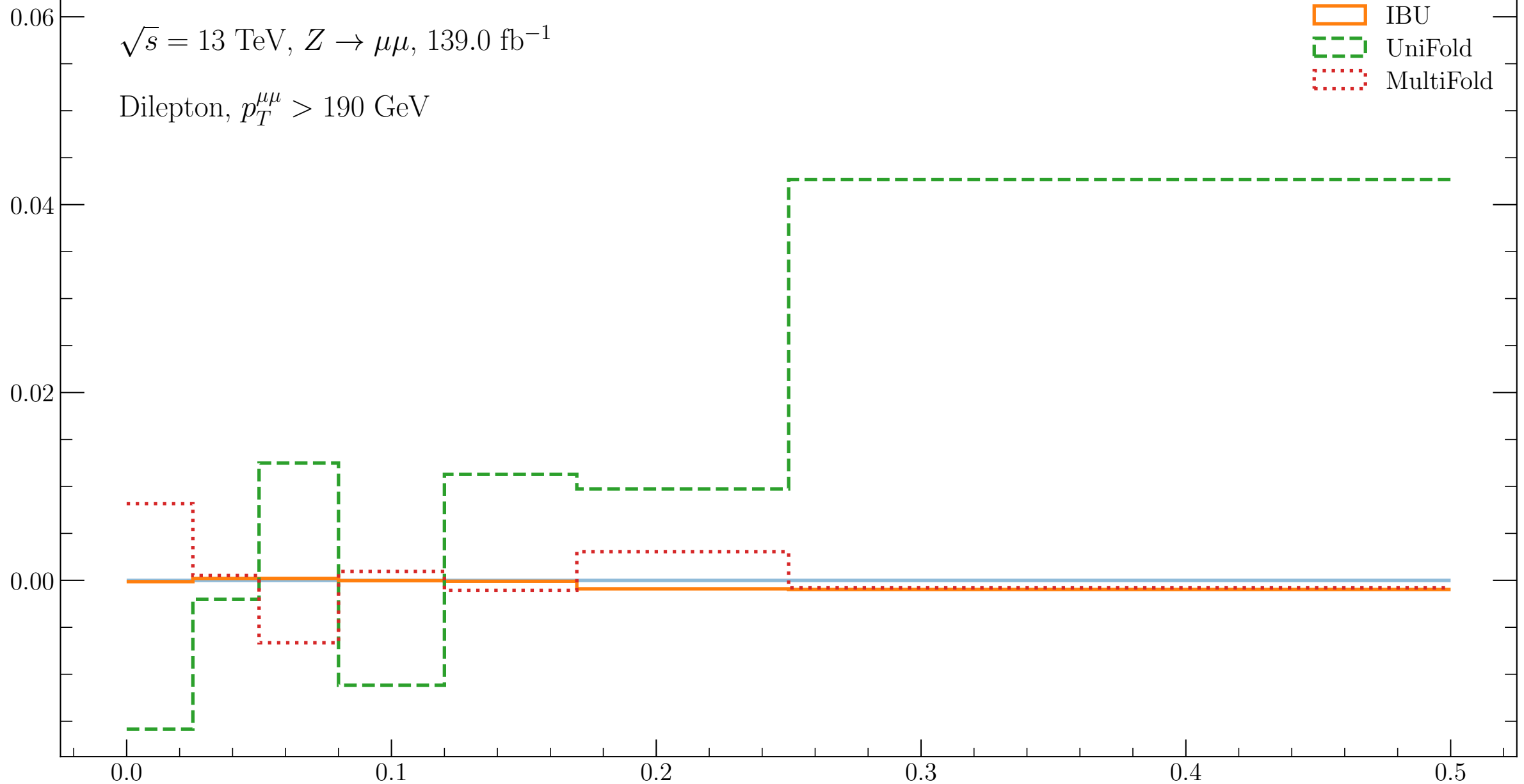
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_uu

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_2

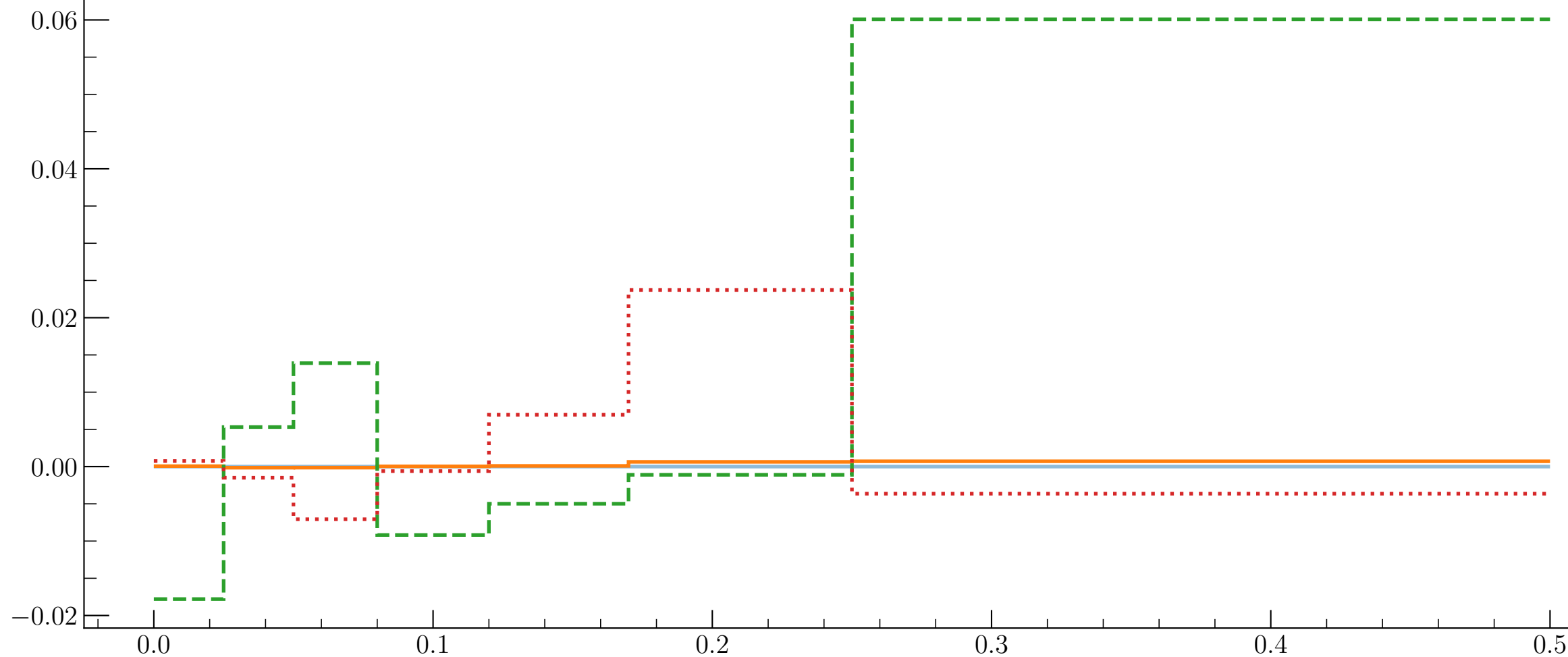
ATLAS

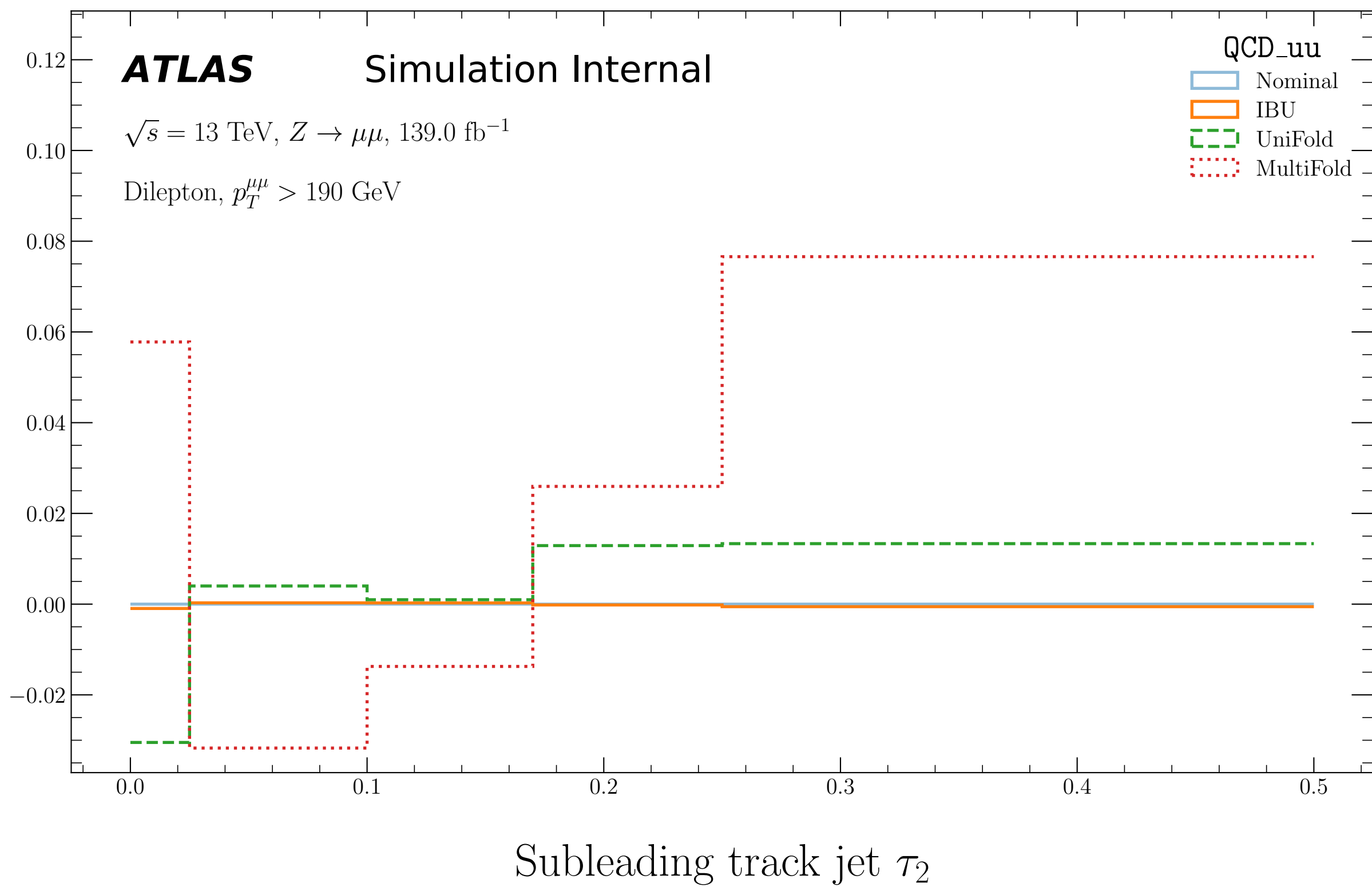
Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_2



