

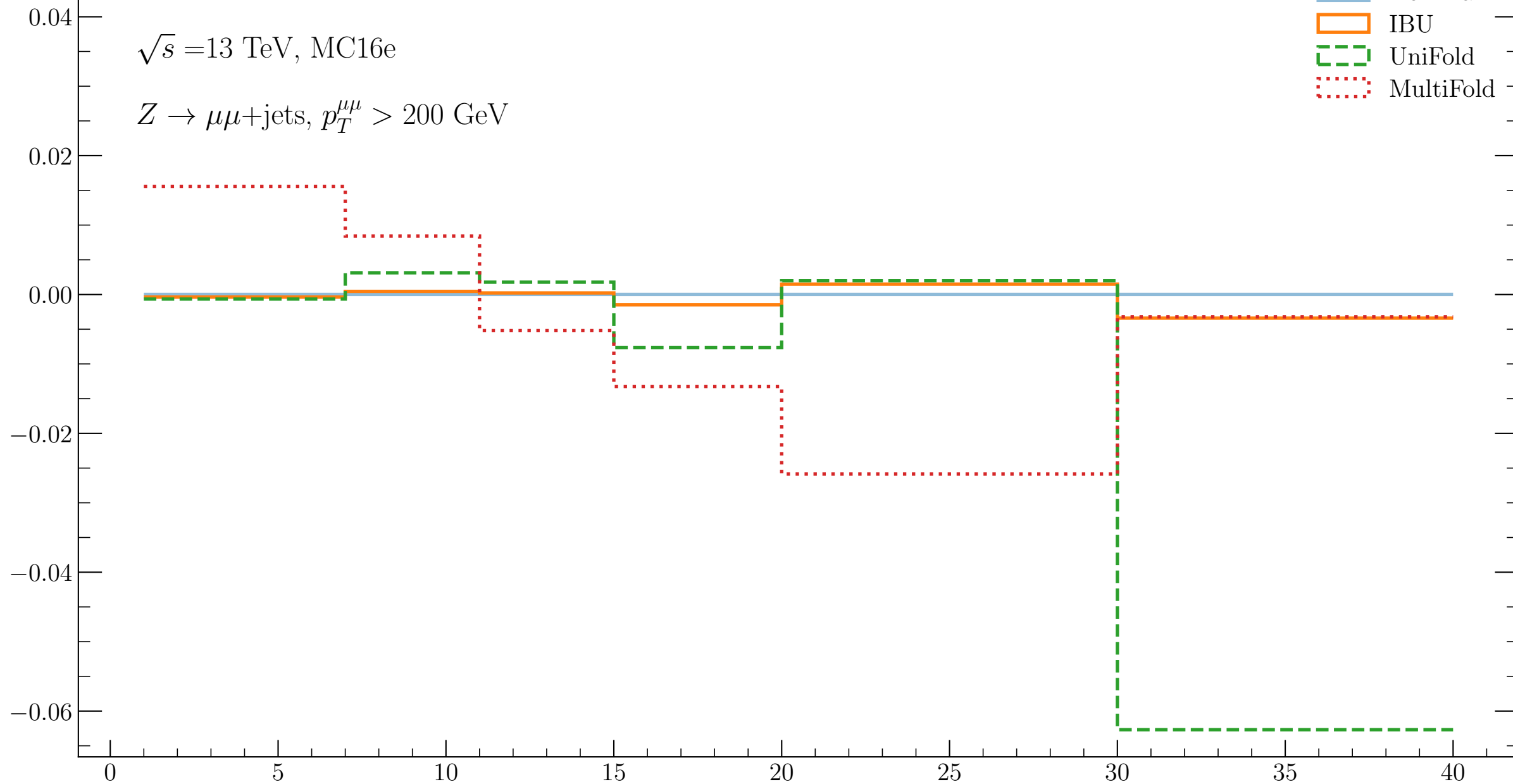
ATLAS

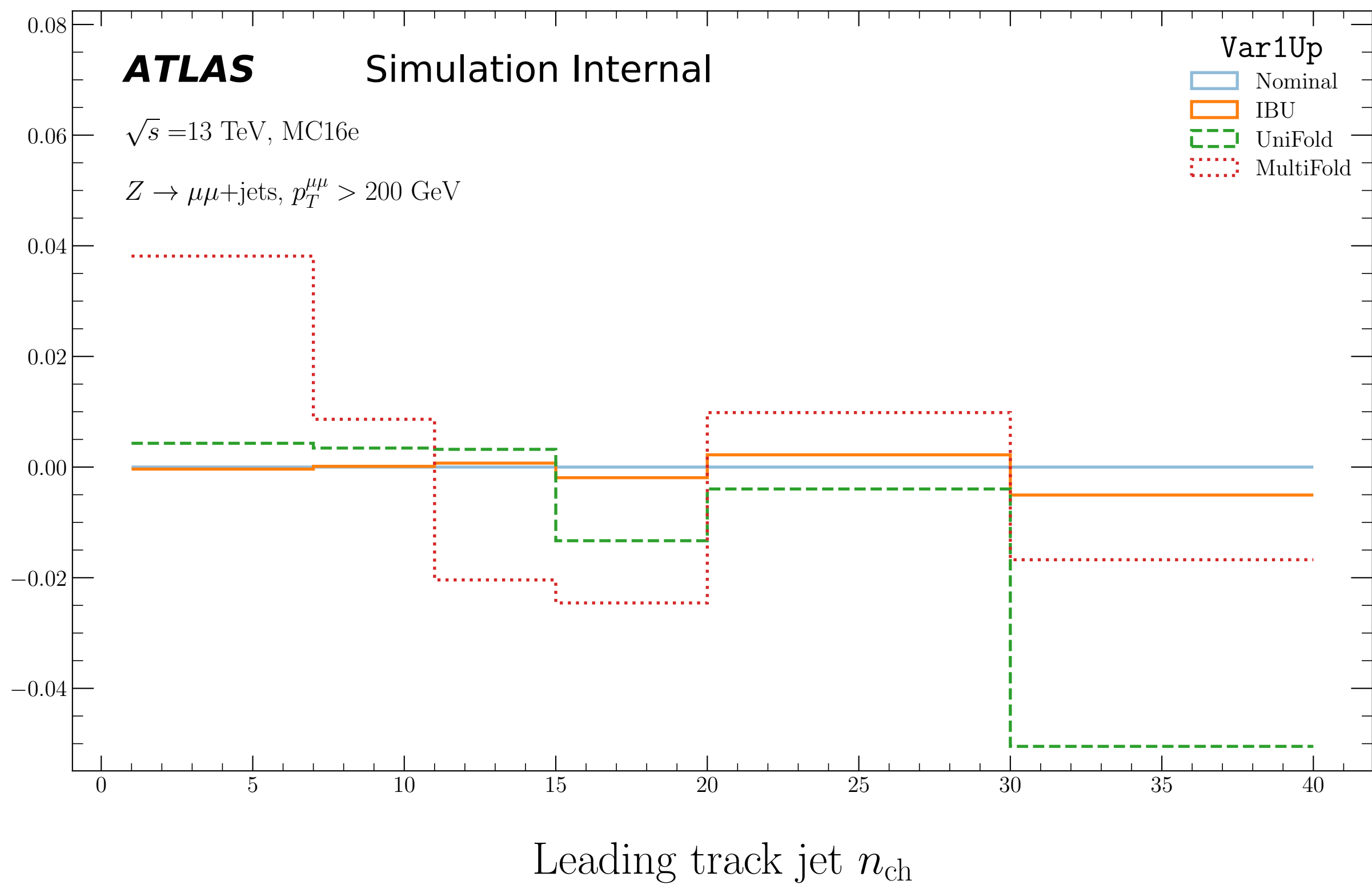
Simulation Internal

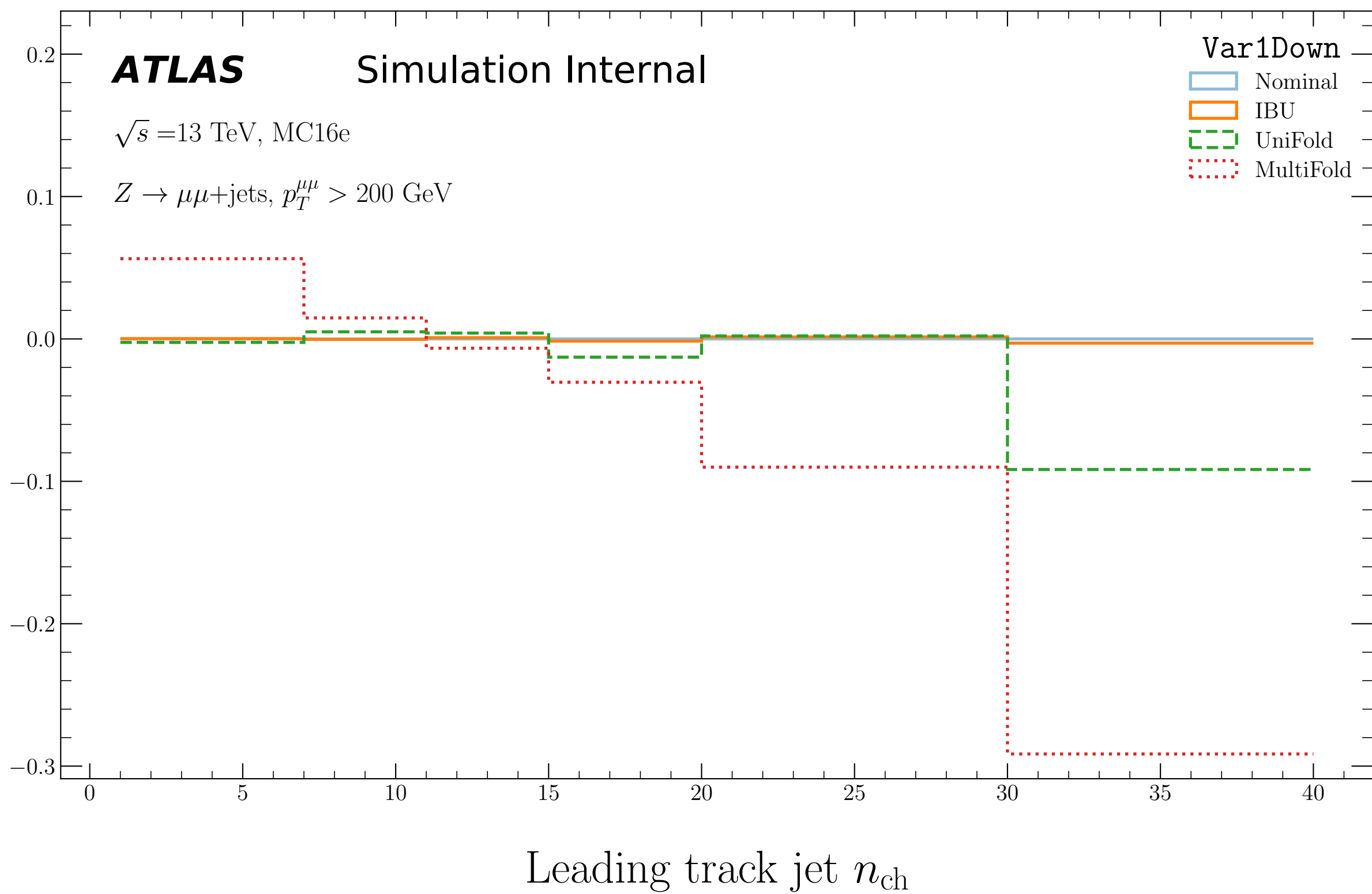
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

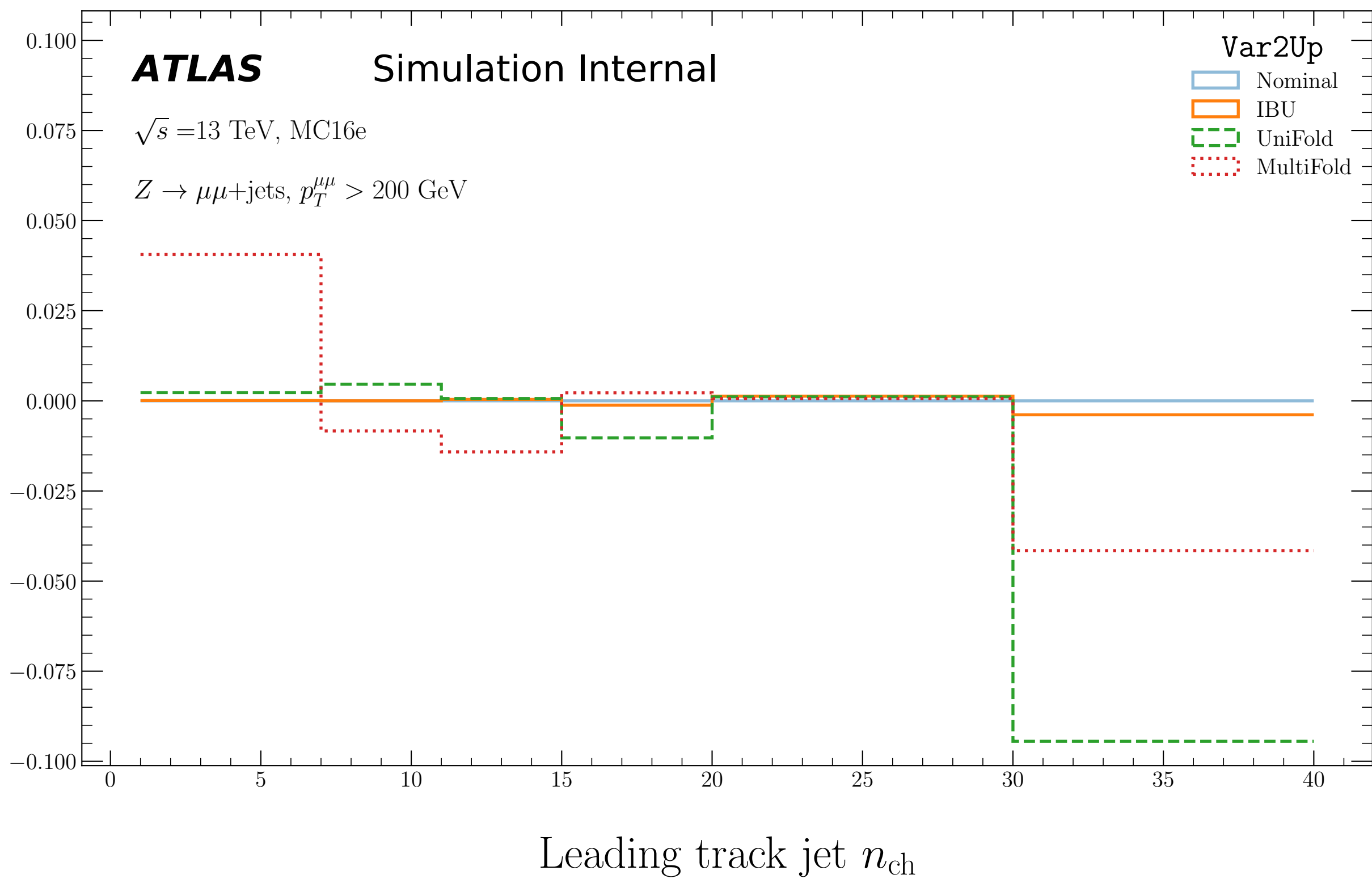
MPIDown

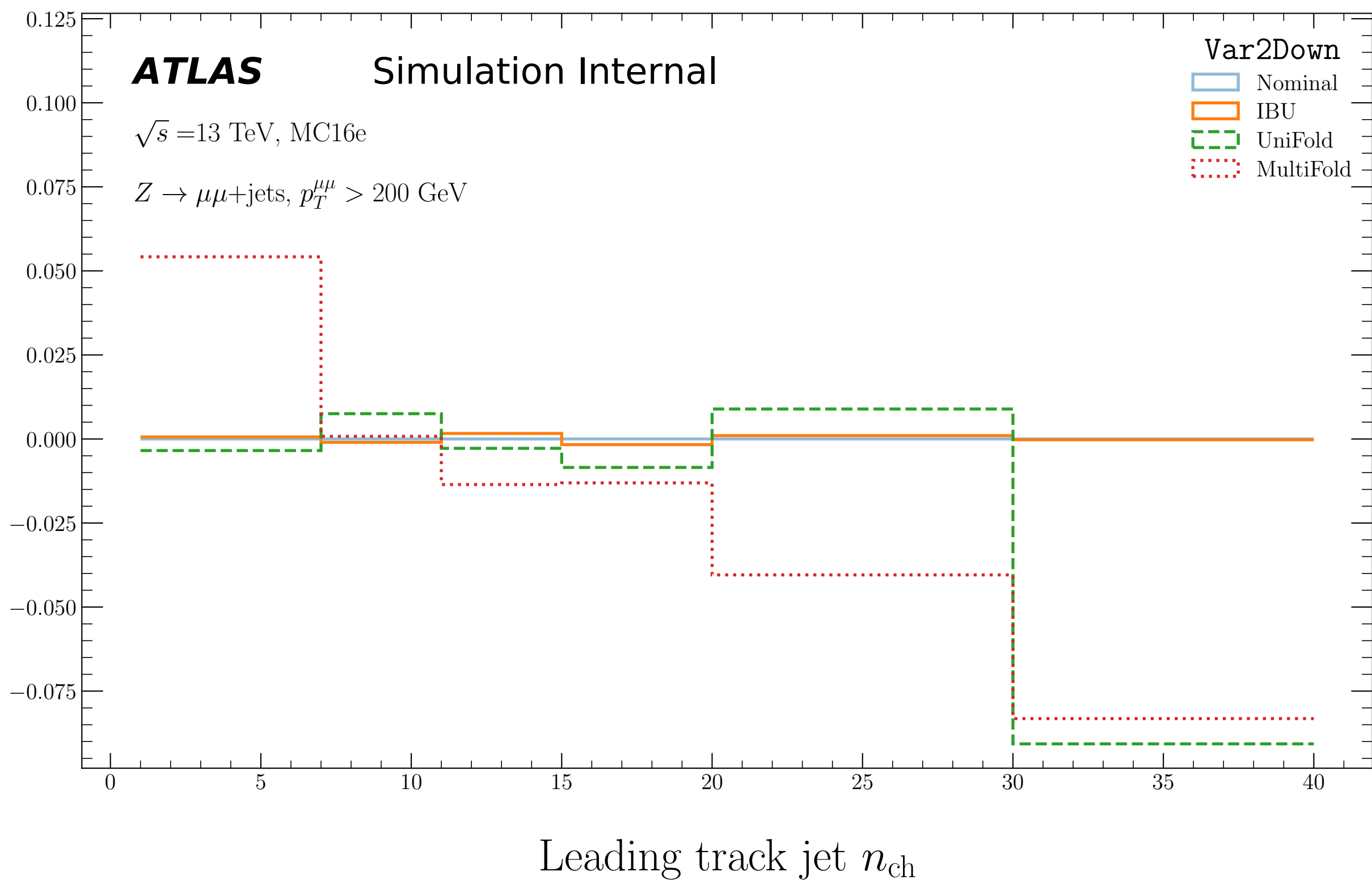
- Nominal
- IBU
- UniFold
- MultiFold

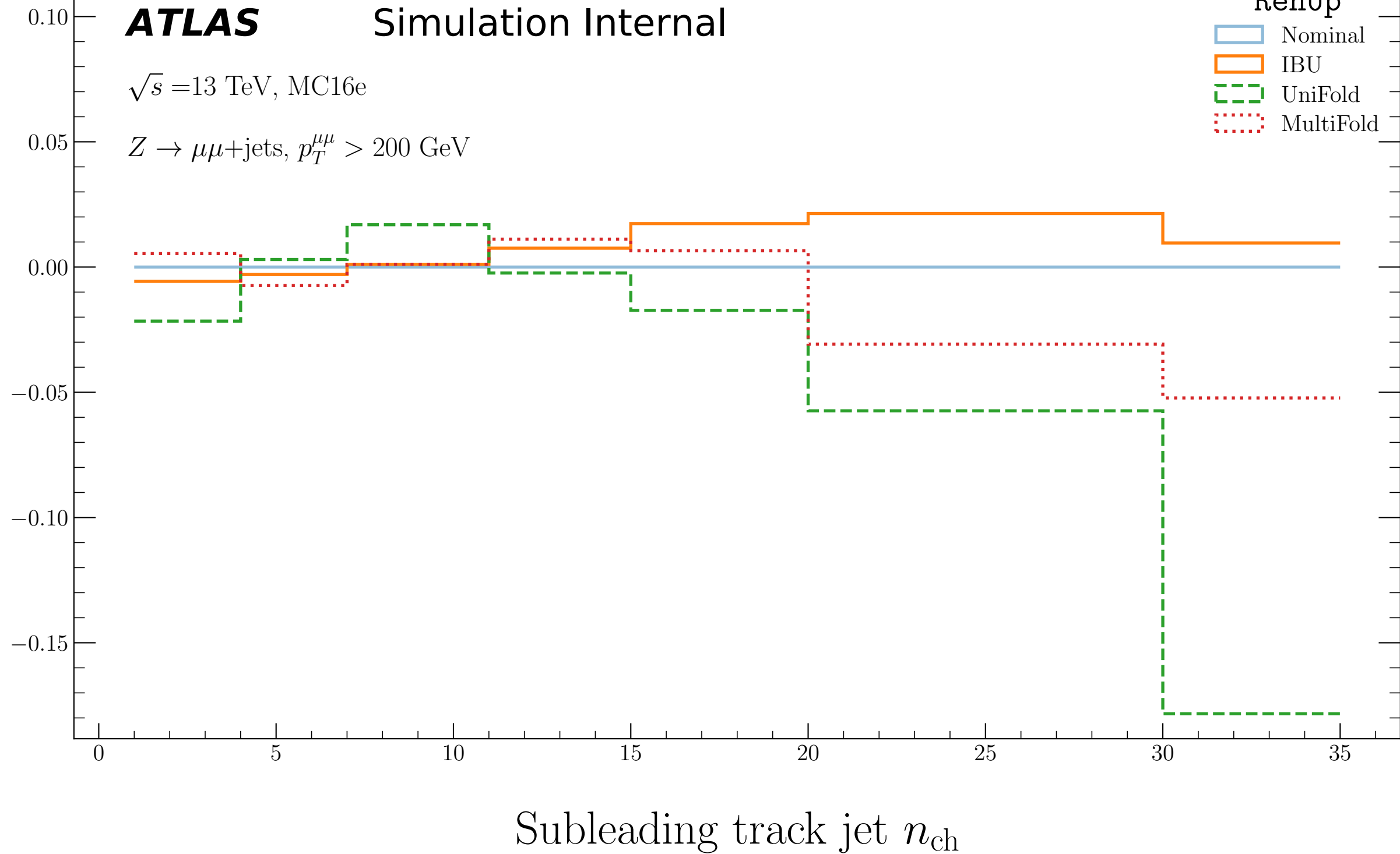
Leading track jet n_{ch}

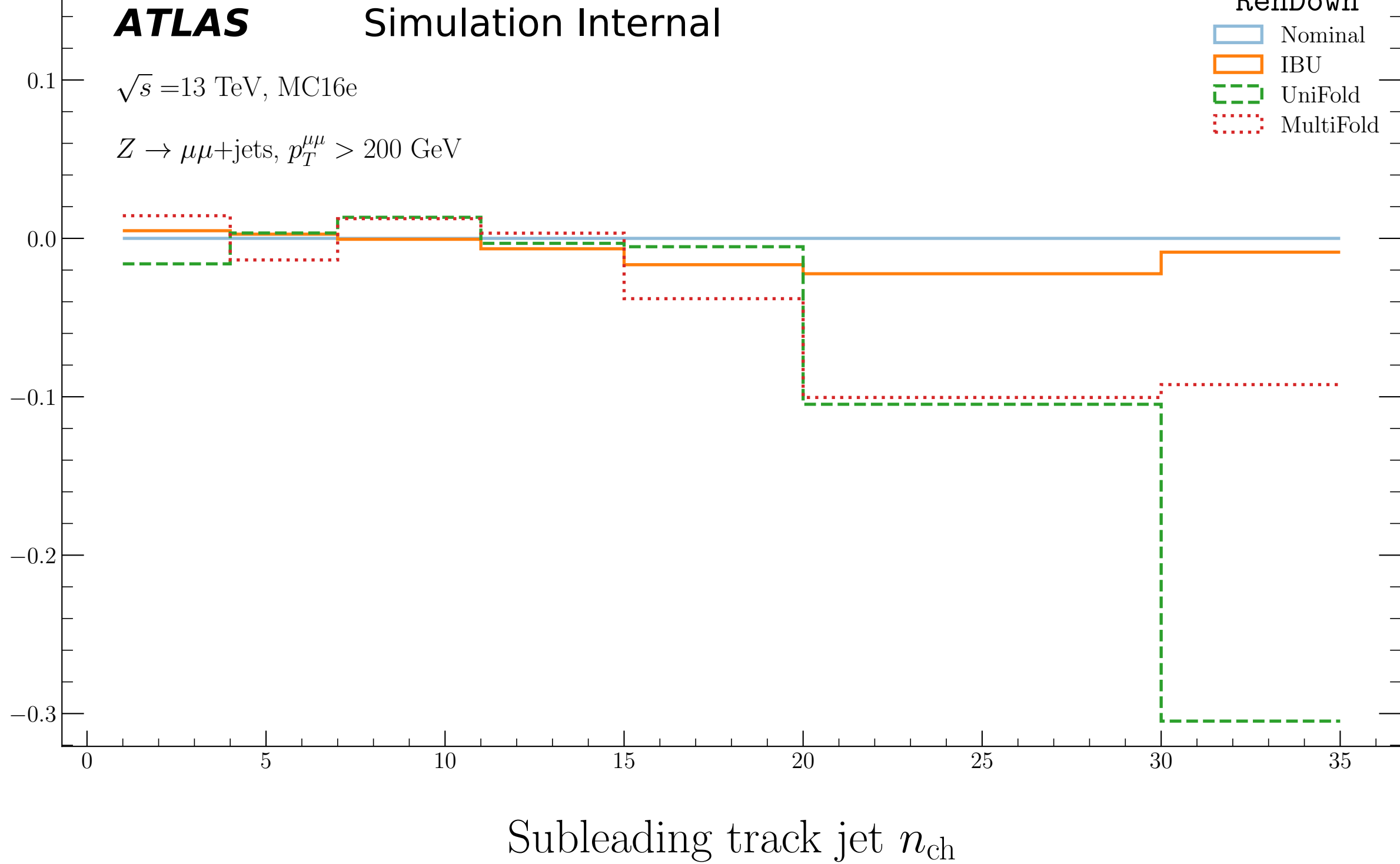


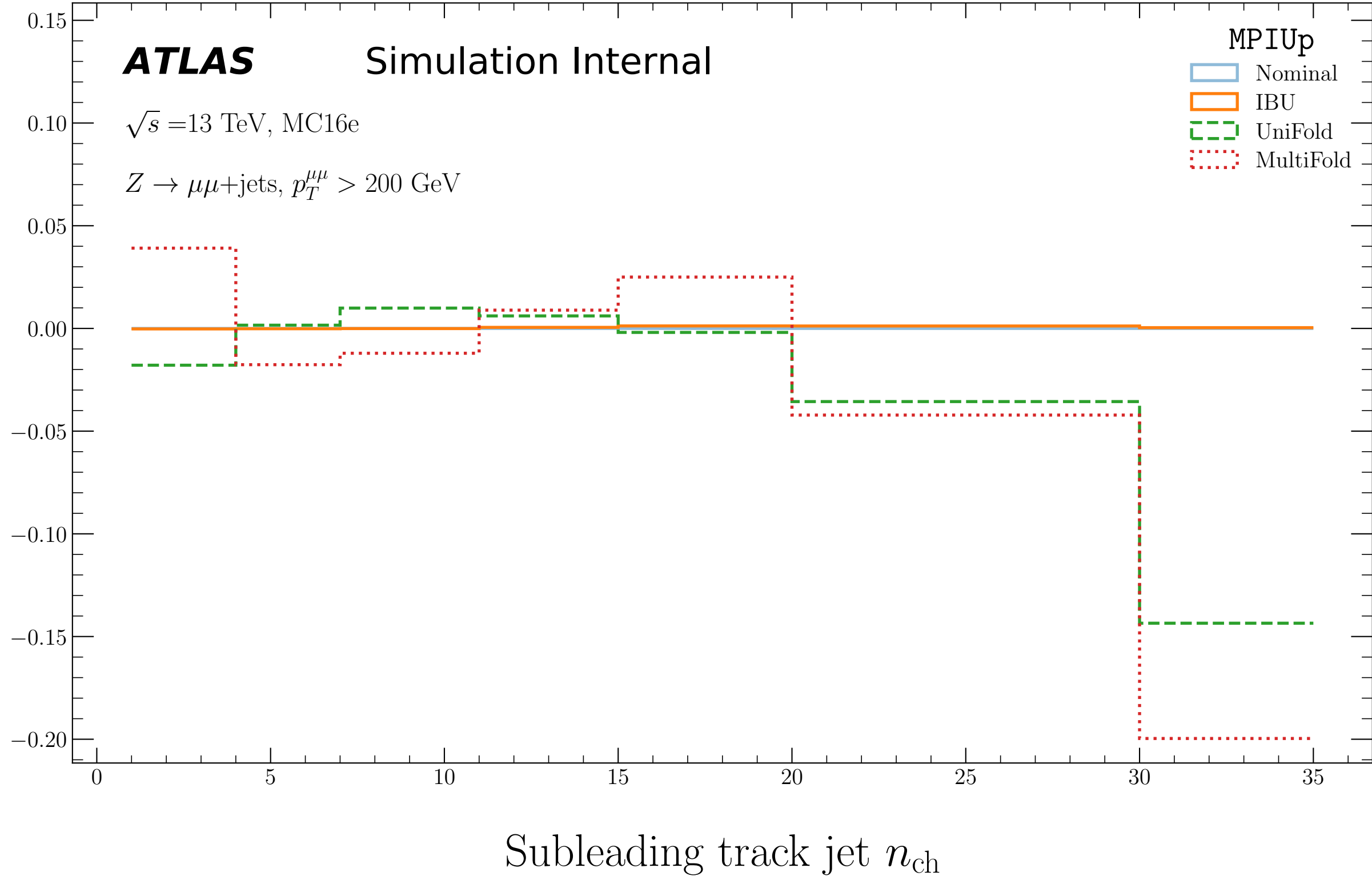


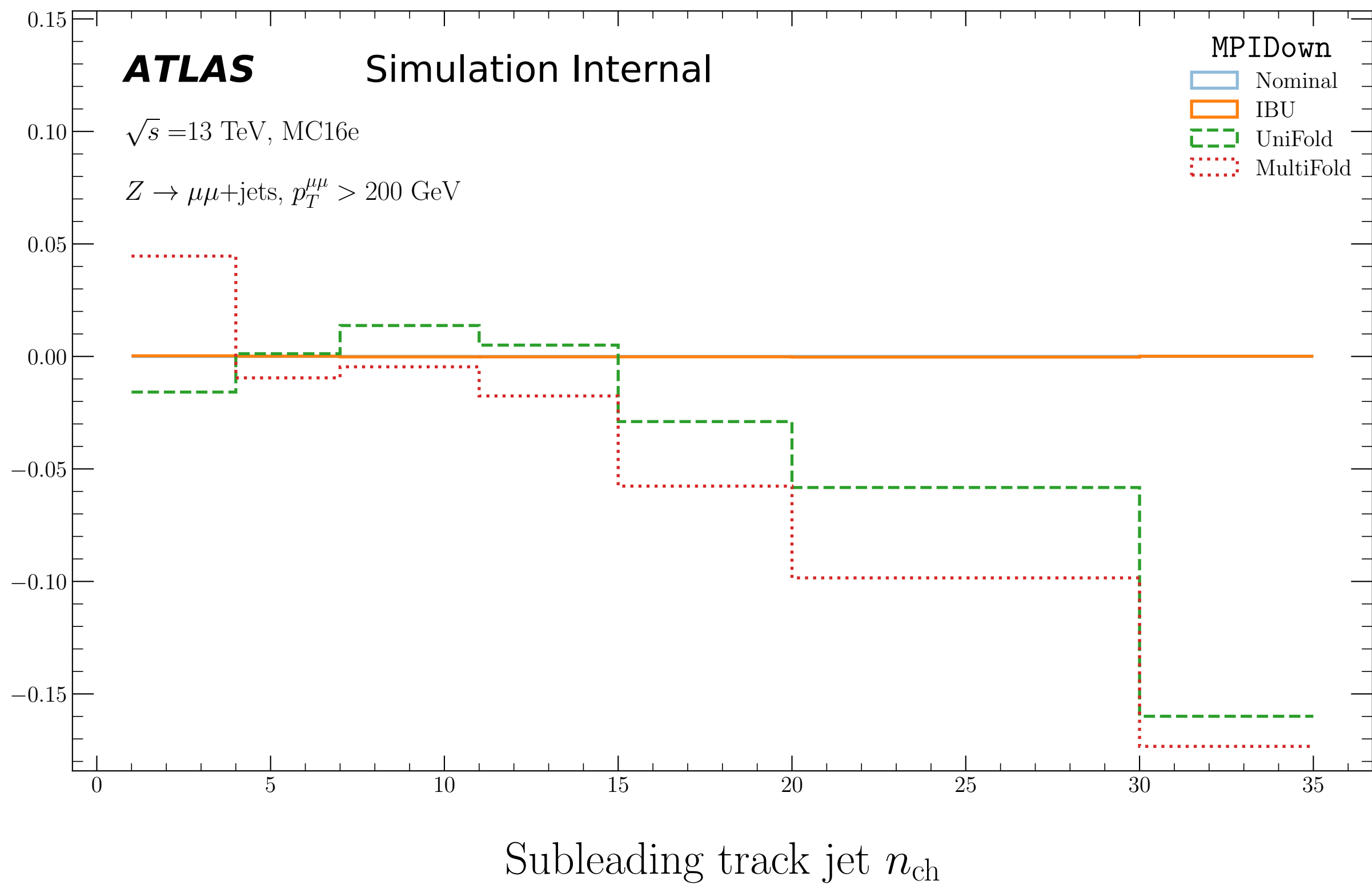