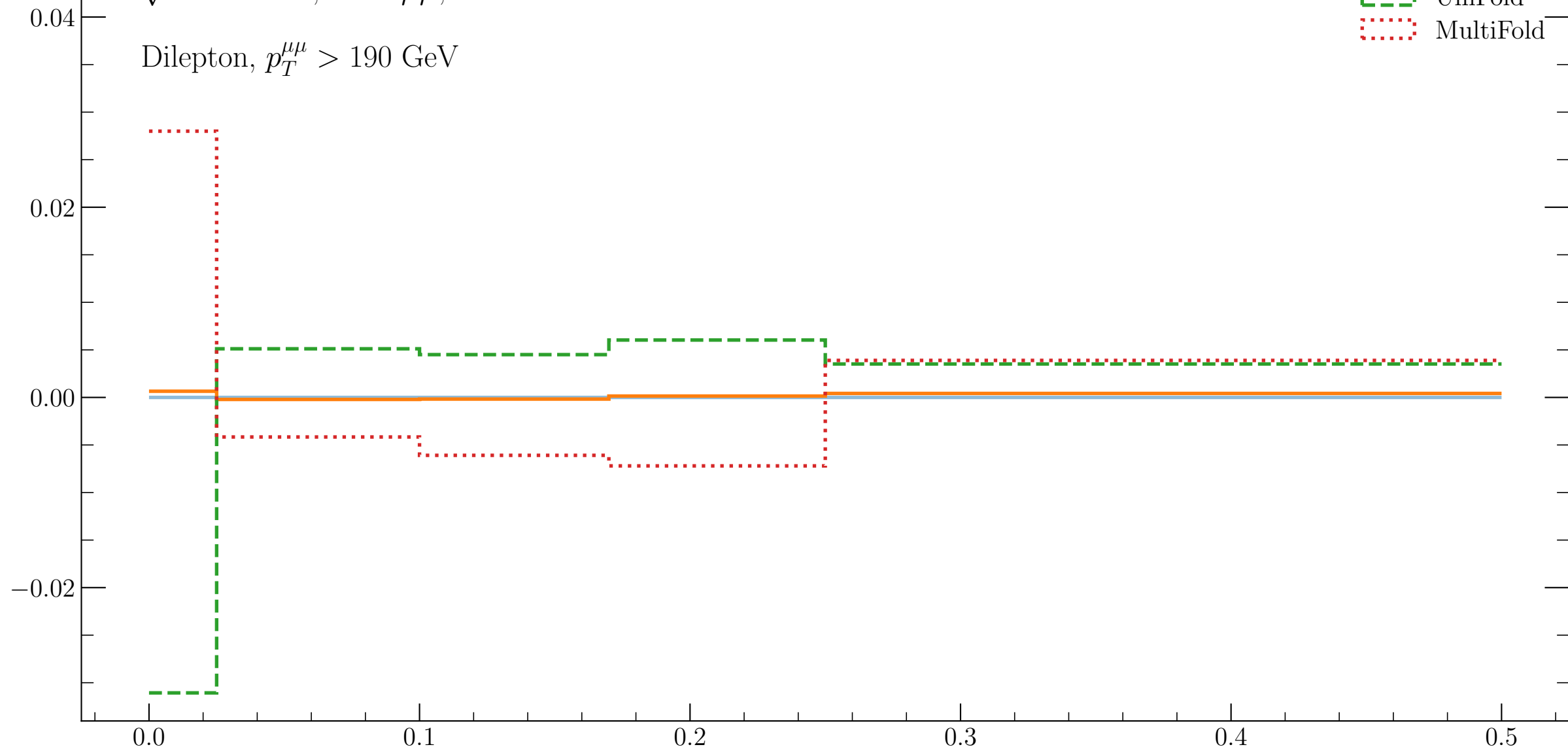
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_2

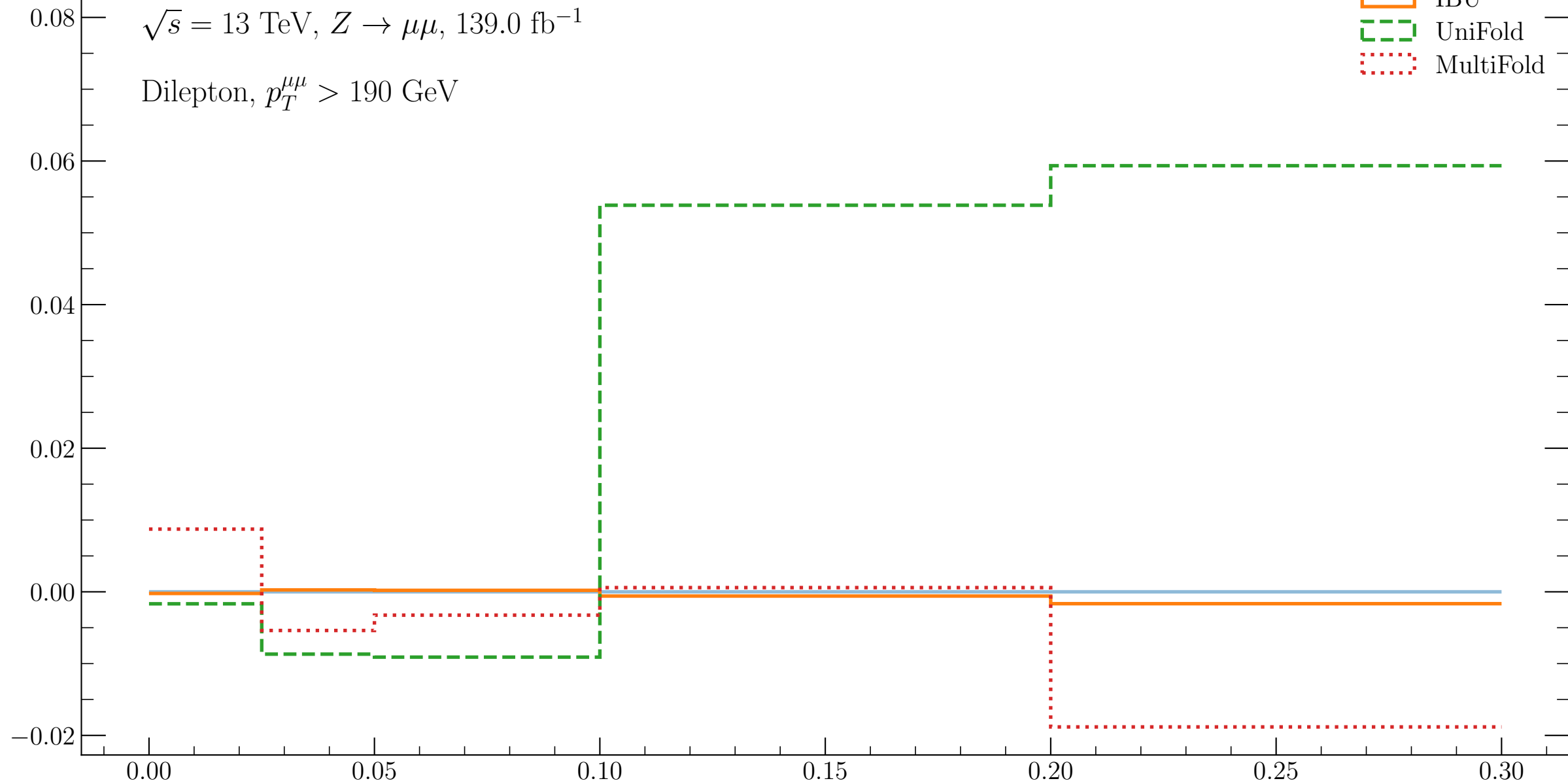
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_uu