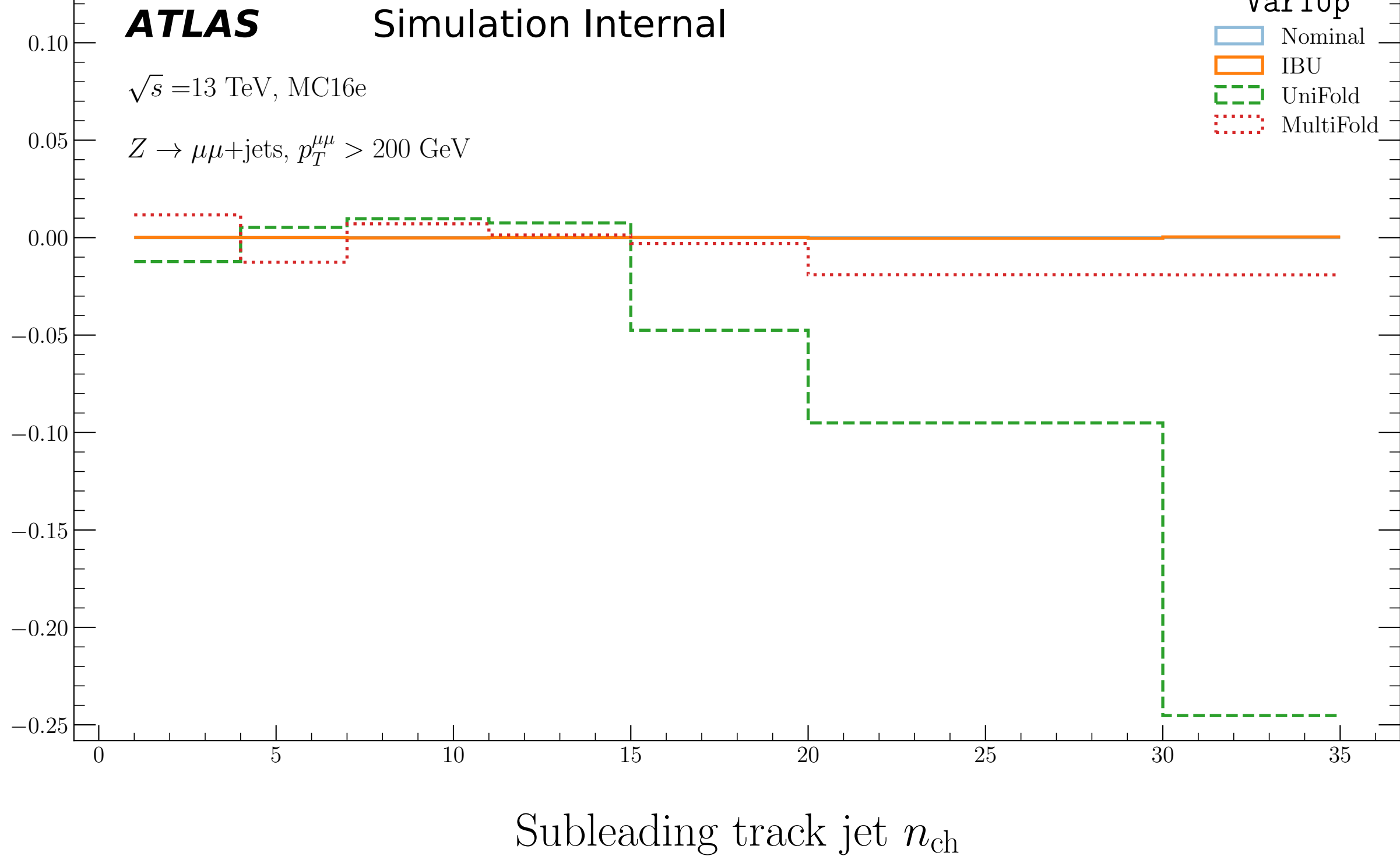












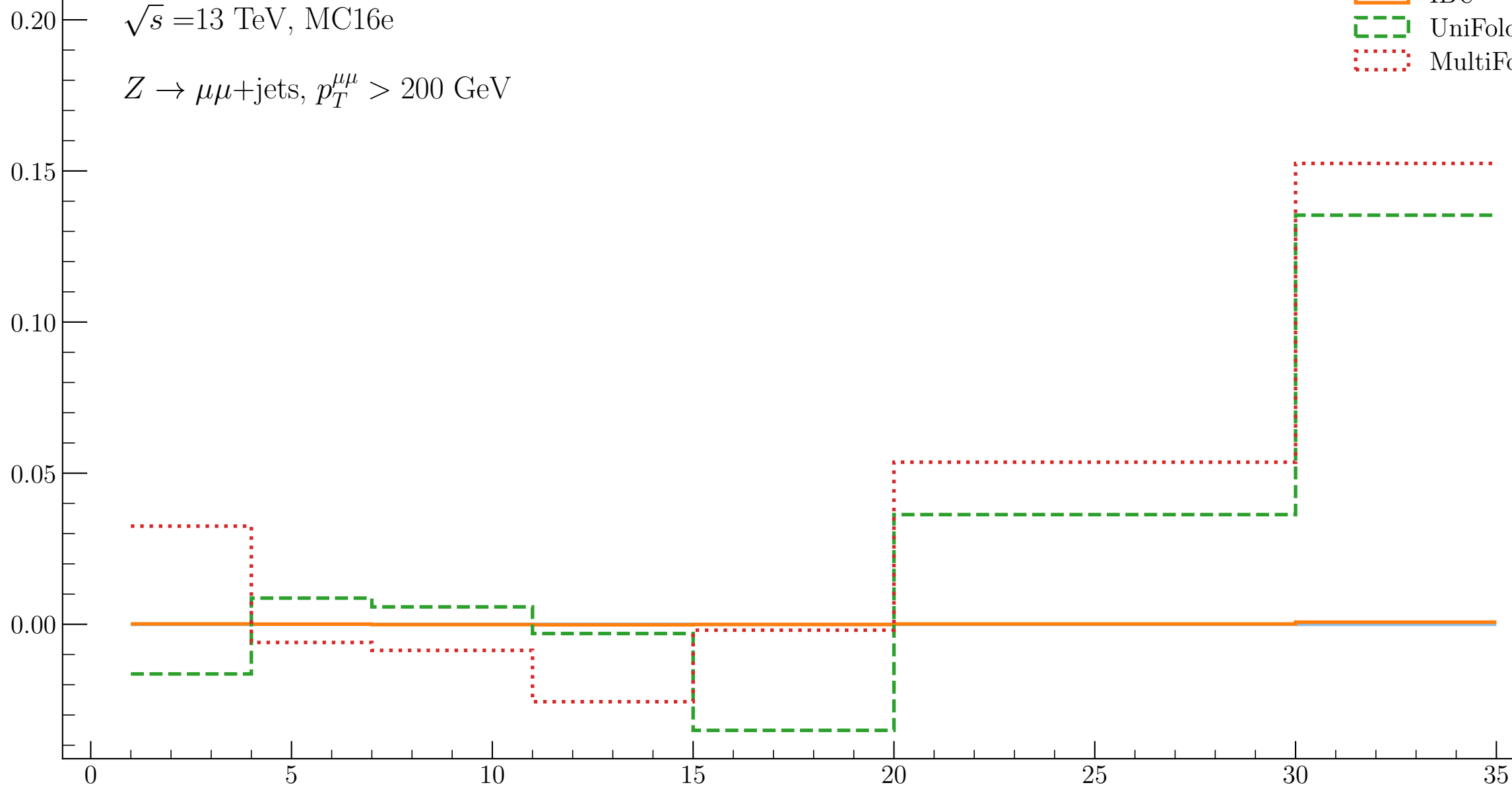
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet n_{ch}

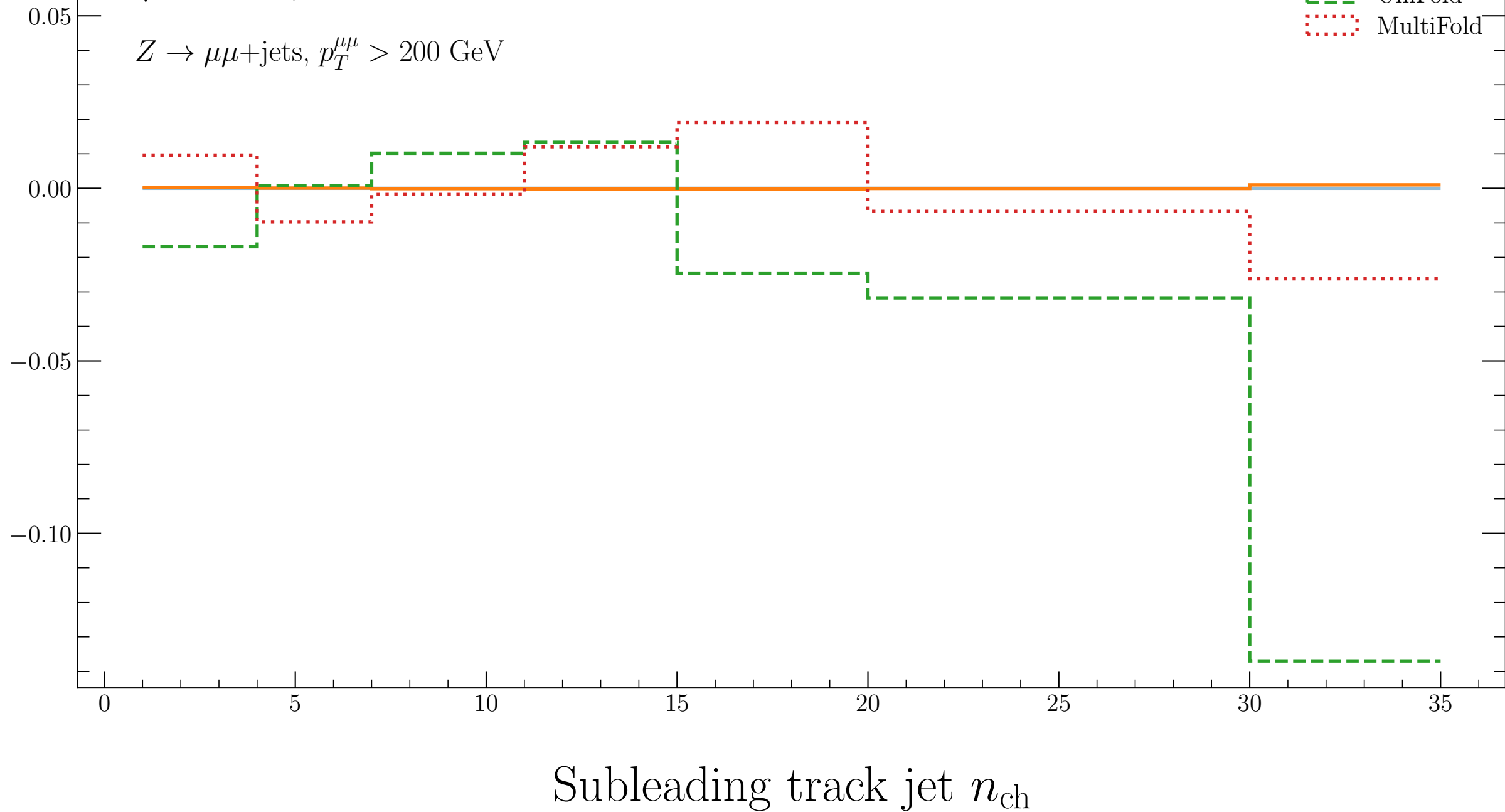
ATLAS

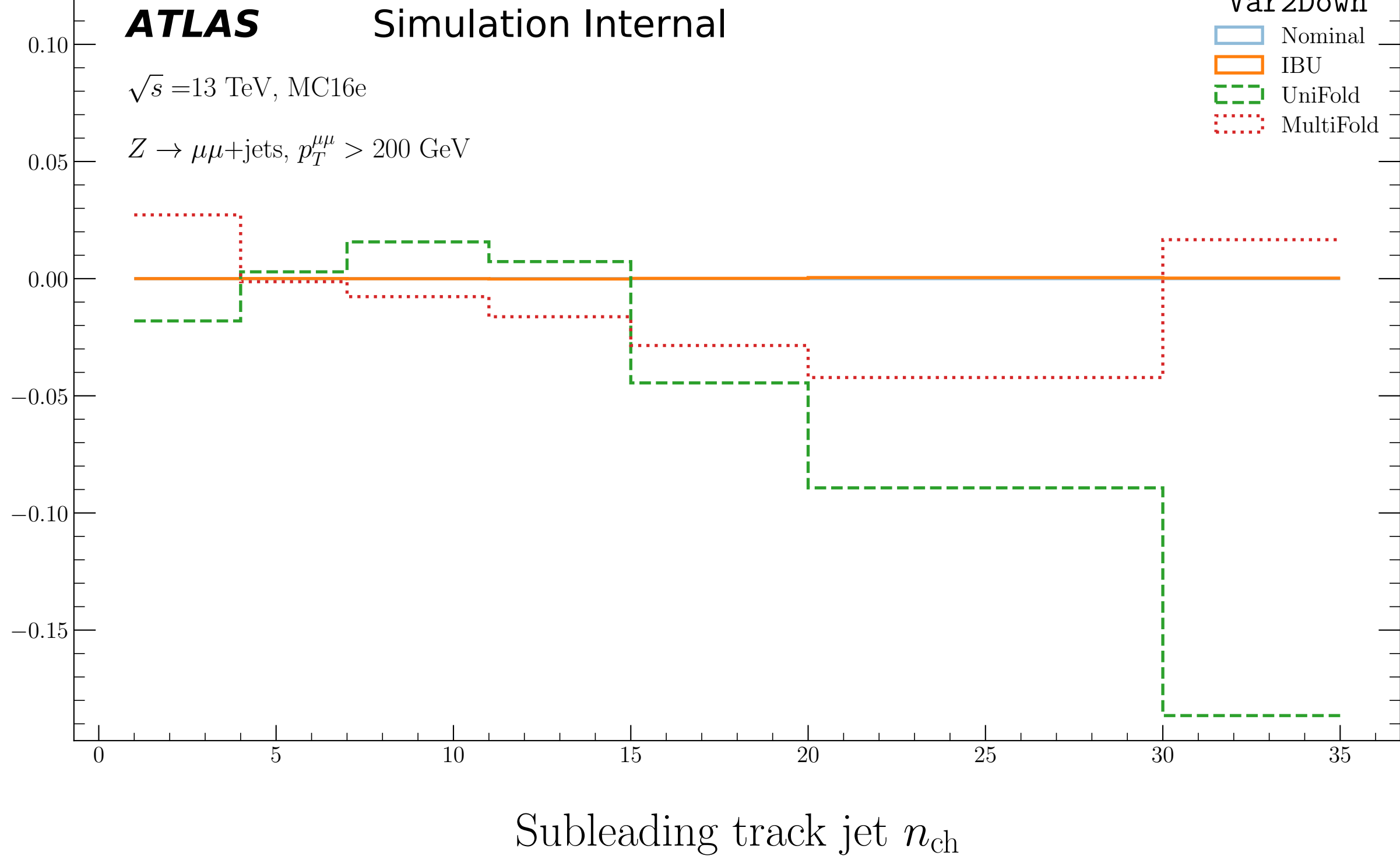
Simulation Internal

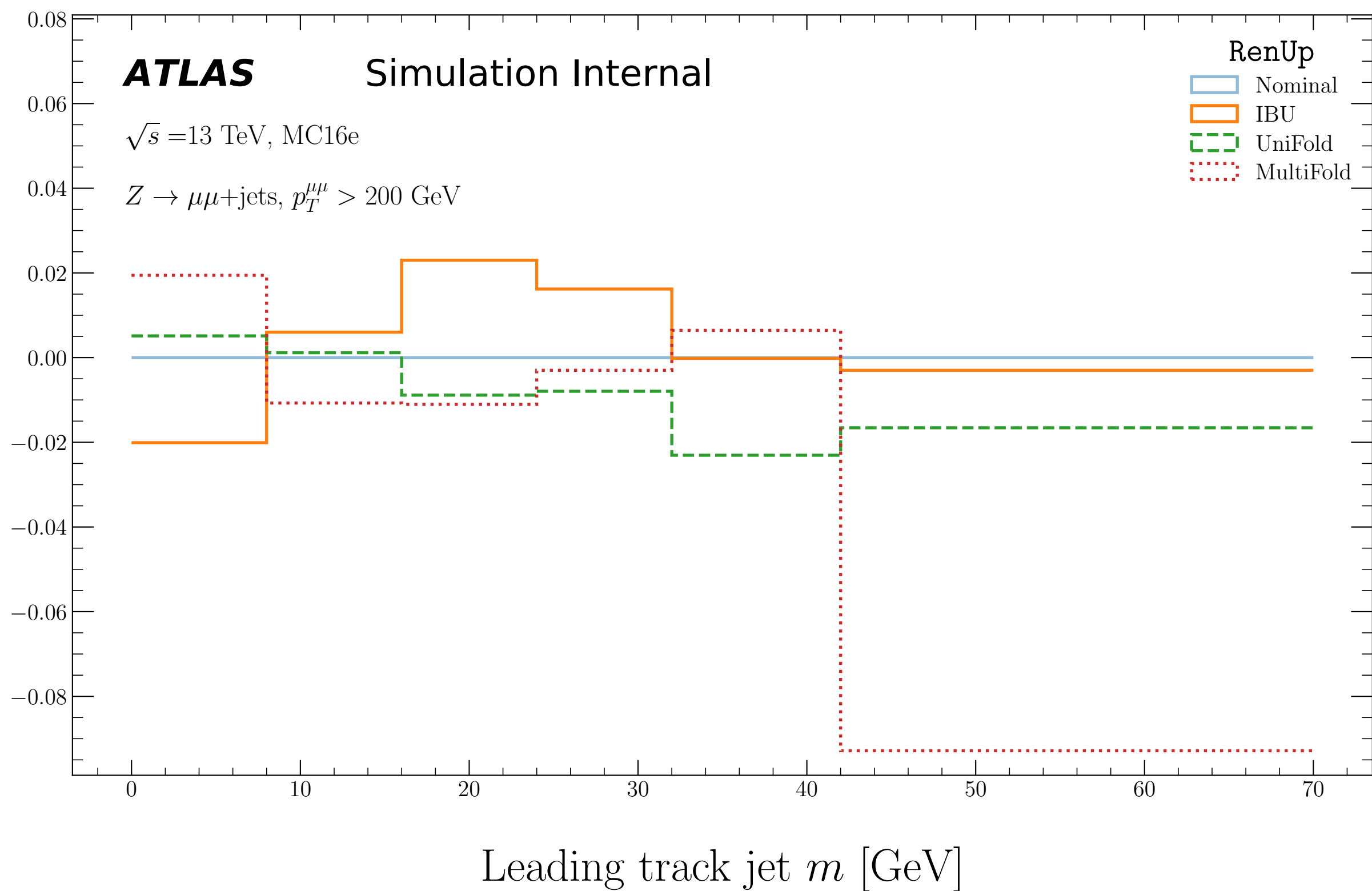
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

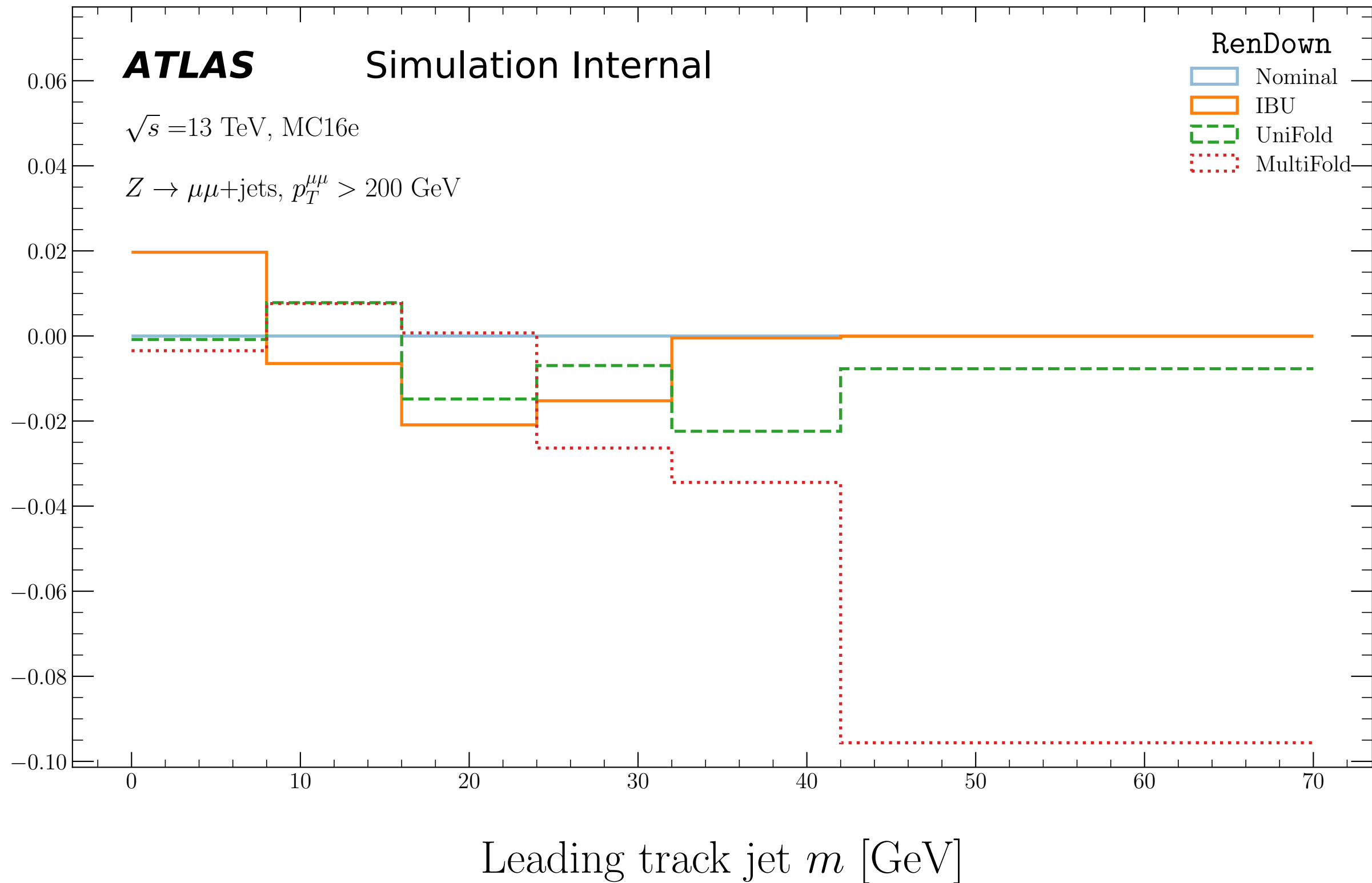
Var2Up

- Nominal
- IBU
- UniFold
- MultiFold









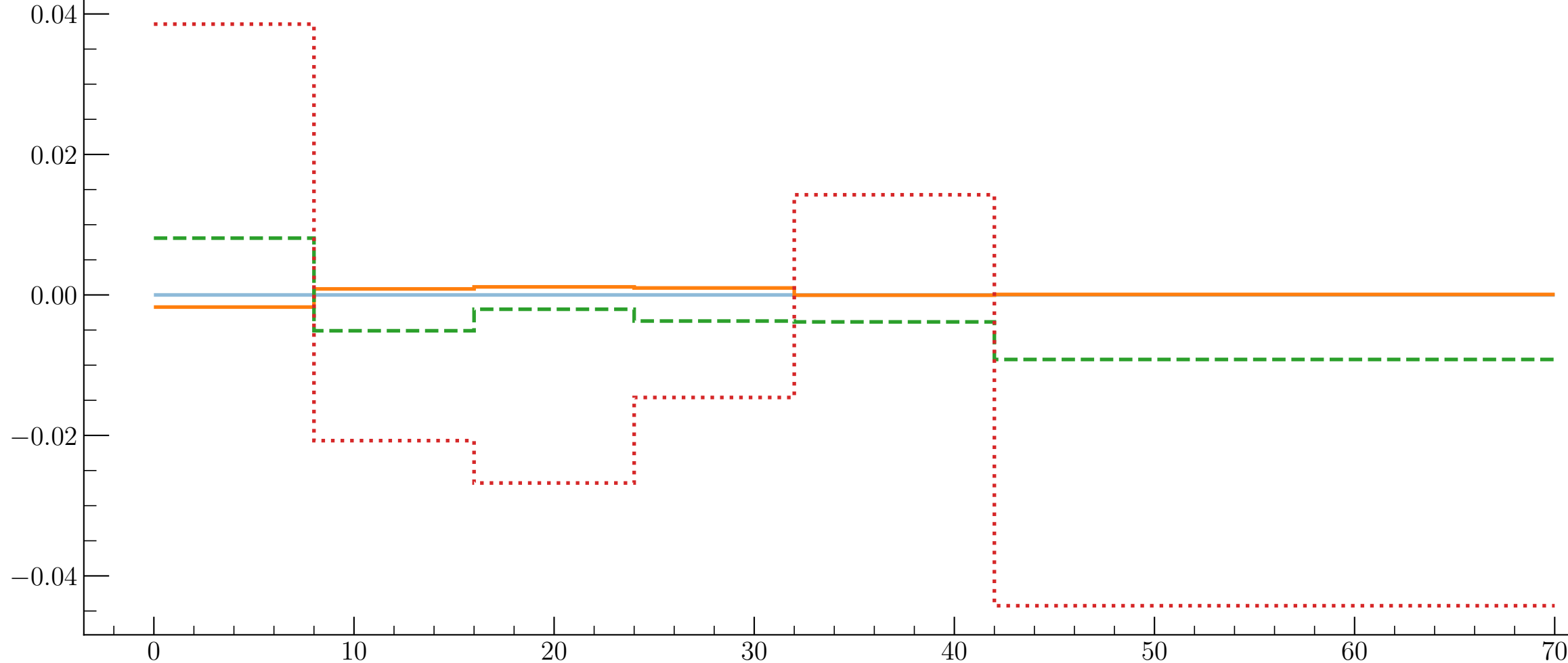
ATLAS

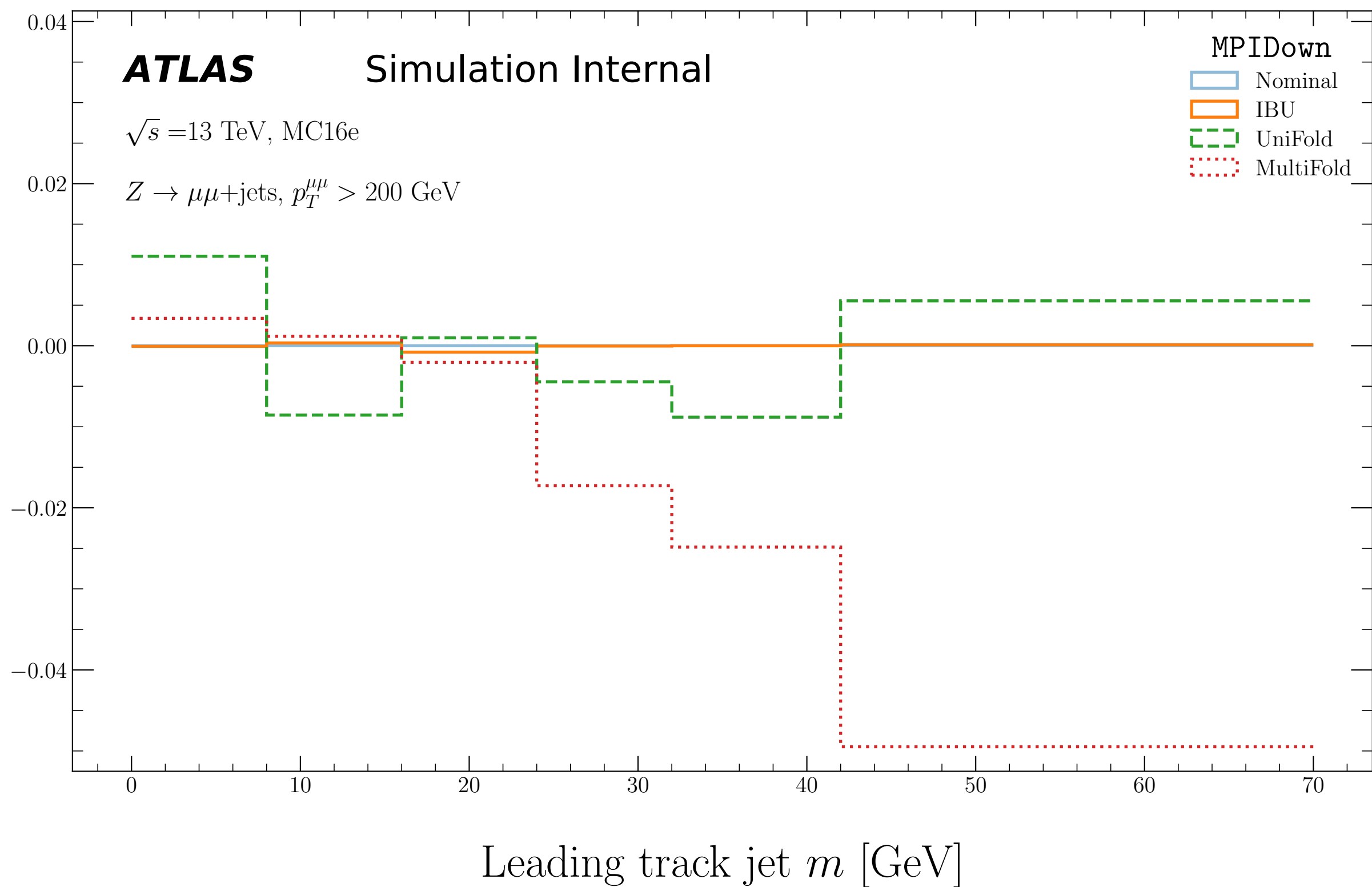
Simulation Internal

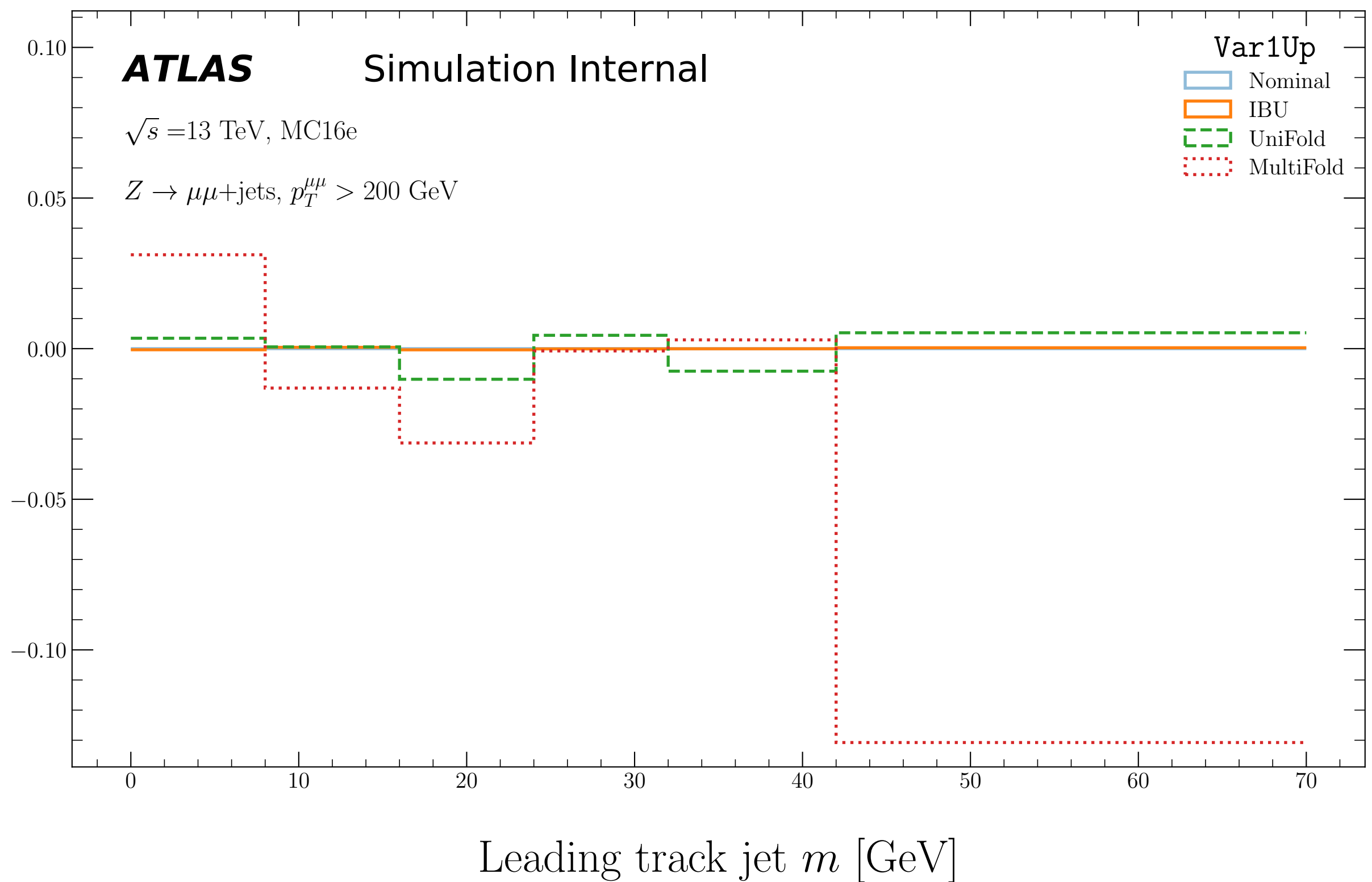
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