- Nominal
- IBU
- UniFold
- MultiFold



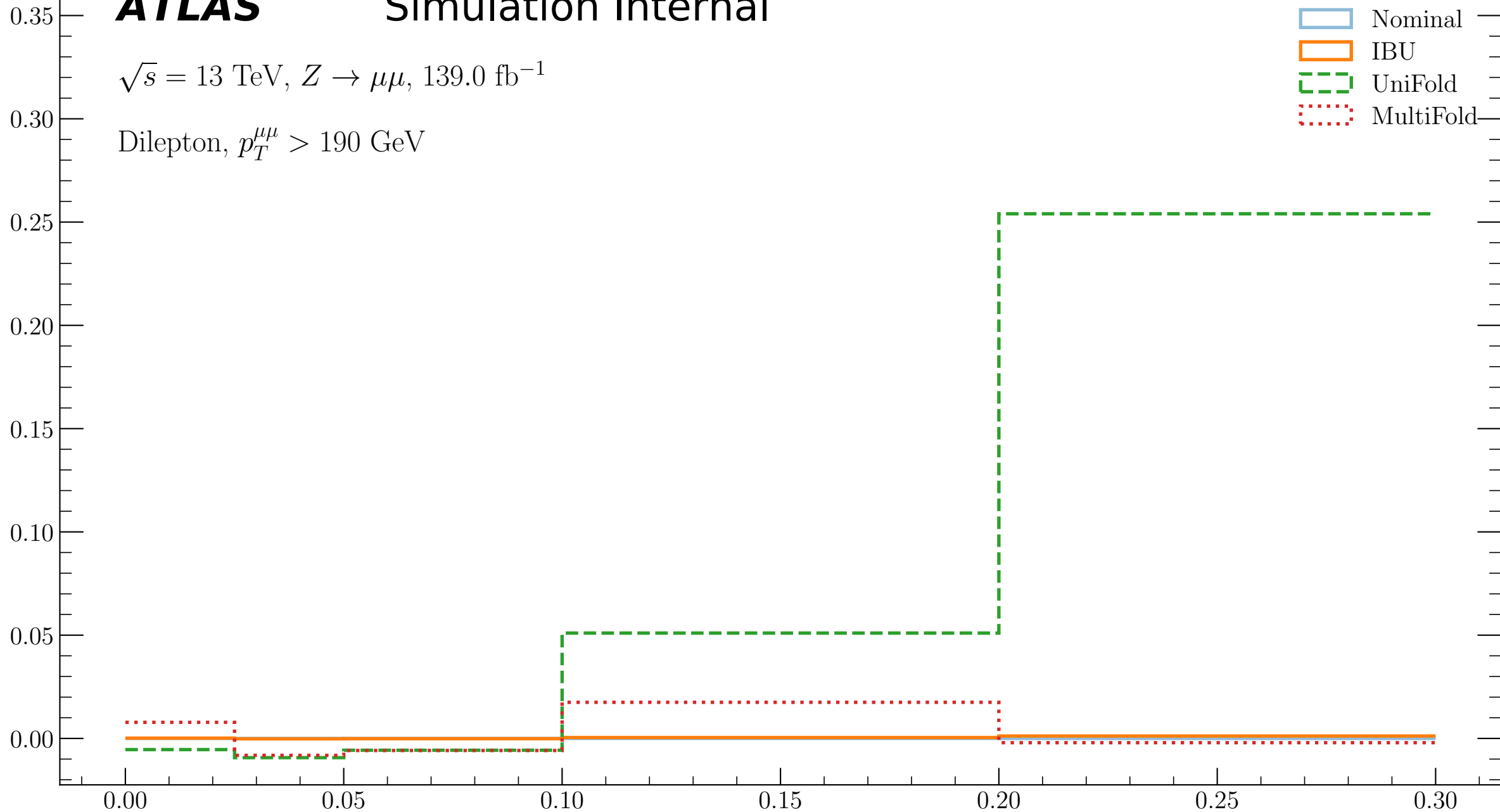
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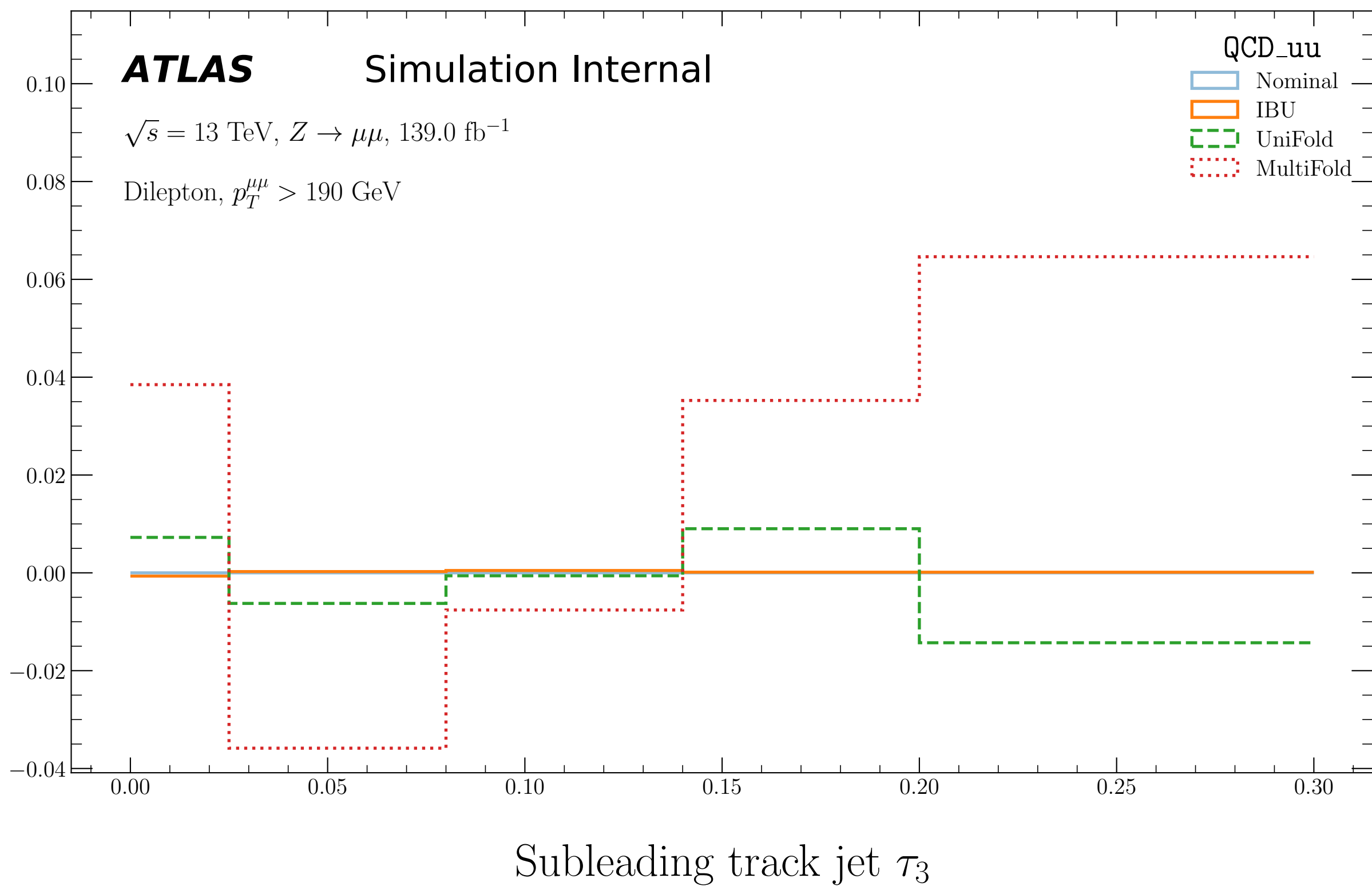
Simulation Internal

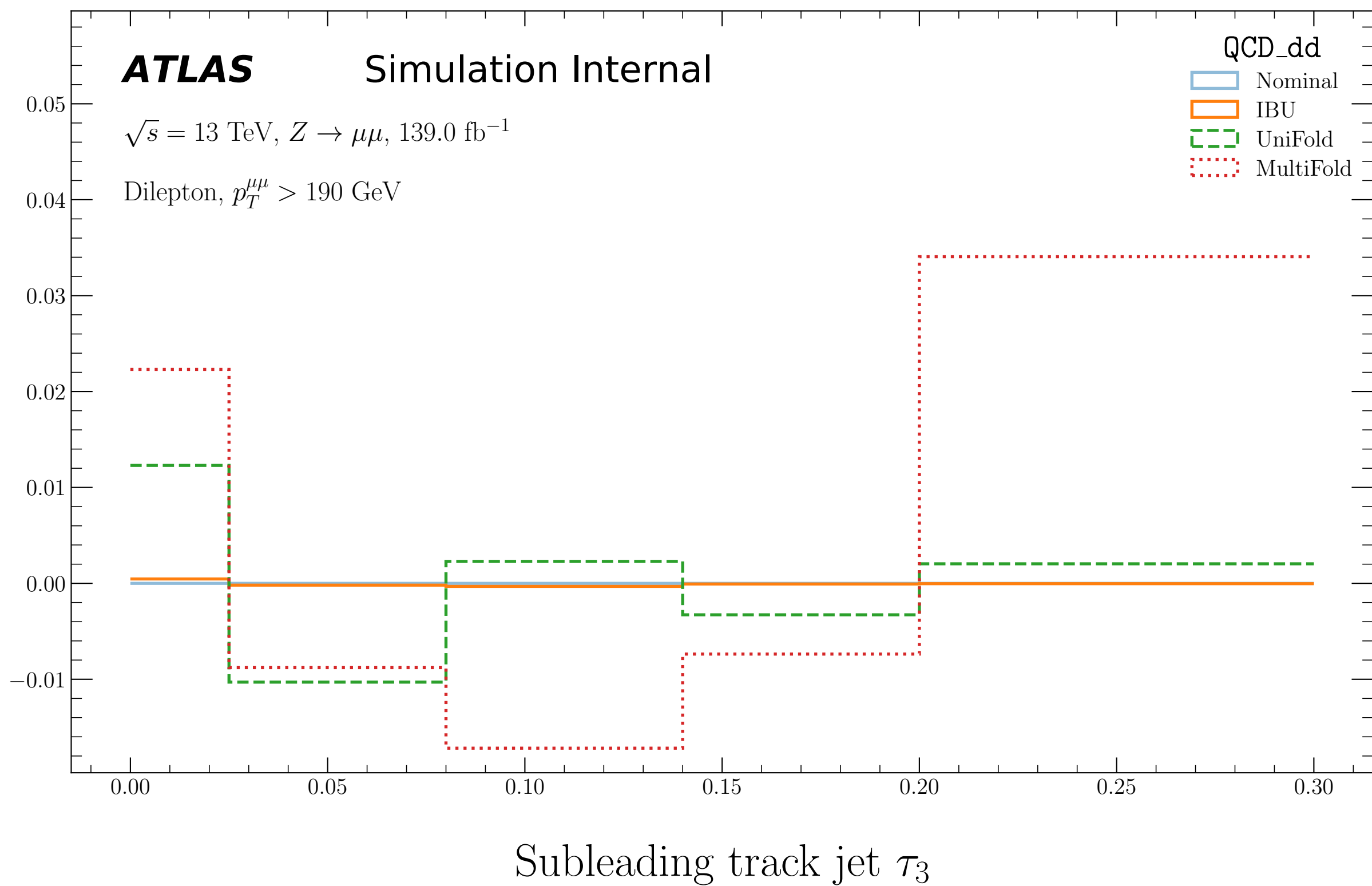
 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

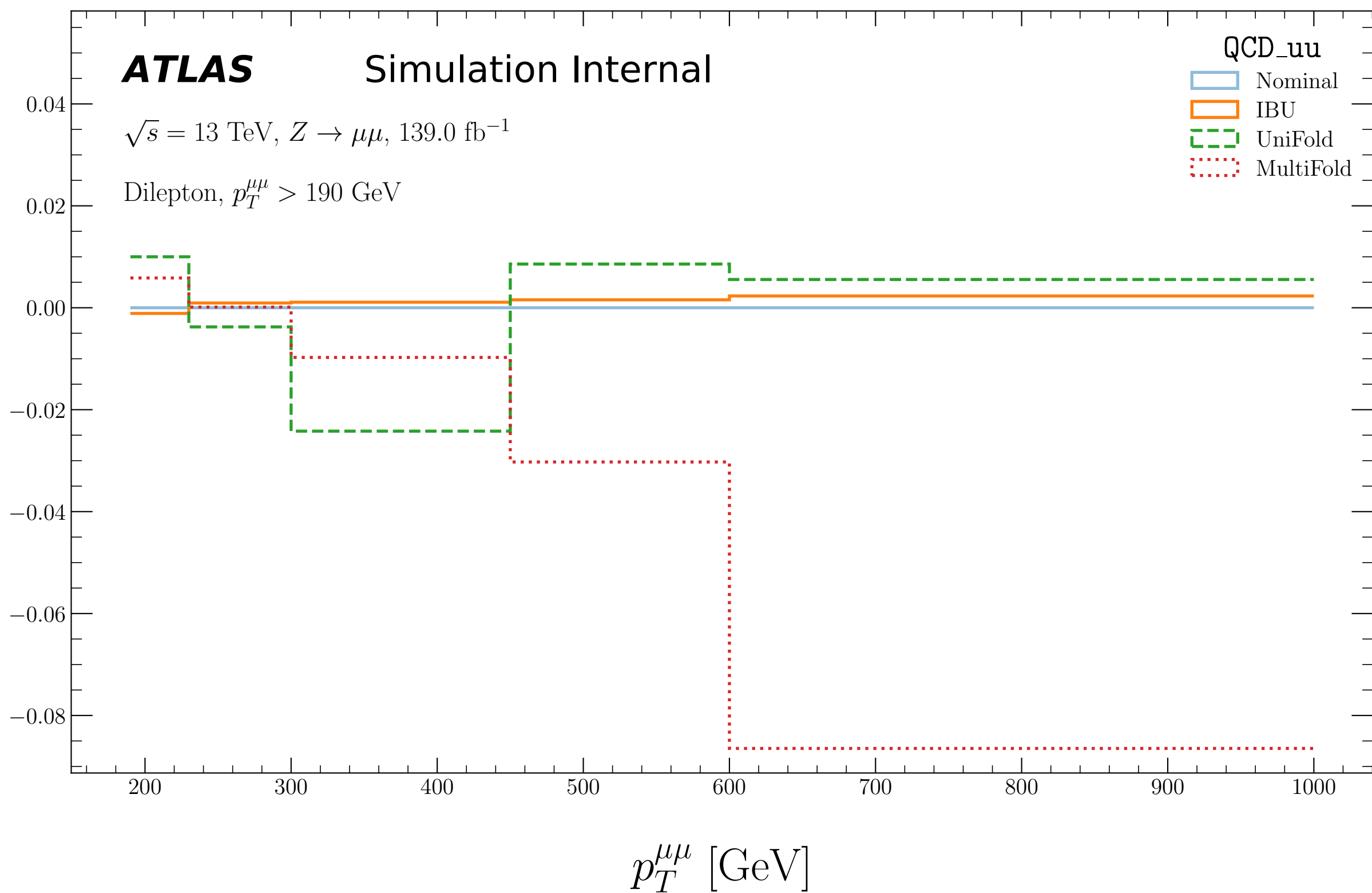
QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3







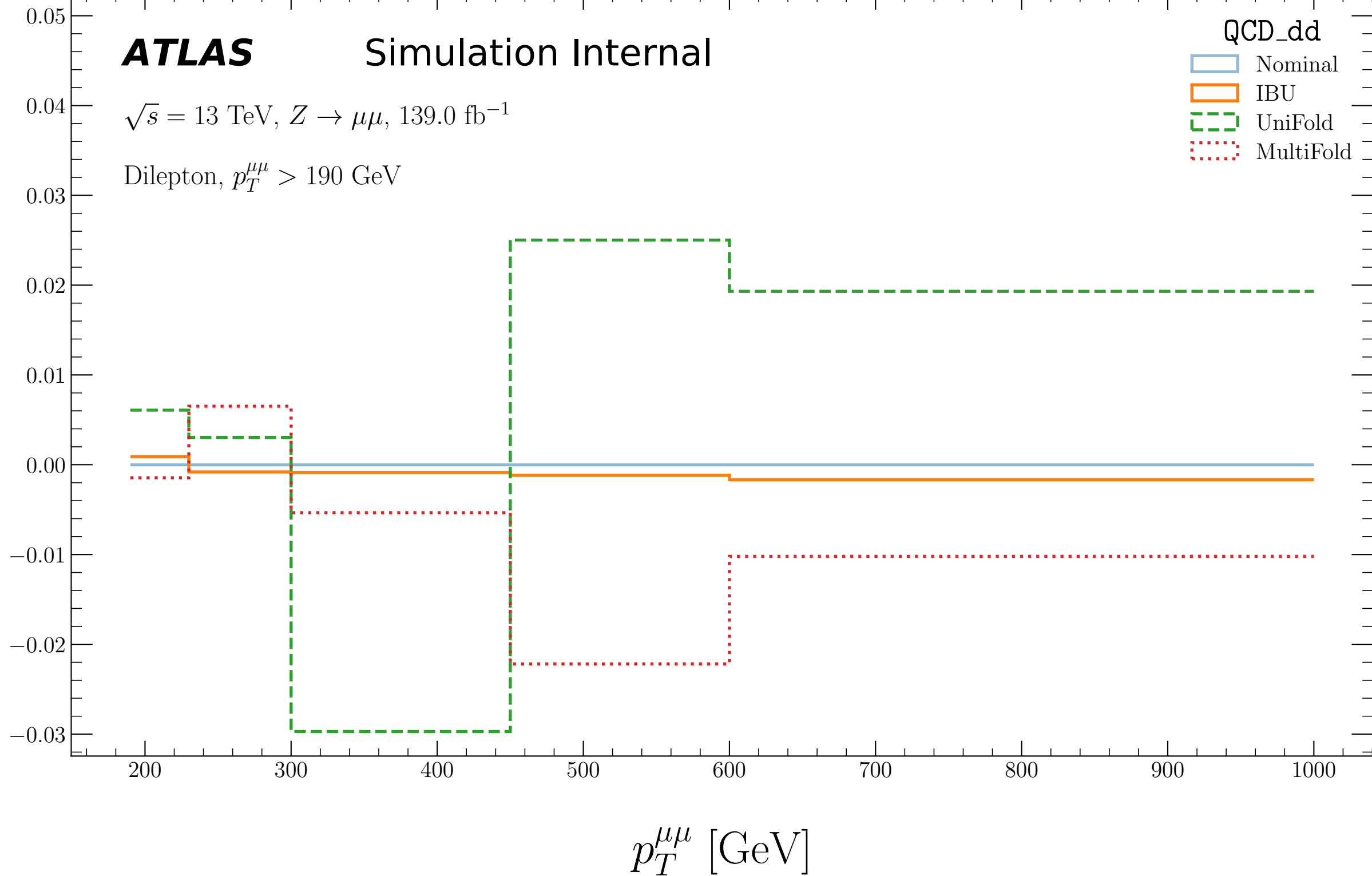
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