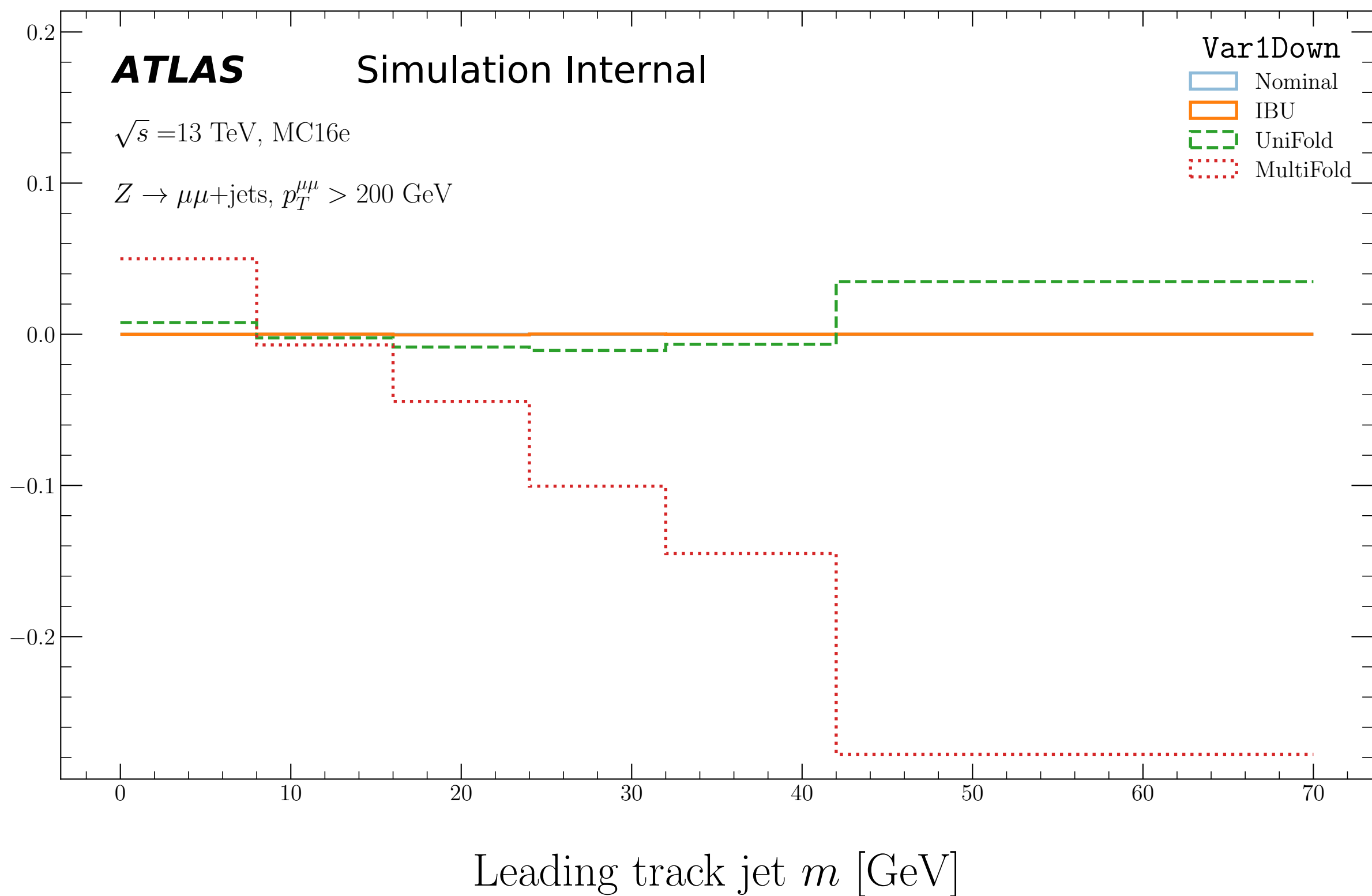
MPIUp

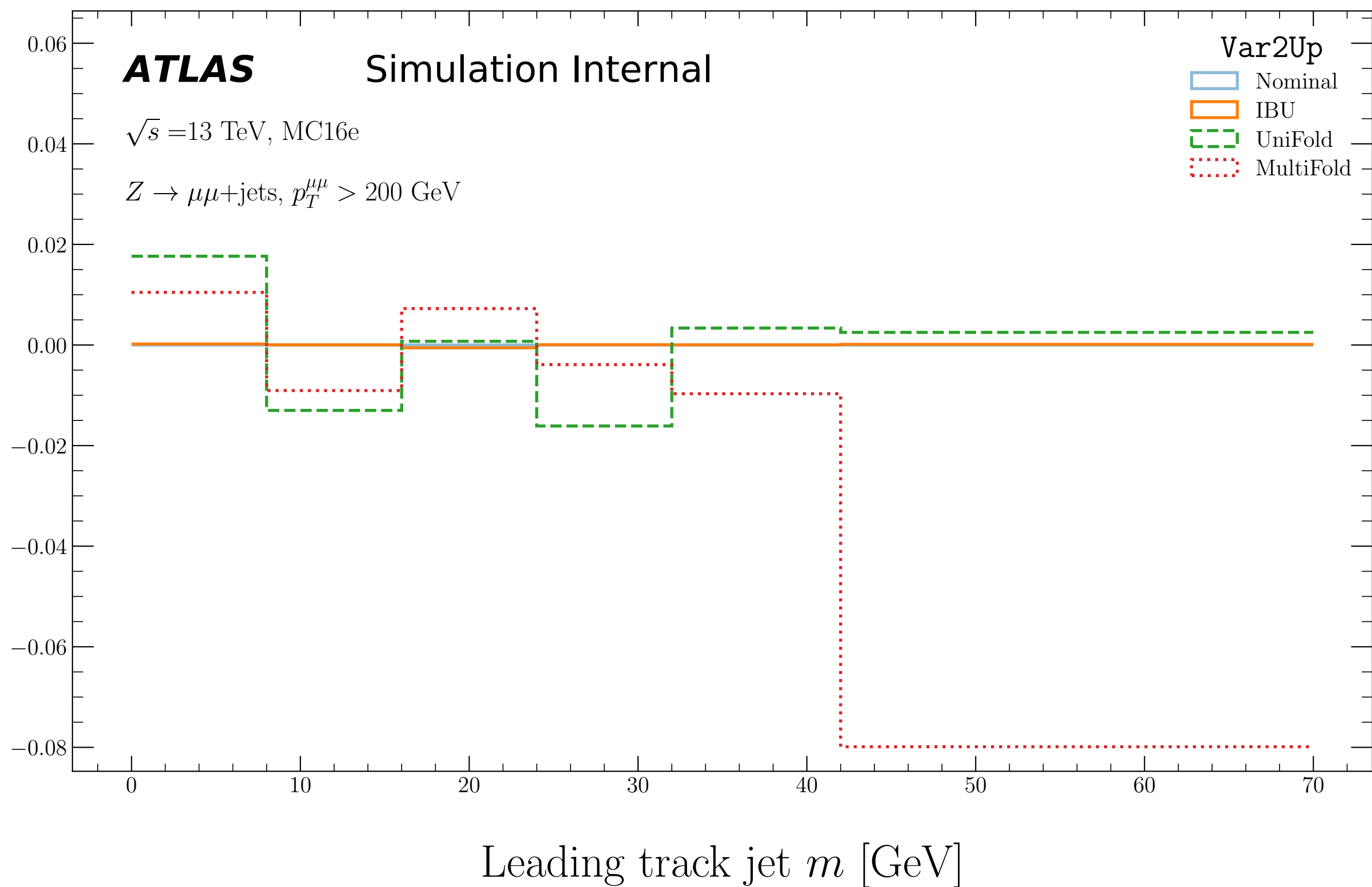
- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet m [GeV]









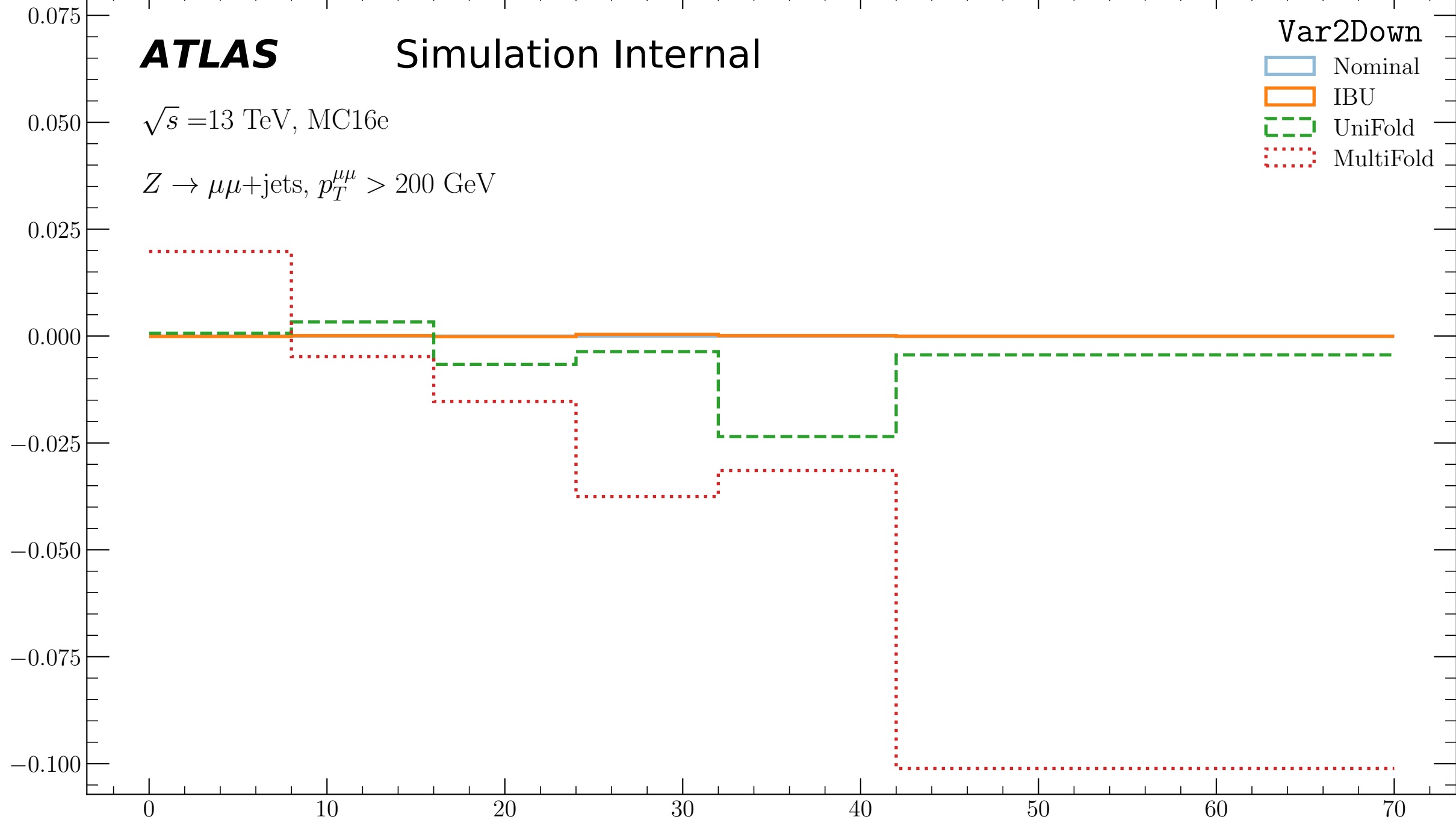
ATLAS

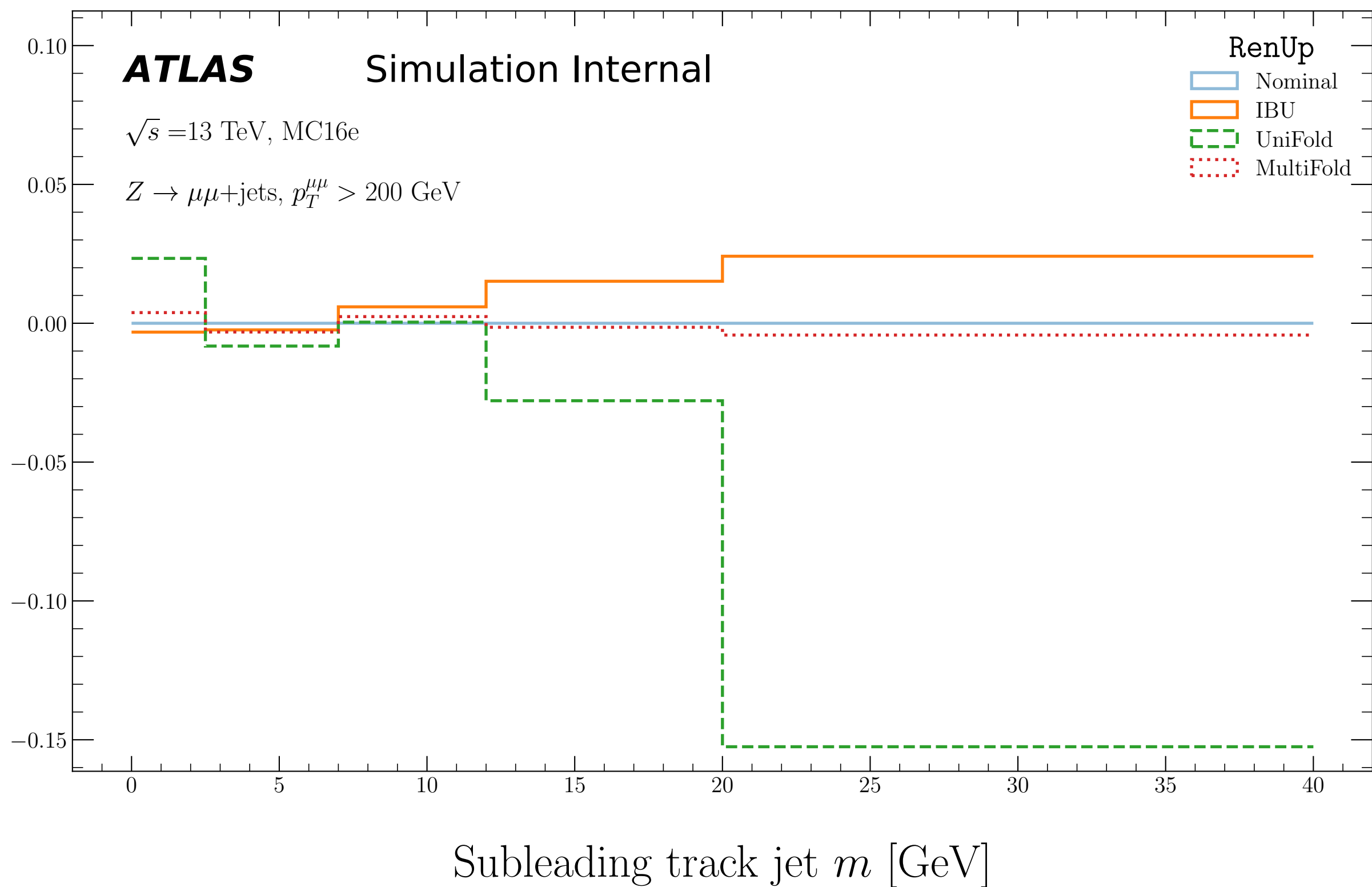
Simulation Internal

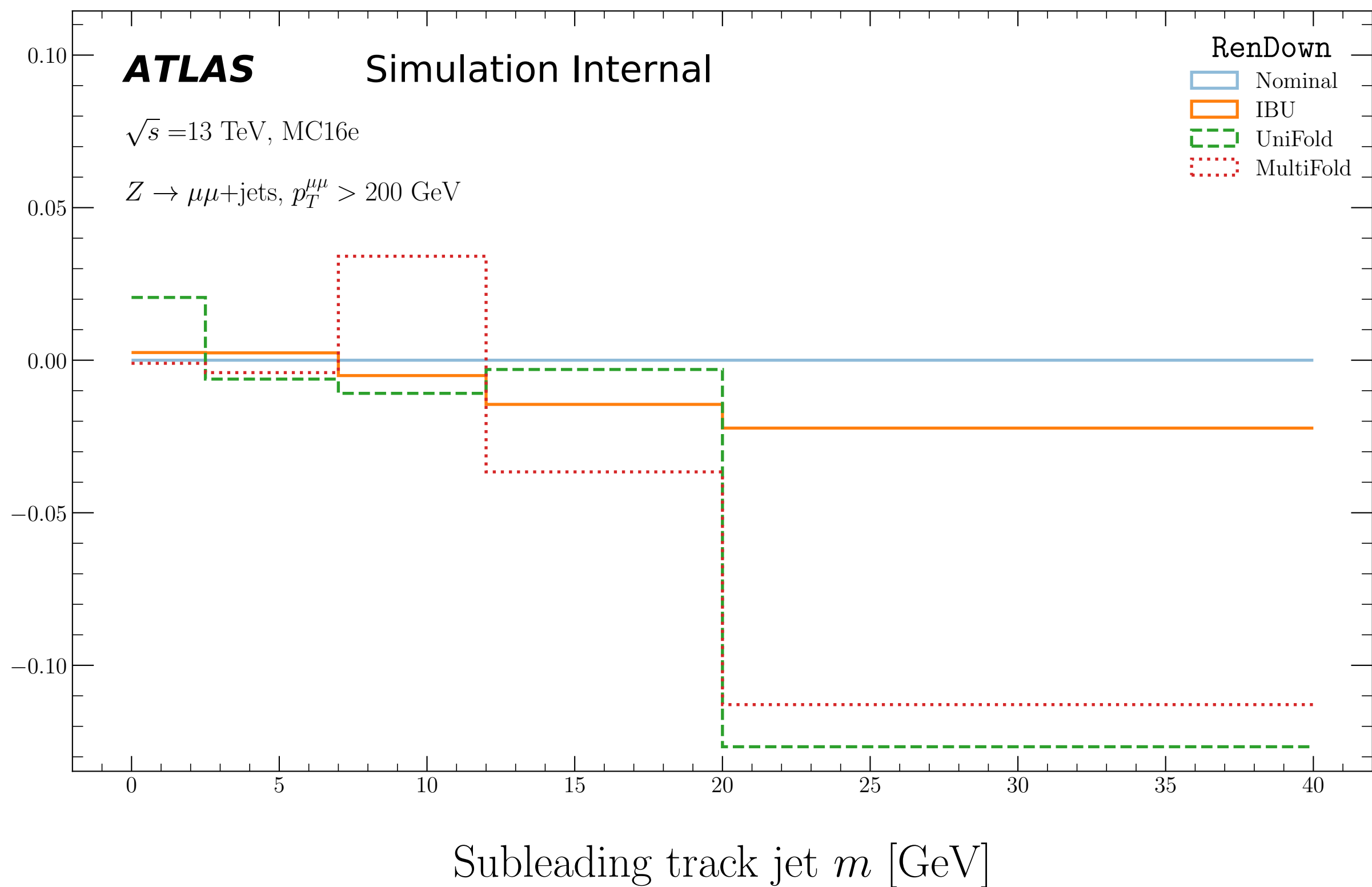
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