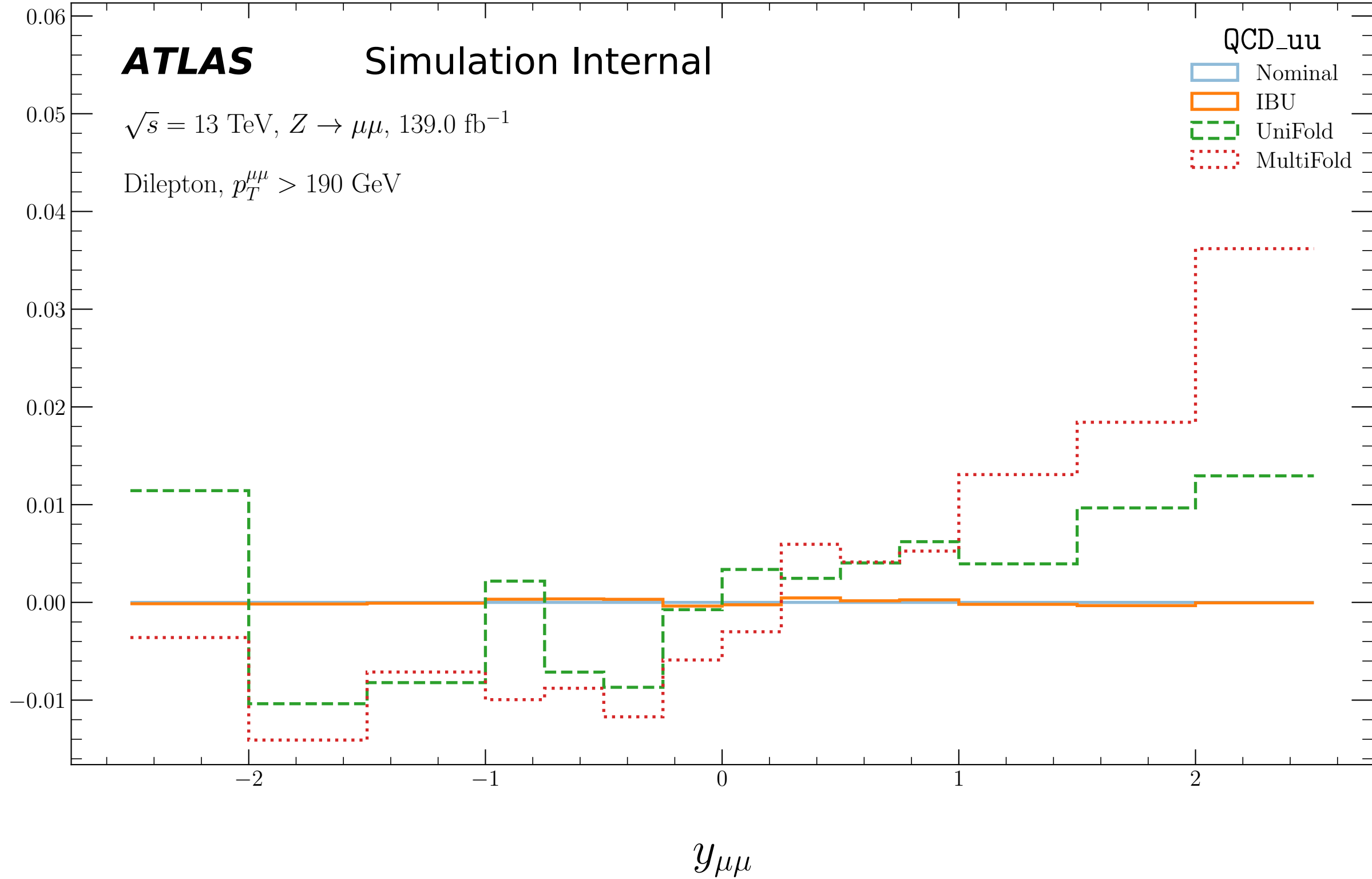
QCD_uu

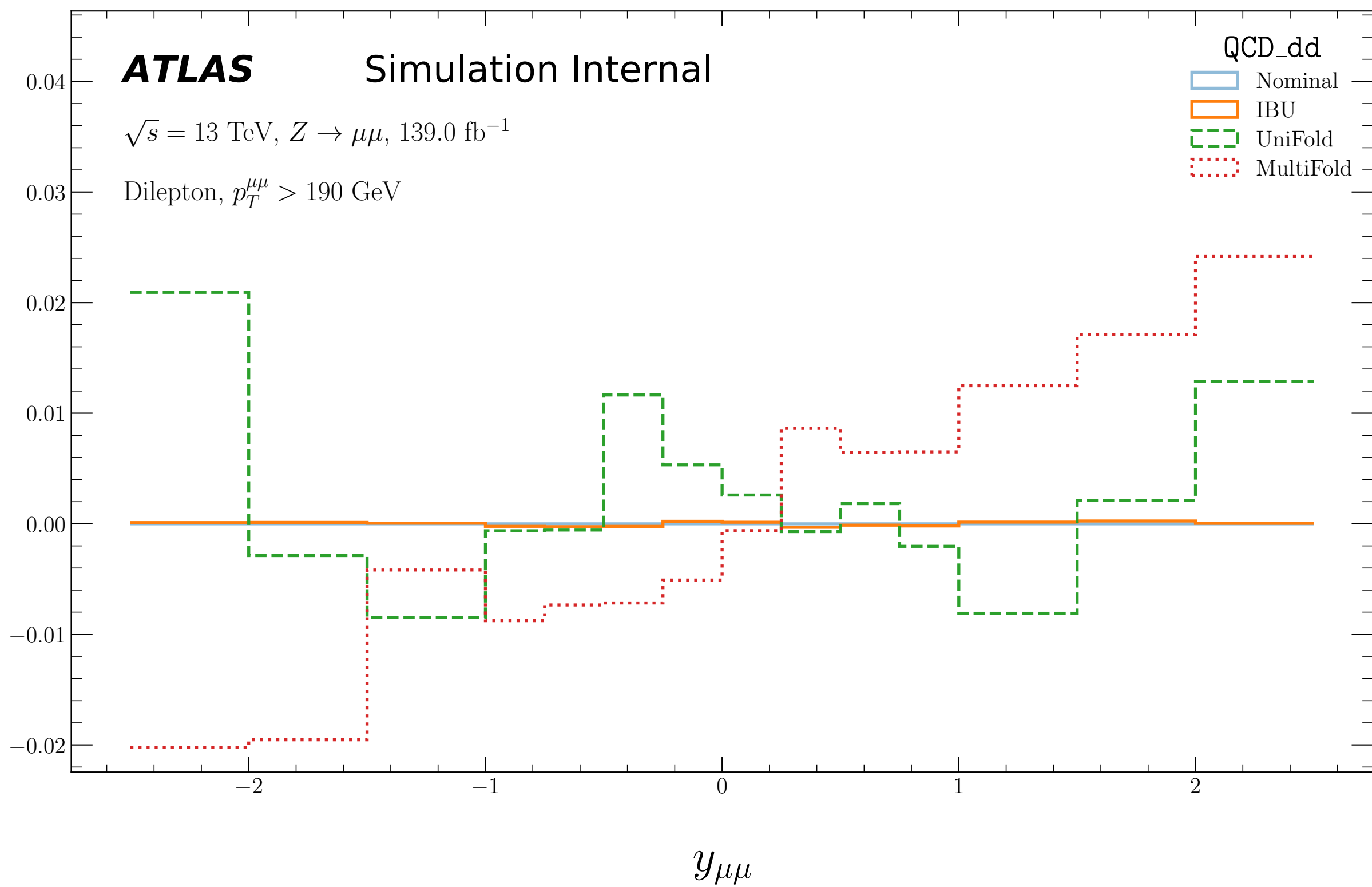
Nominal

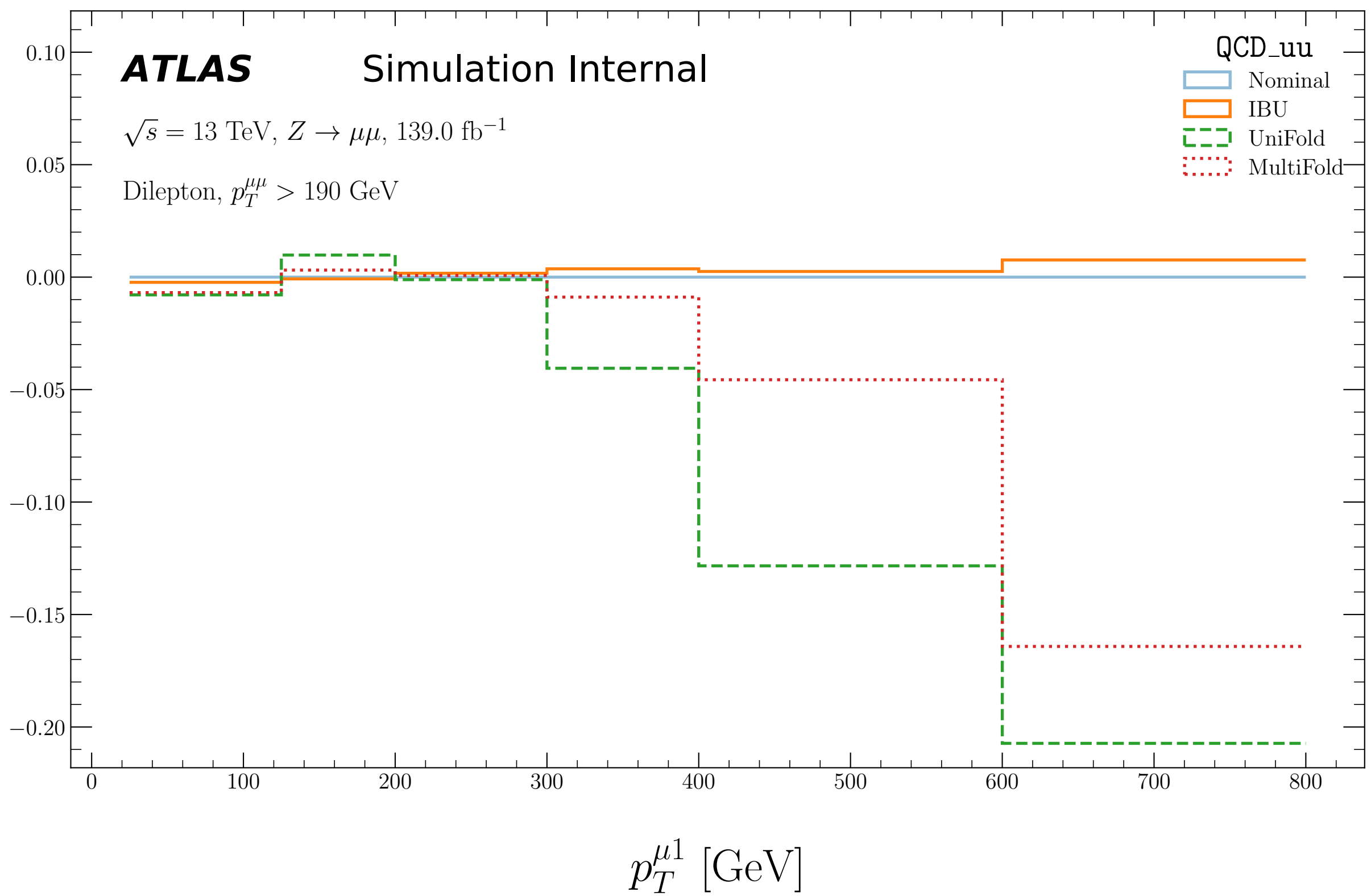
IBU

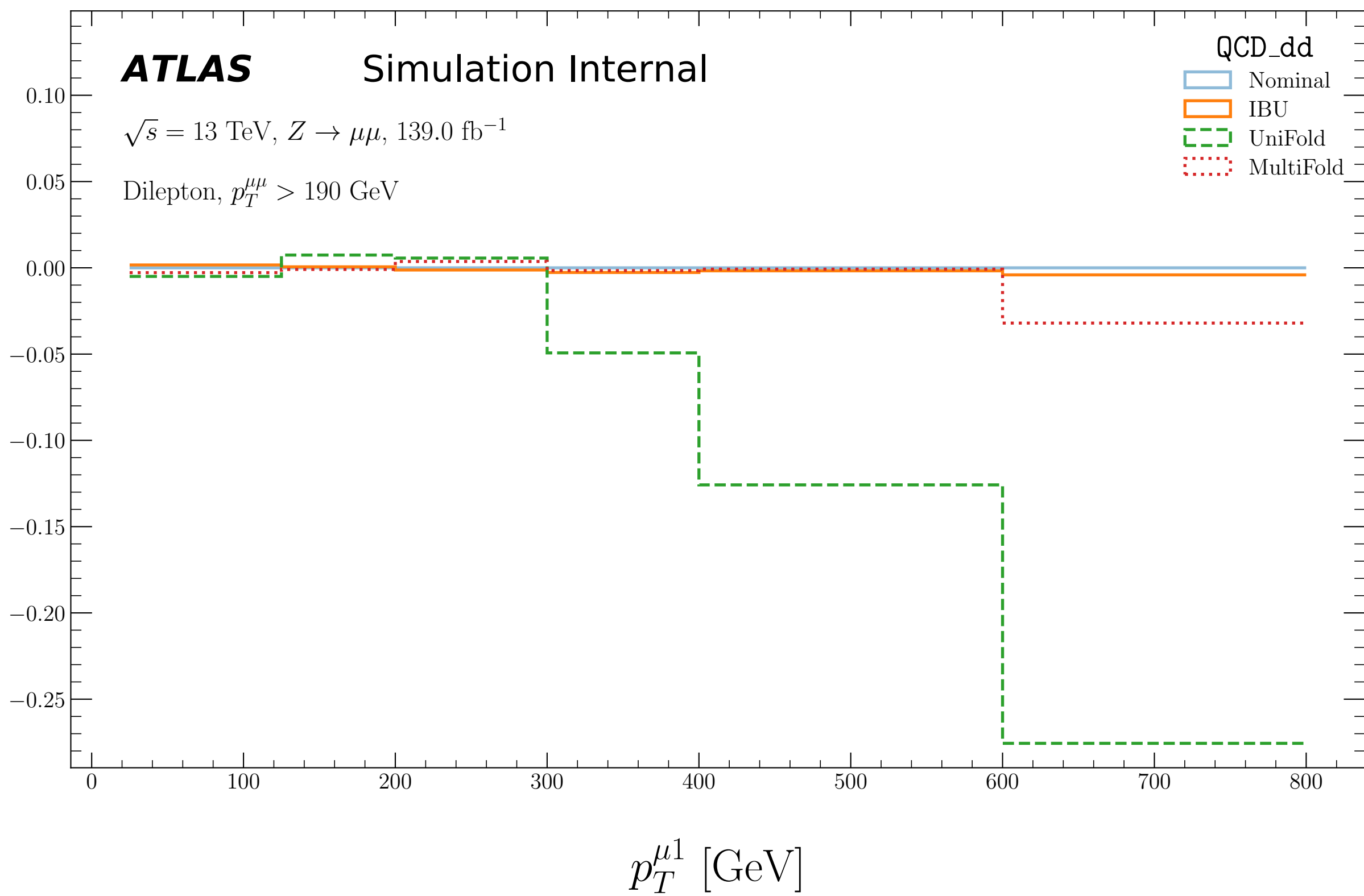
UniFold

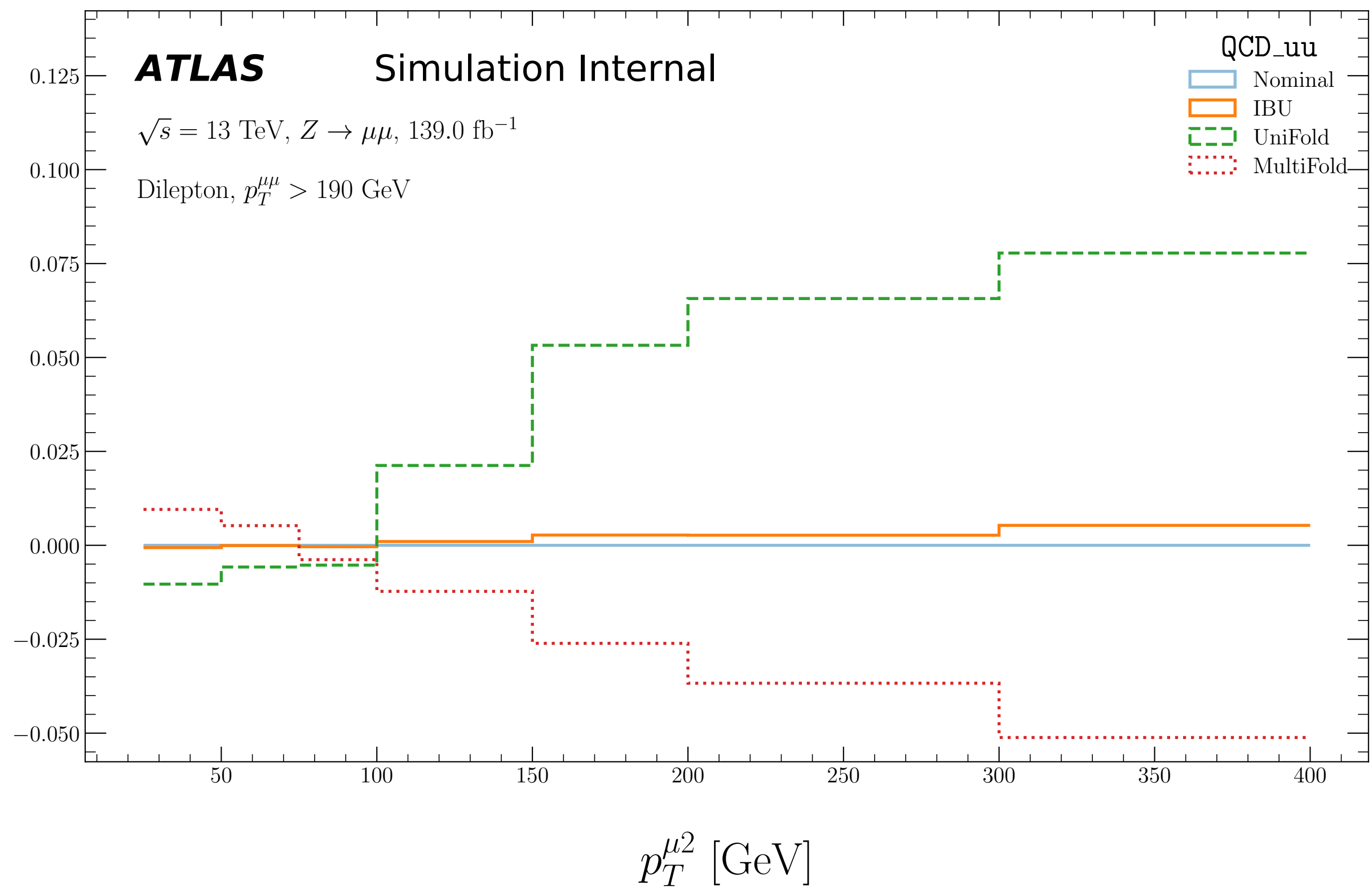
MultiFold

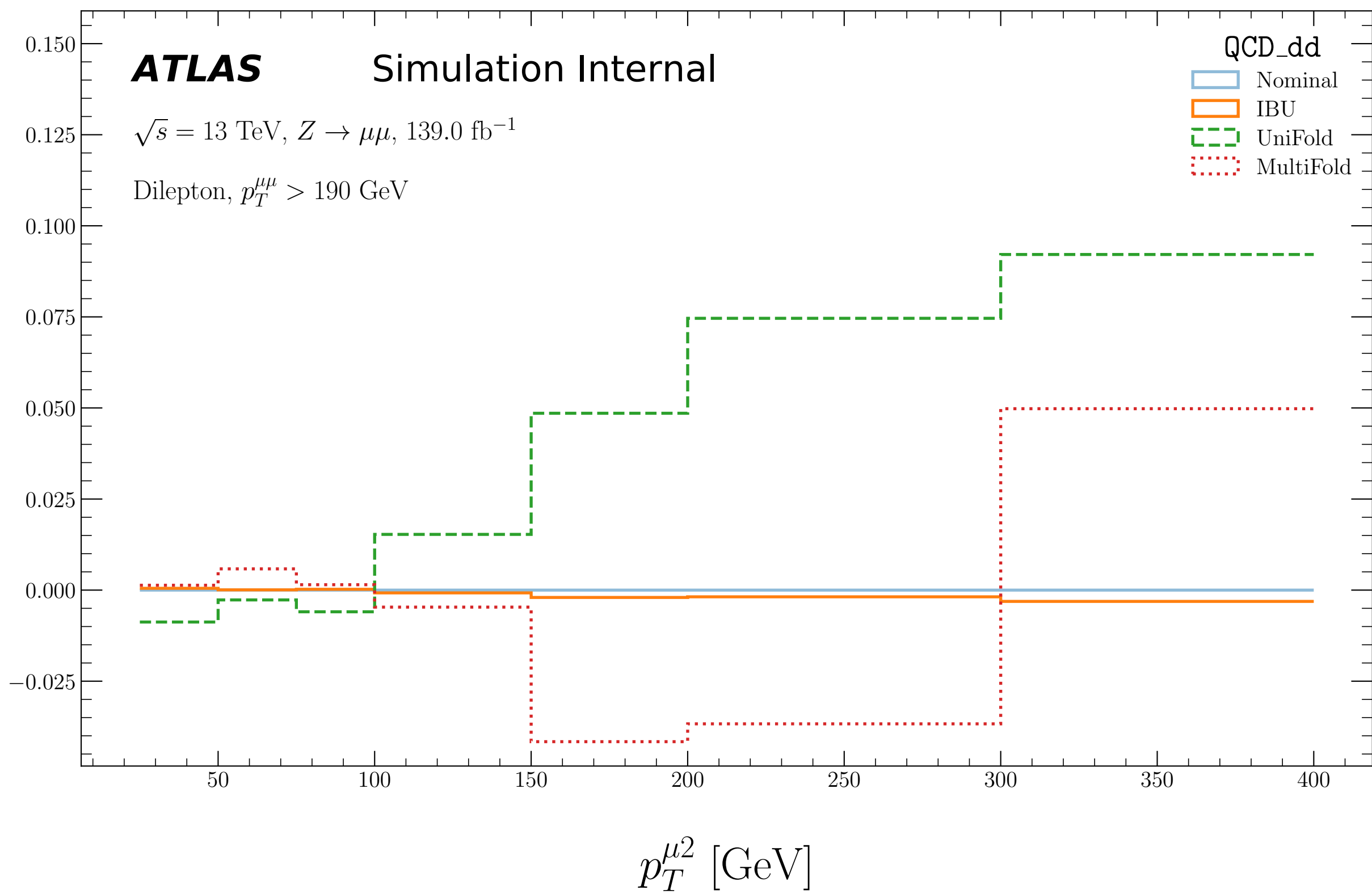


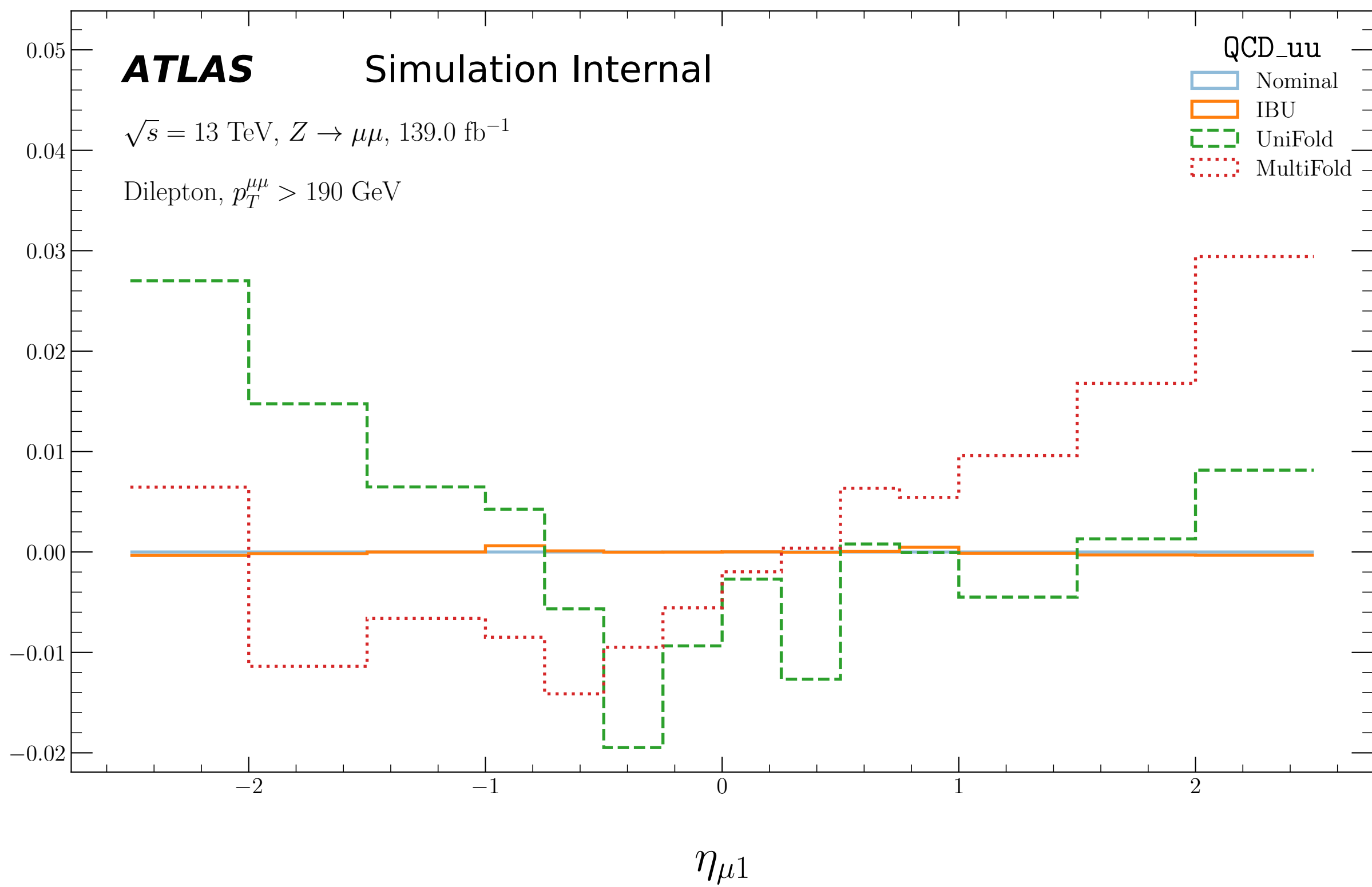












ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.03
0.02
0.01
0.00
-0.01
-0.02 $\eta_{\mu 1}$