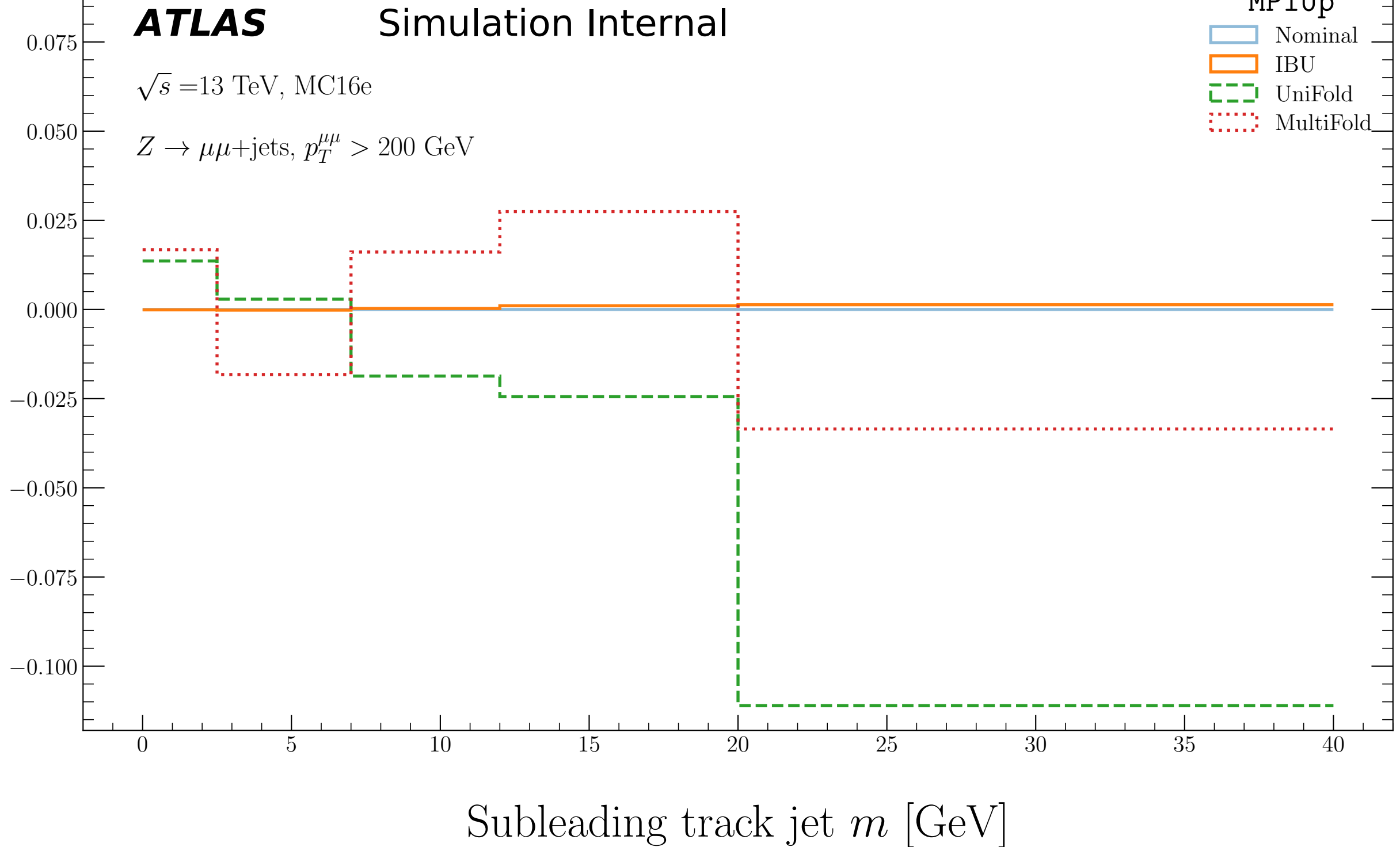
Var2Down

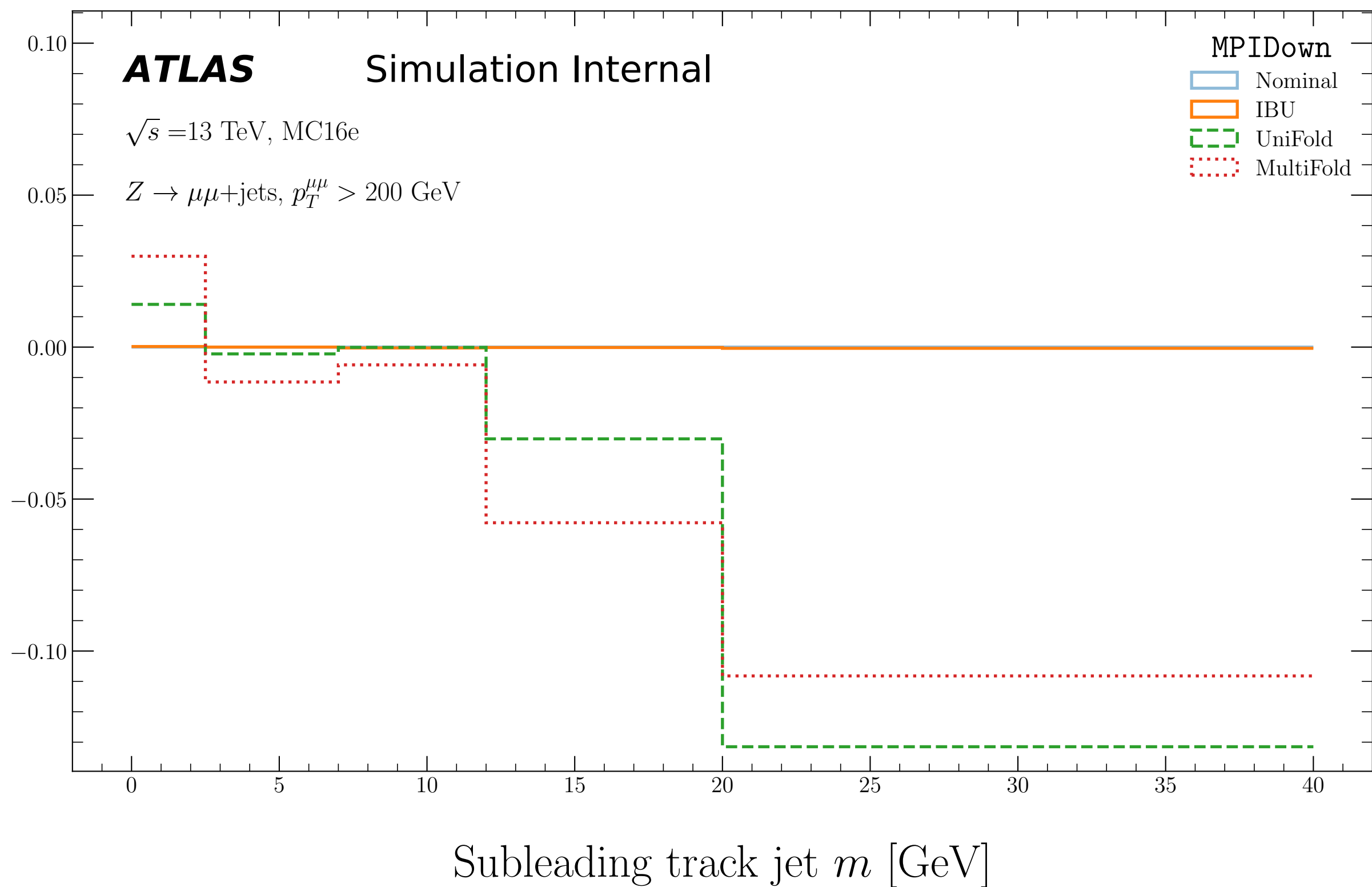
- Nominal
- IBU
- UniFold
- MultiFold

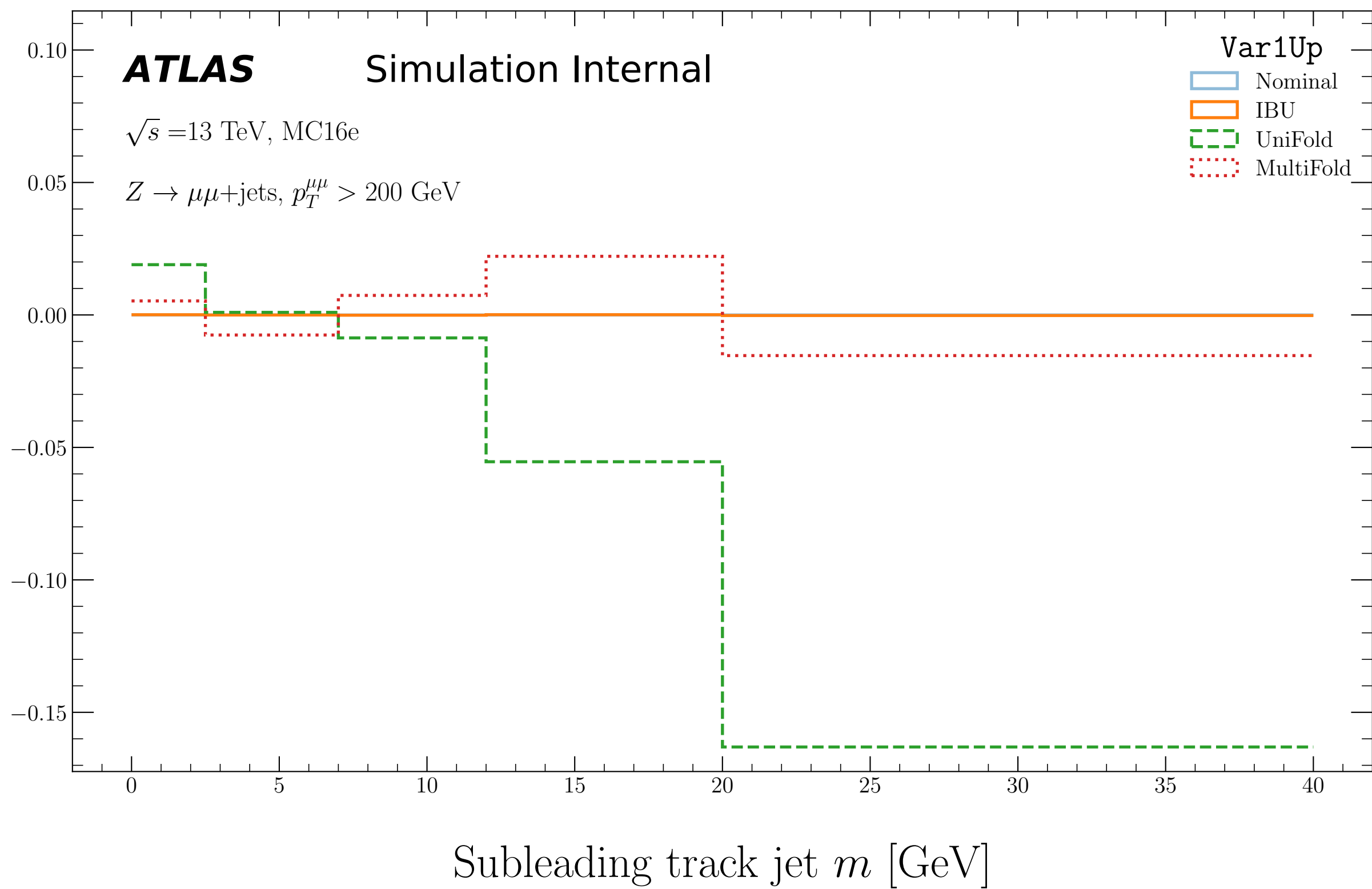
Leading track jet m [GeV]