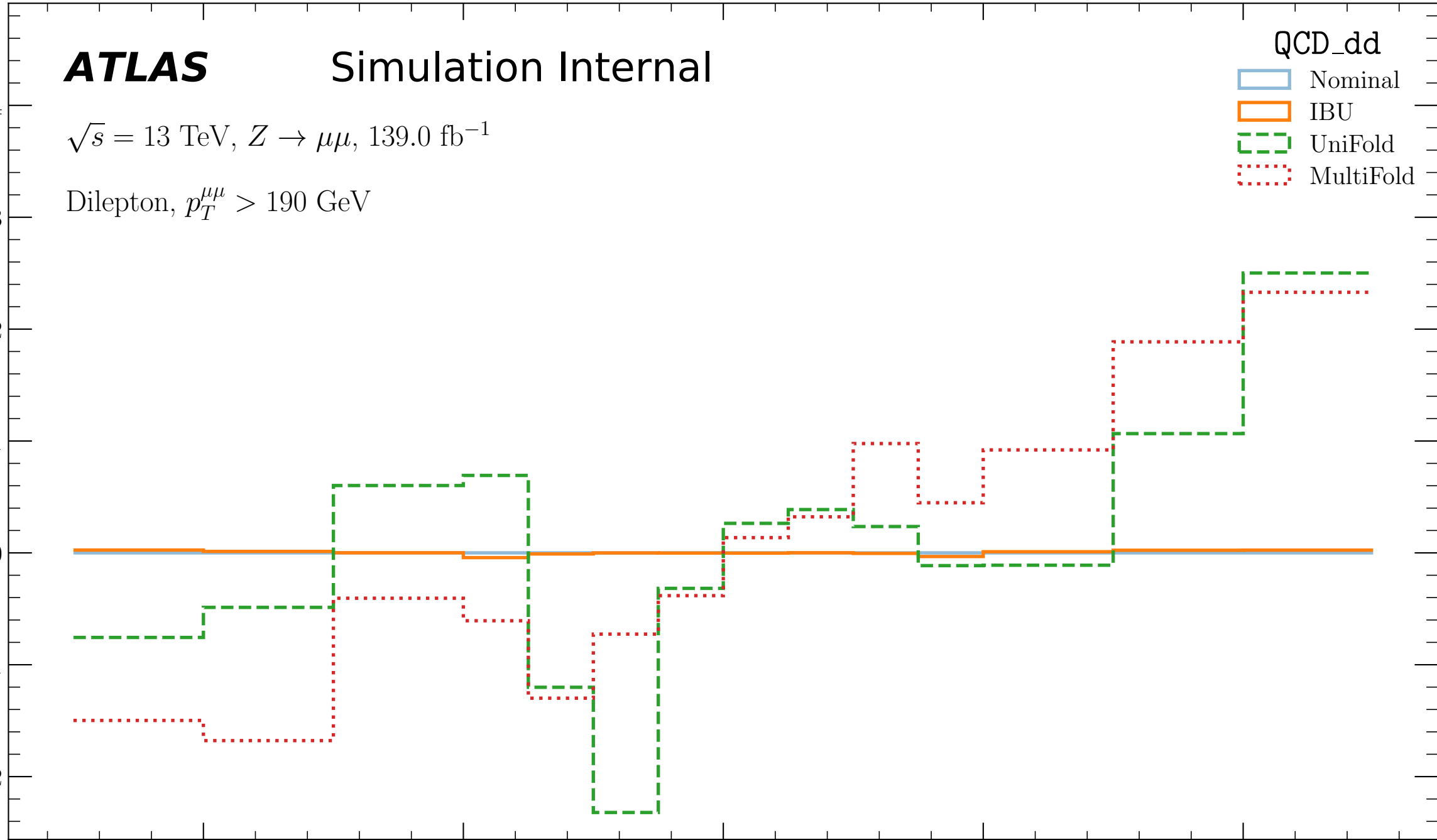
-2

-1

0

1

2



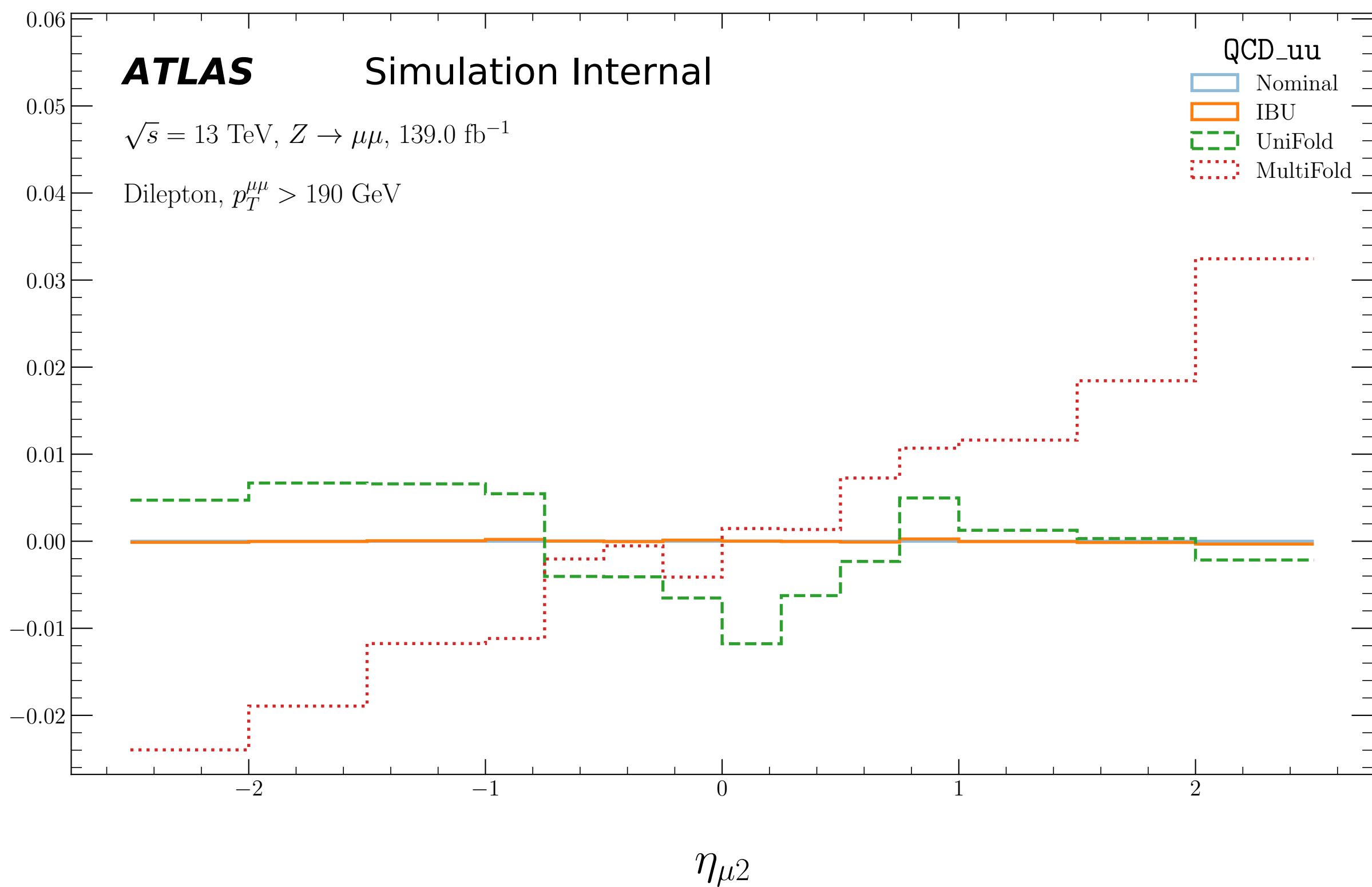
ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_uu

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ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

0.03
0.02
0.01
0.00
-0.01
-0.02

 $\eta_{\mu 2}$

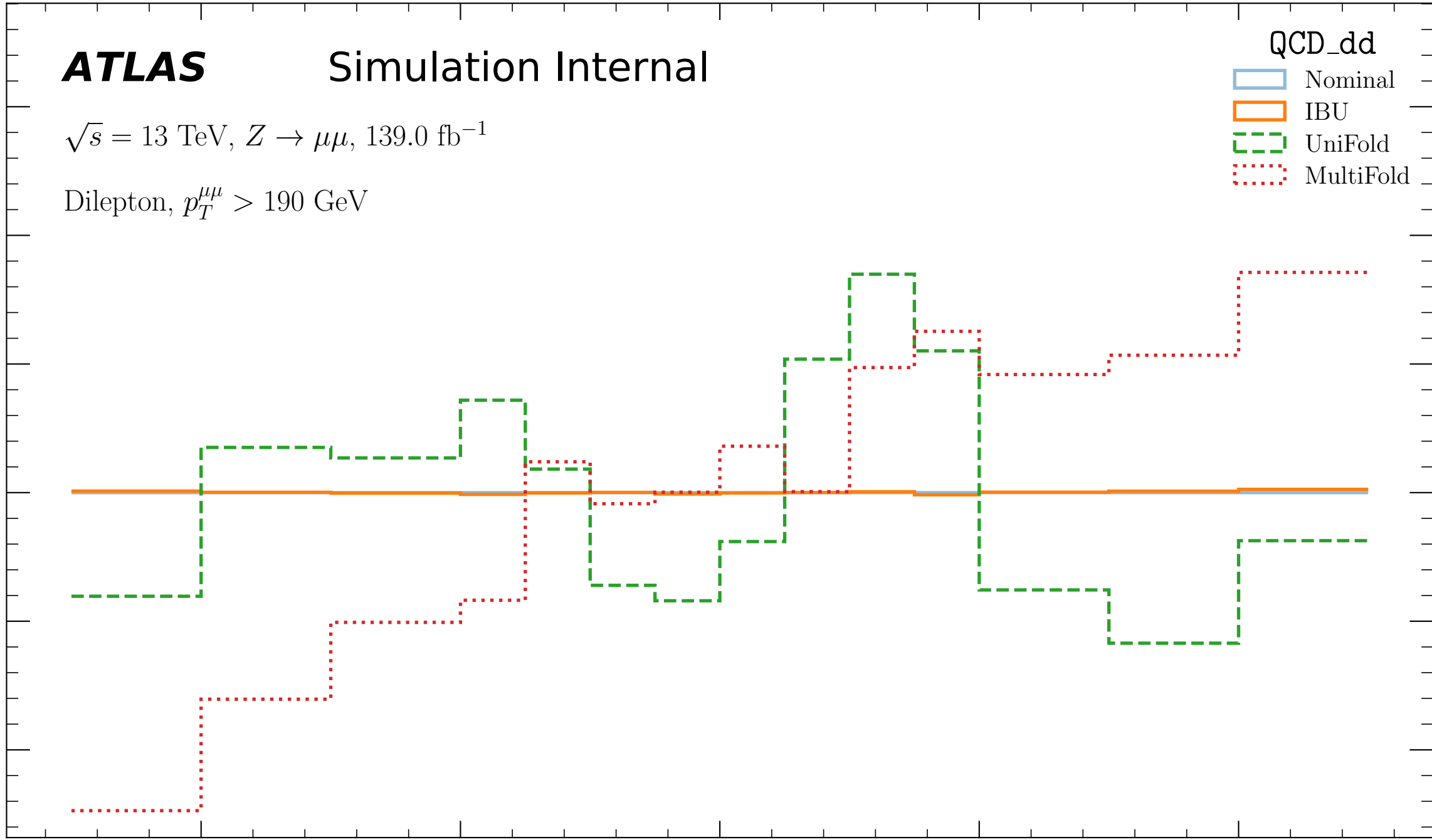
-2

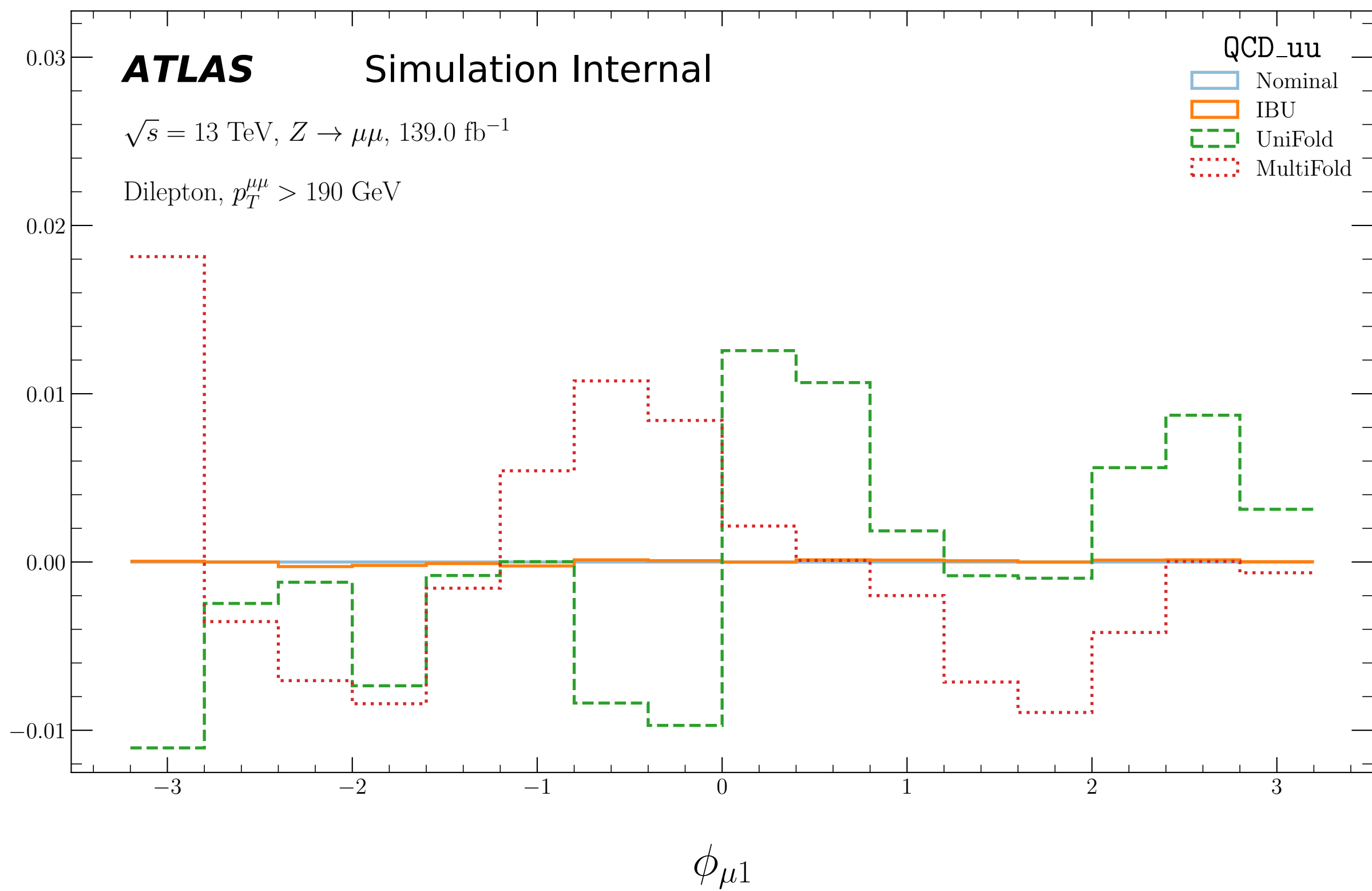
-1

0

1

2





ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

- Nominal
- IBU
- UniFold
- MultiFold

0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02

-3

-2

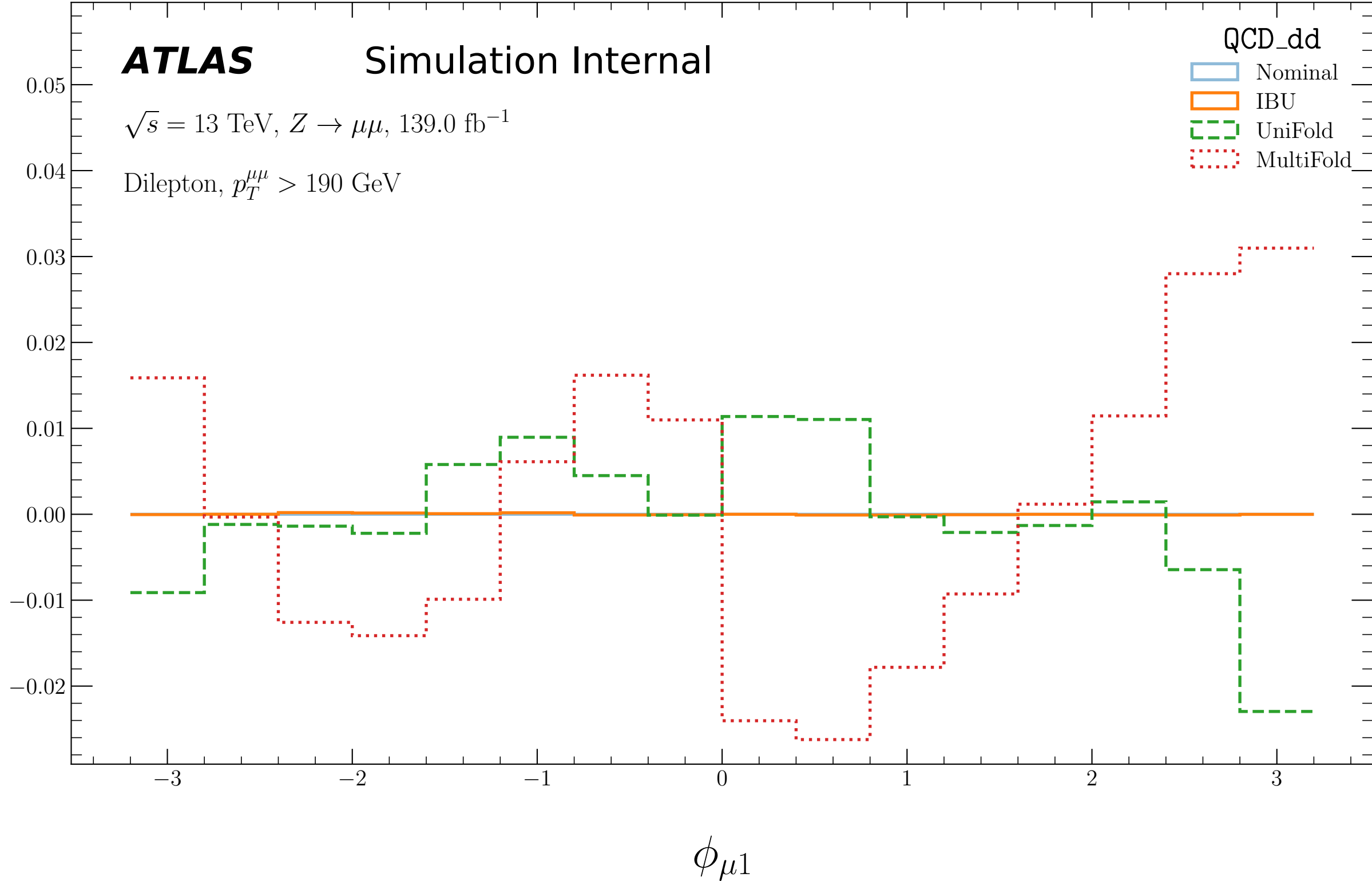
-1

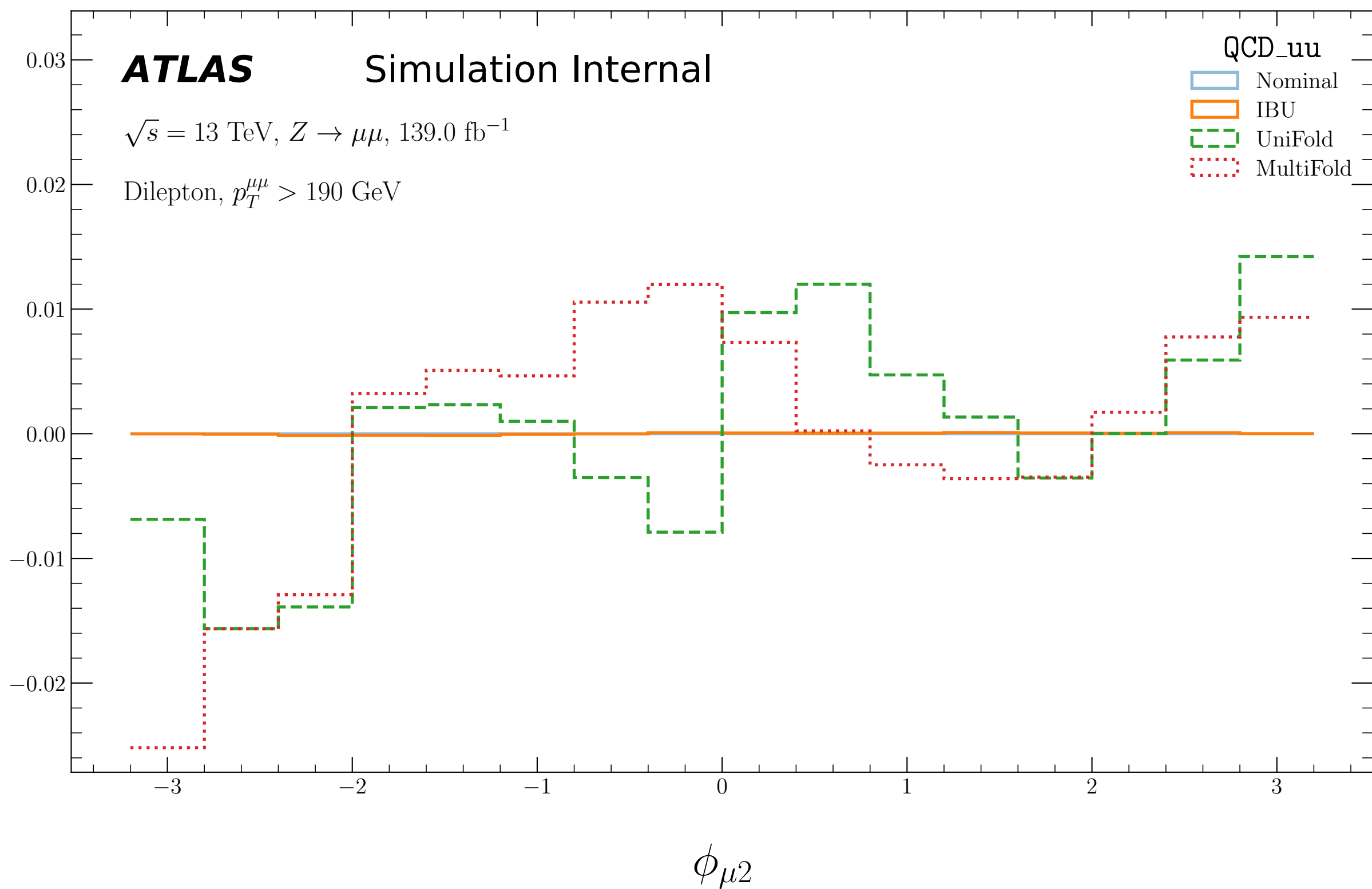
0

1

2

3

 $\phi_{\mu 1}$ 



ATLAS

Simulation Internal

 $\sqrt{s} = 13 \text{ TeV}, Z \rightarrow \mu\mu, 139.0 \text{ fb}^{-1}$ Dilepton, $p_T^{\mu\mu} > 190 \text{ GeV}$

QCD_dd

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