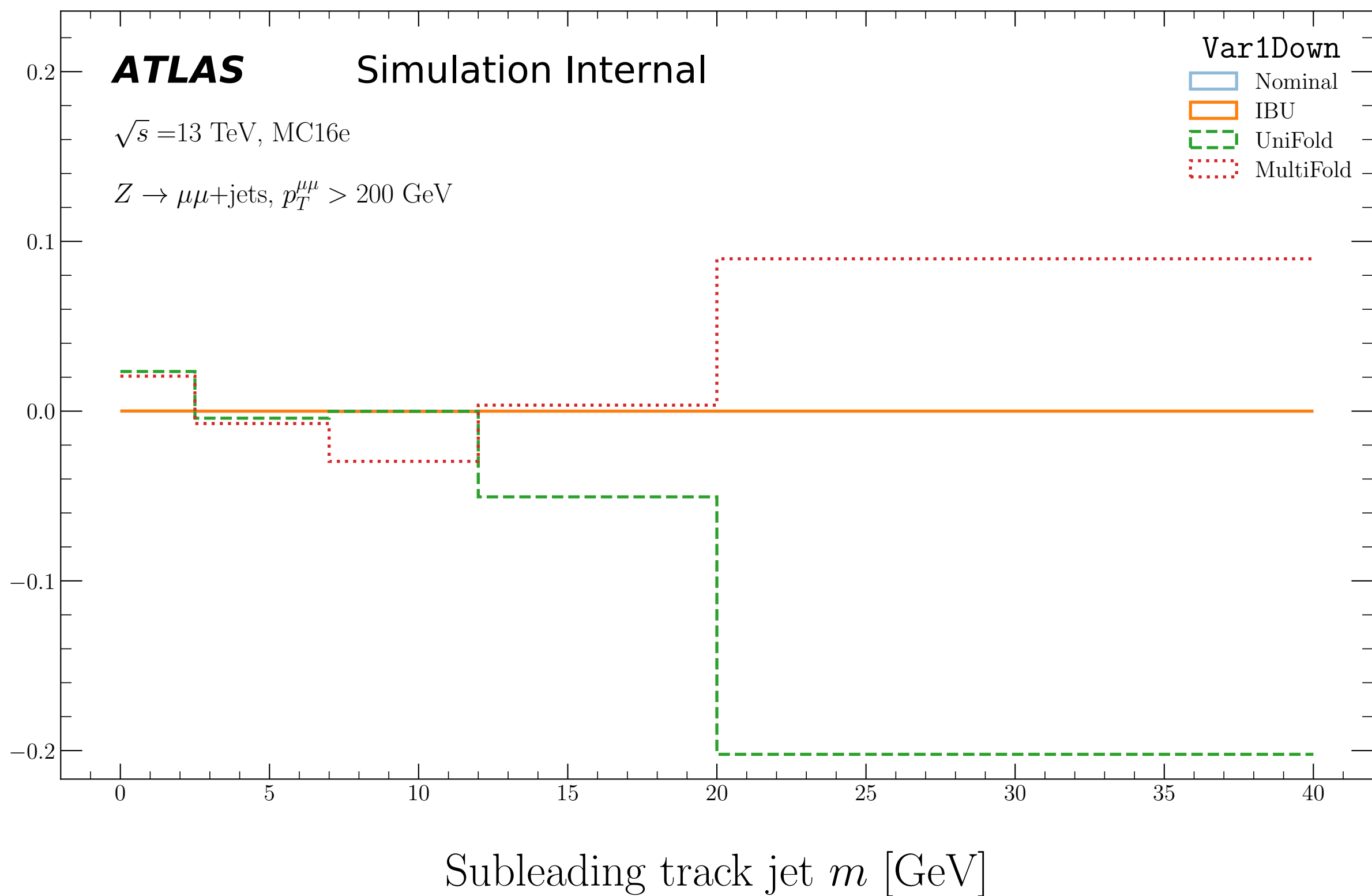


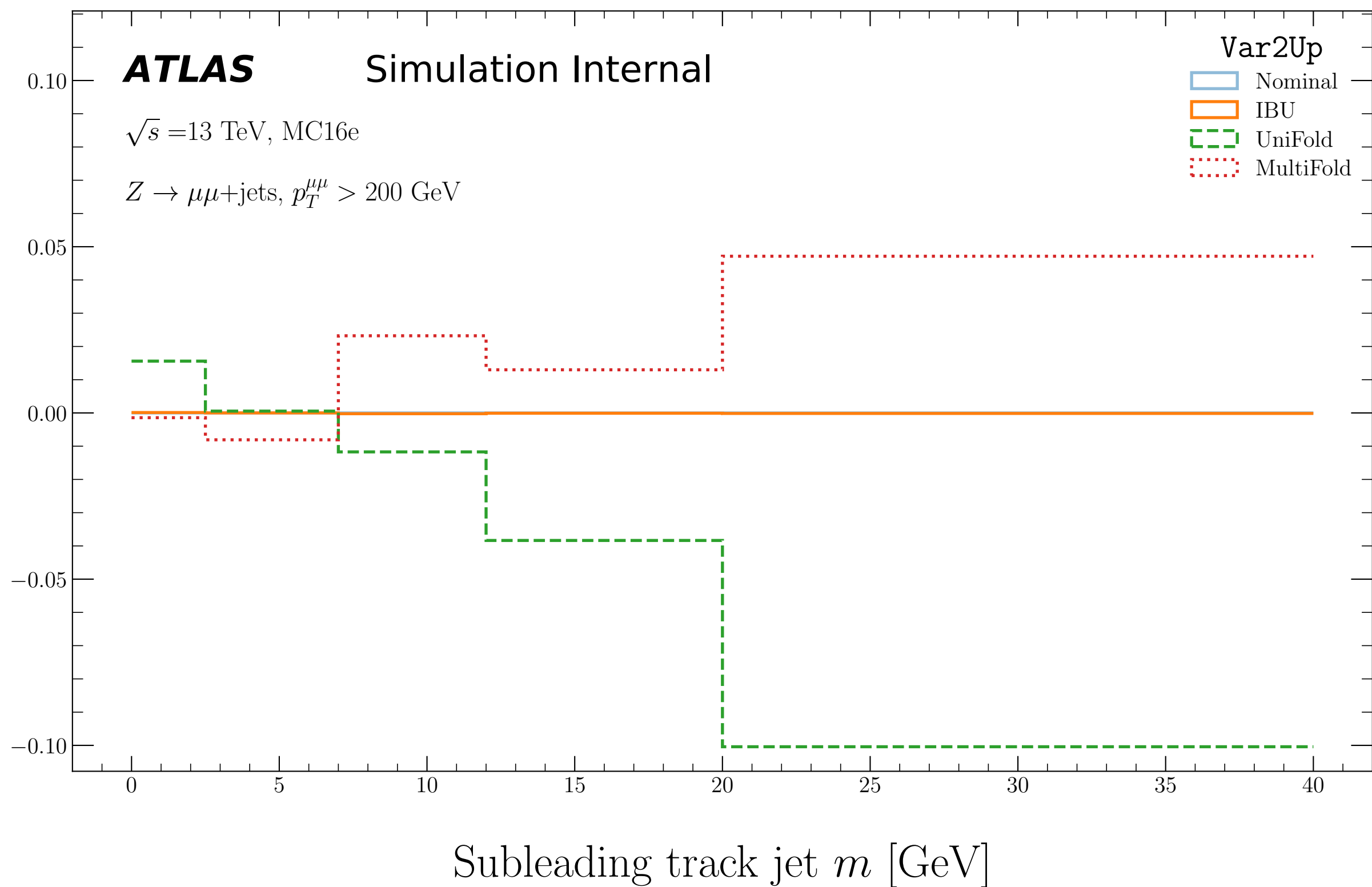


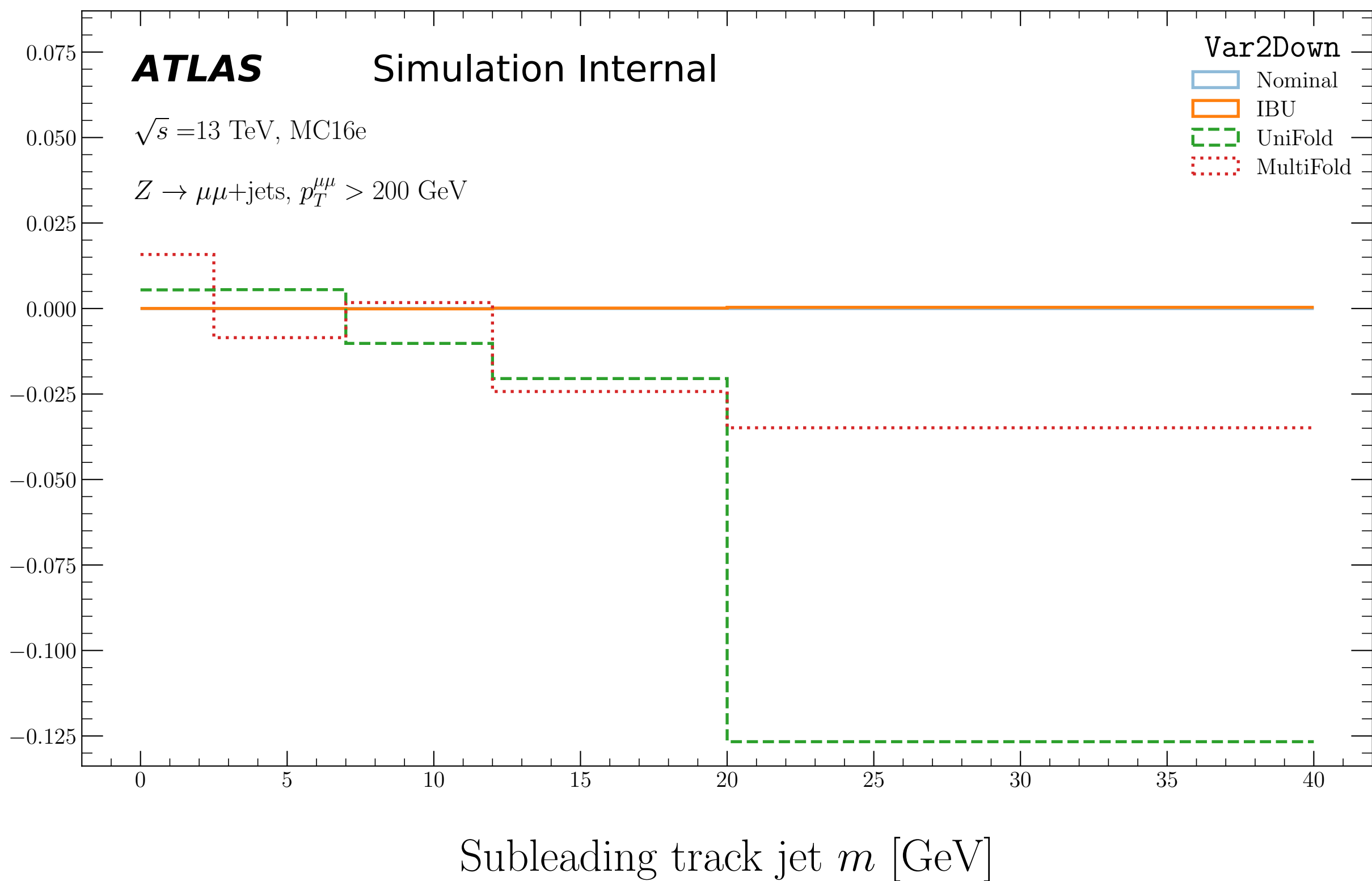


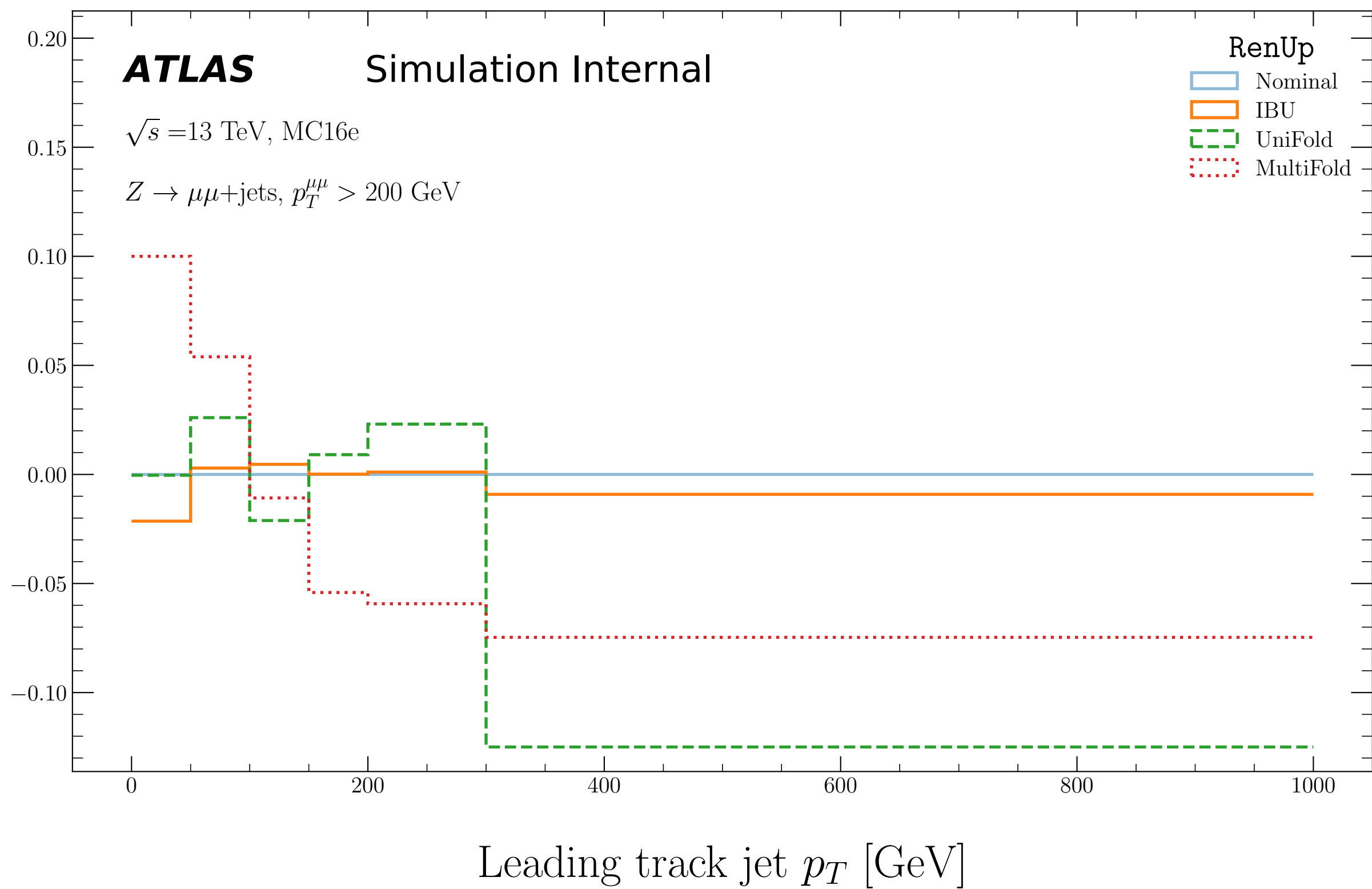


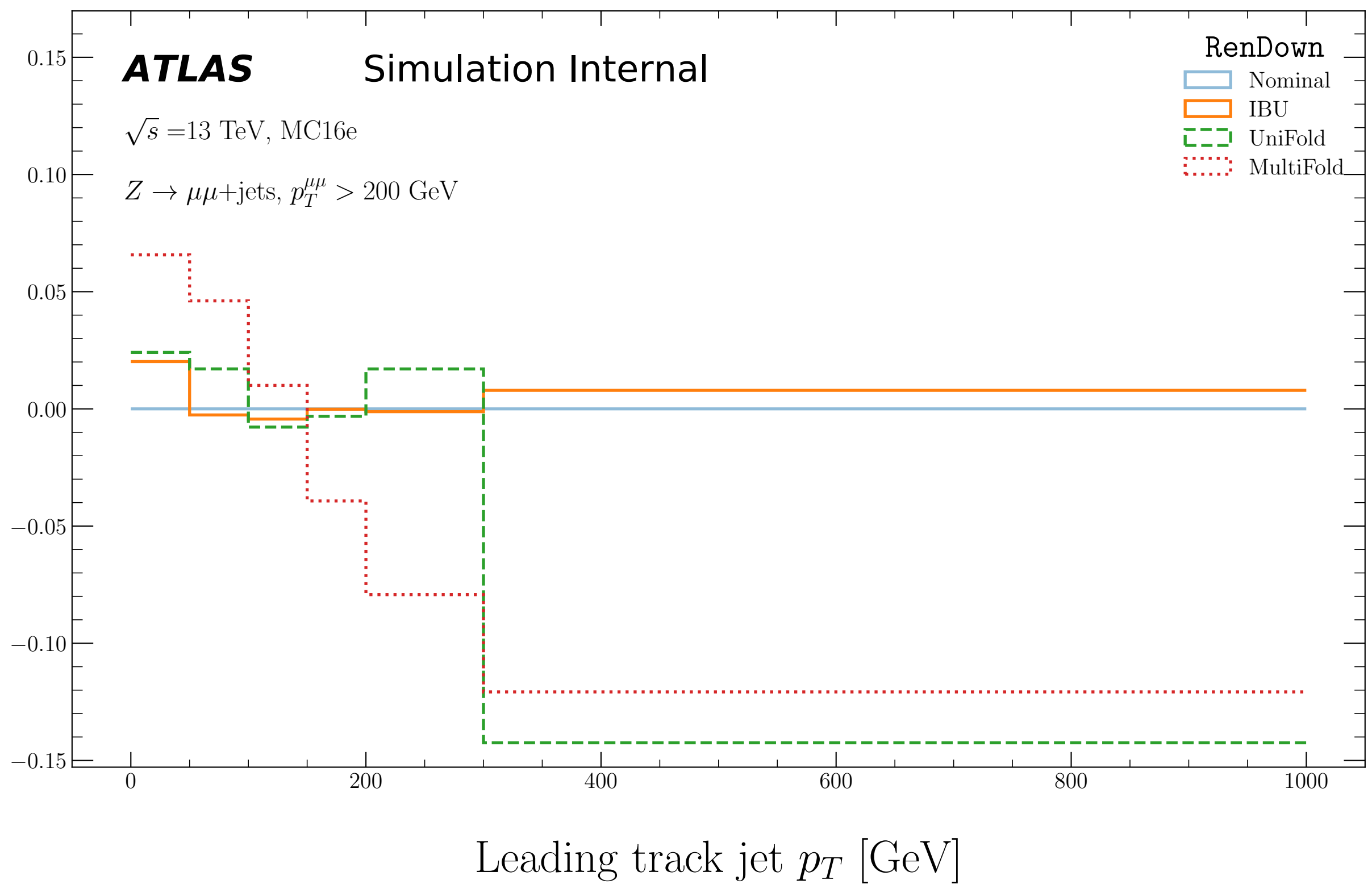












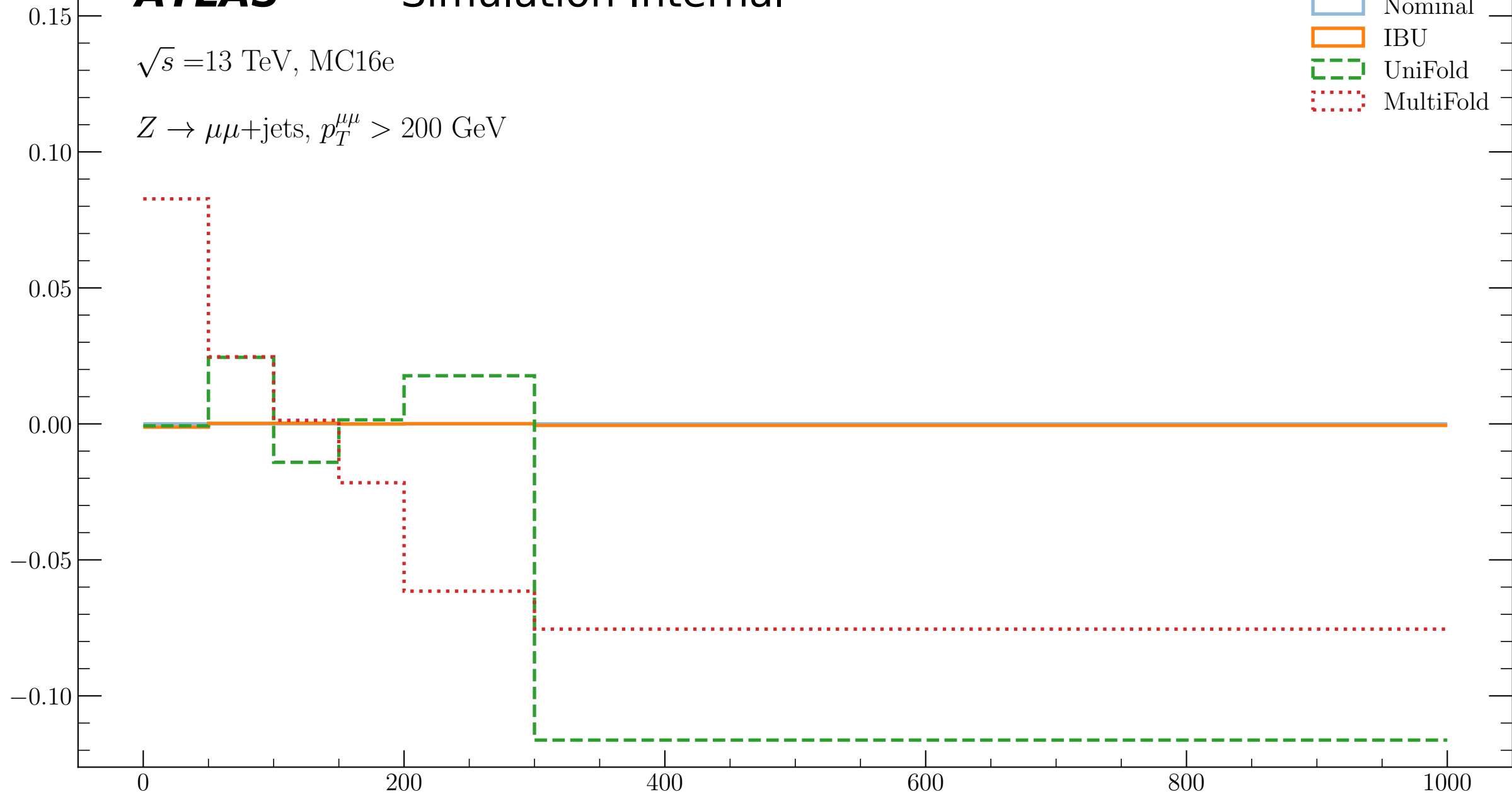
ATLAS

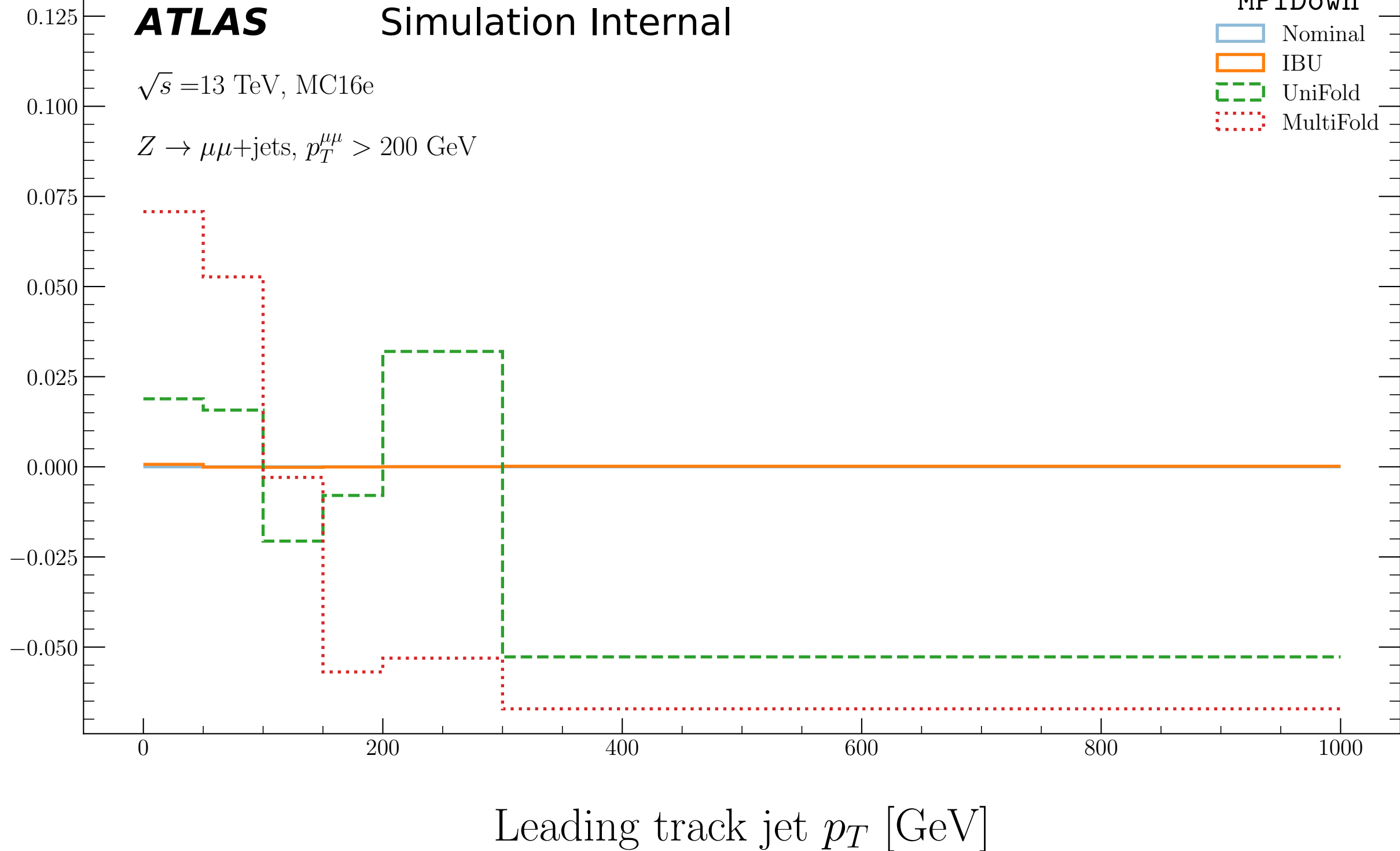
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet p_T [GeV]



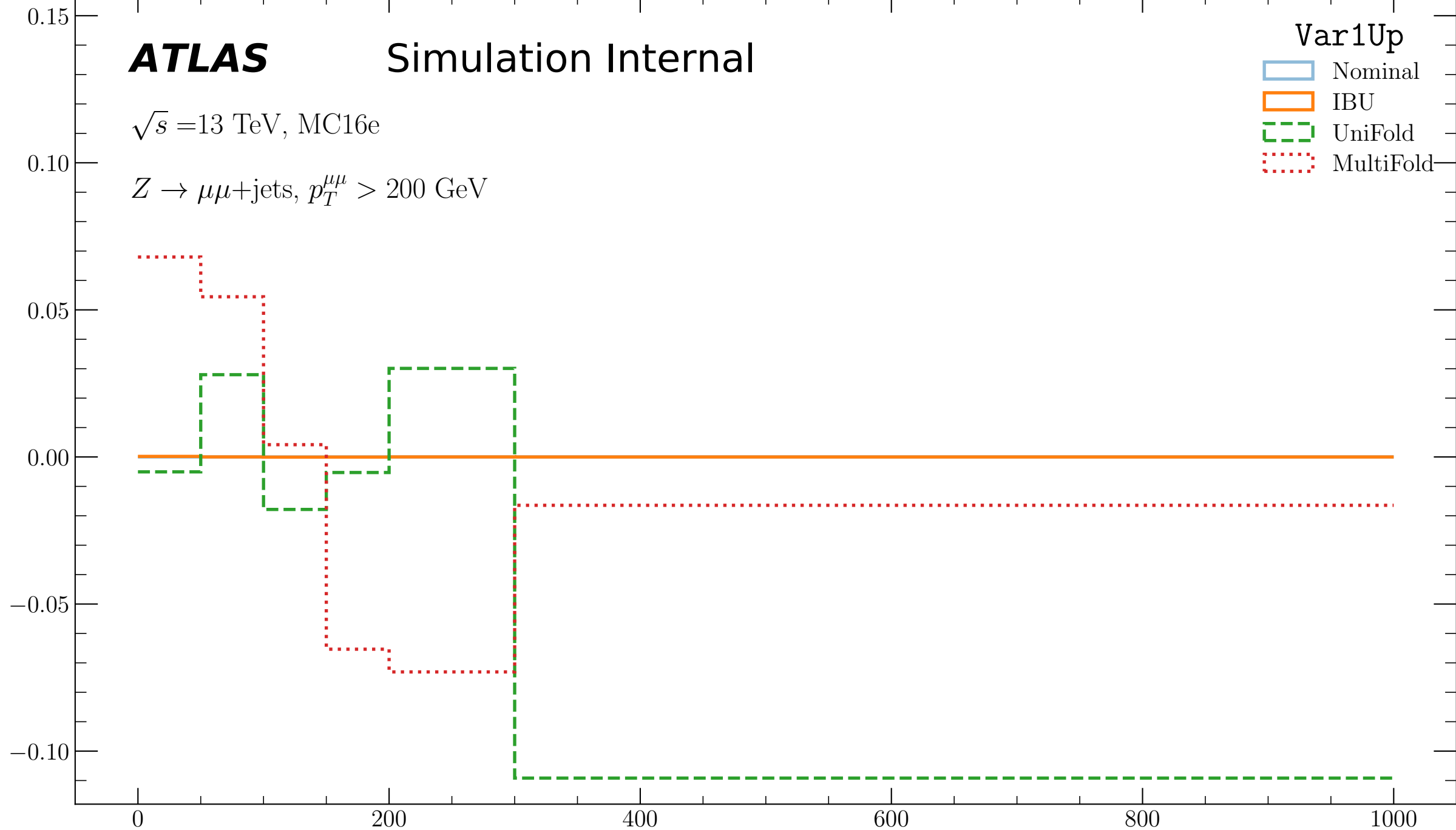
ATLAS

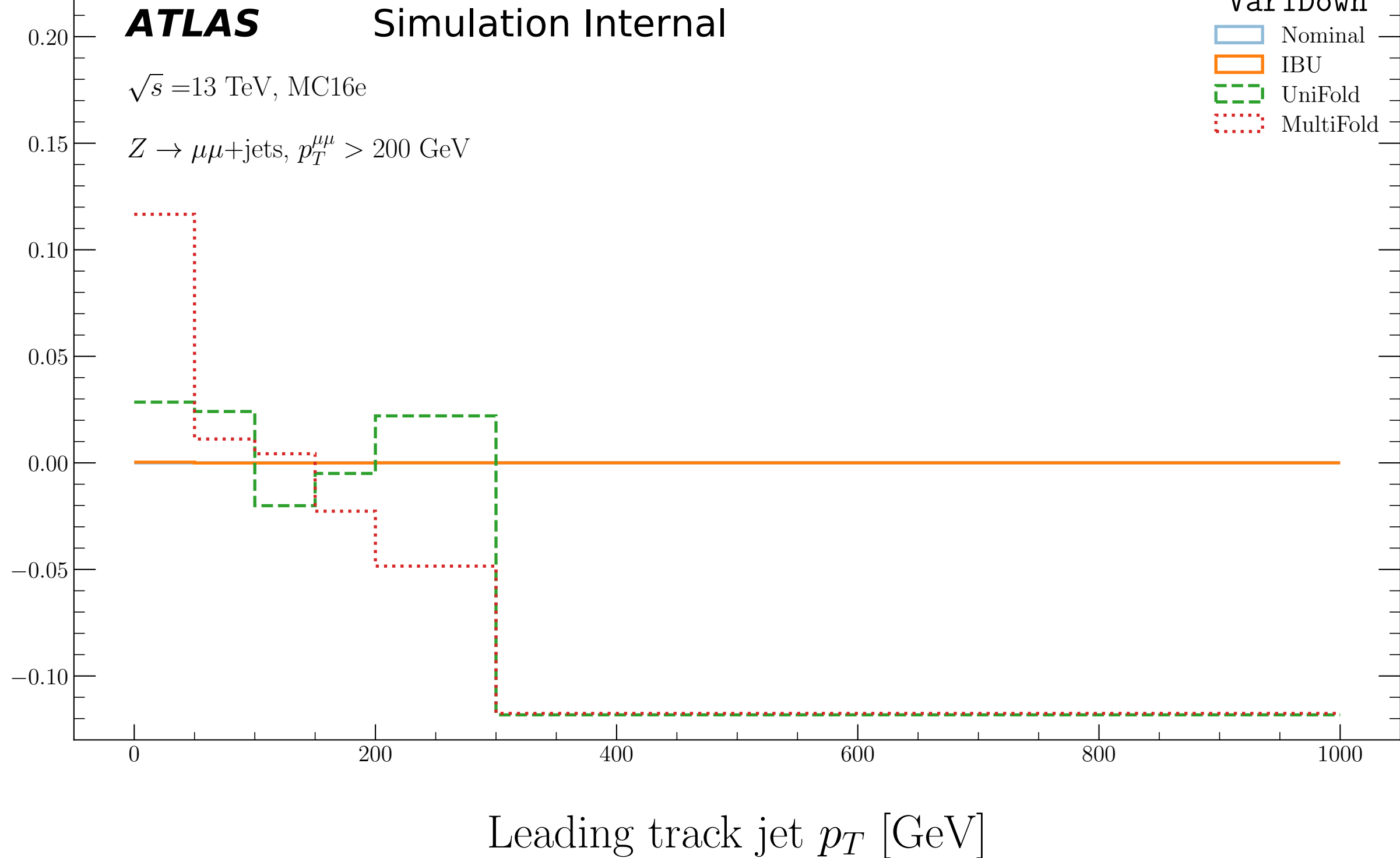
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet p_T [GeV]



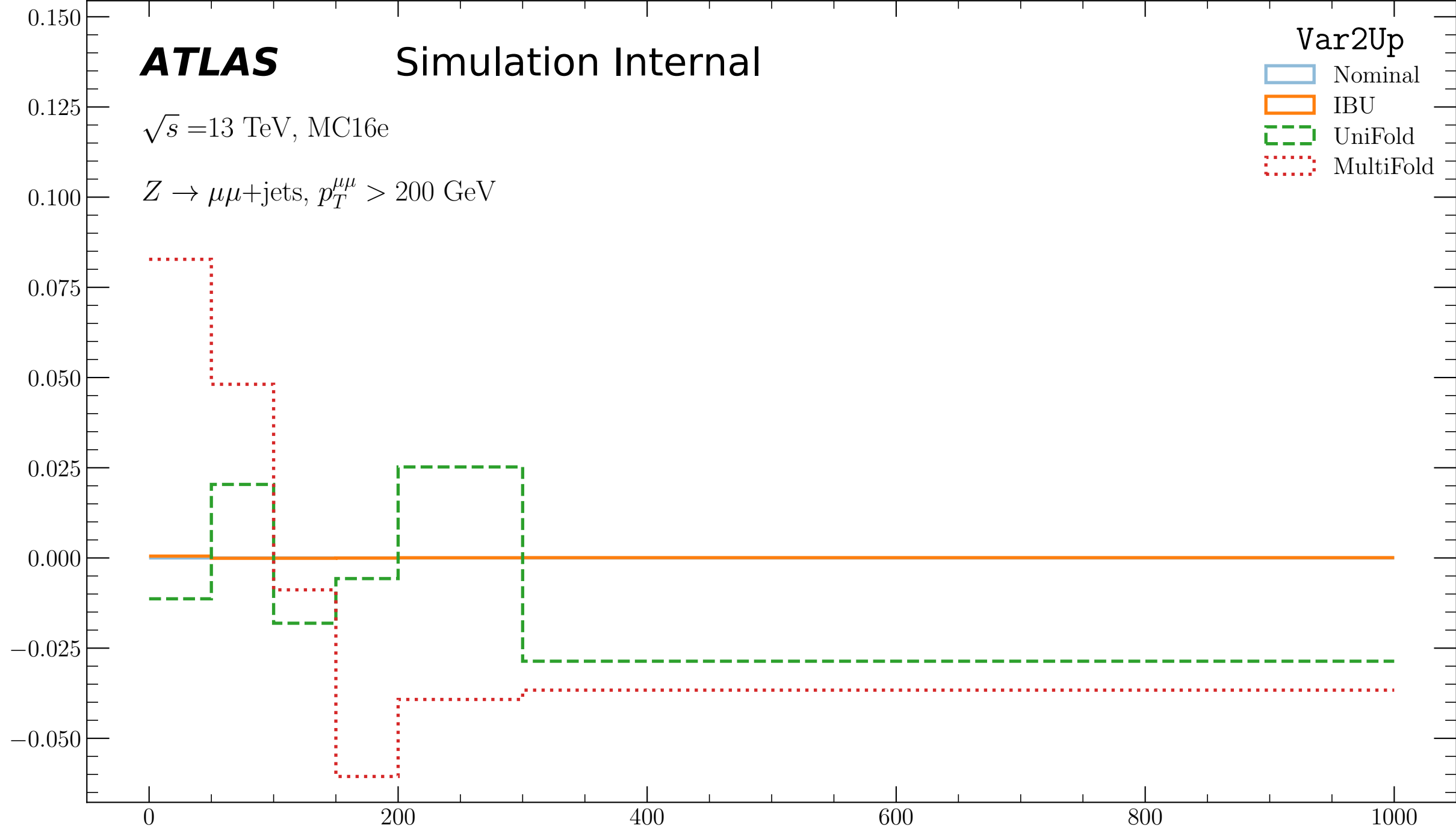
ATLAS

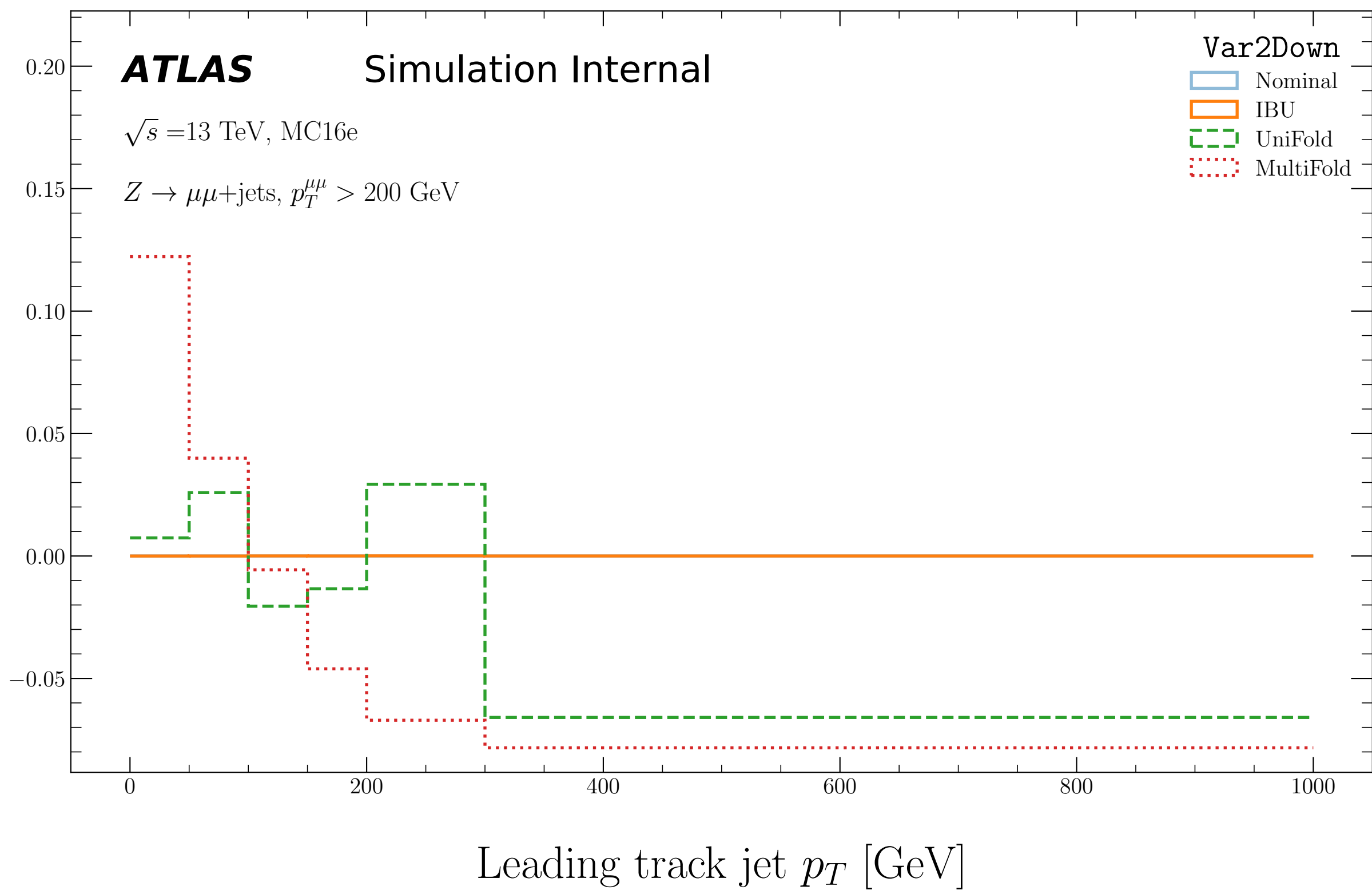
Simulation Internal

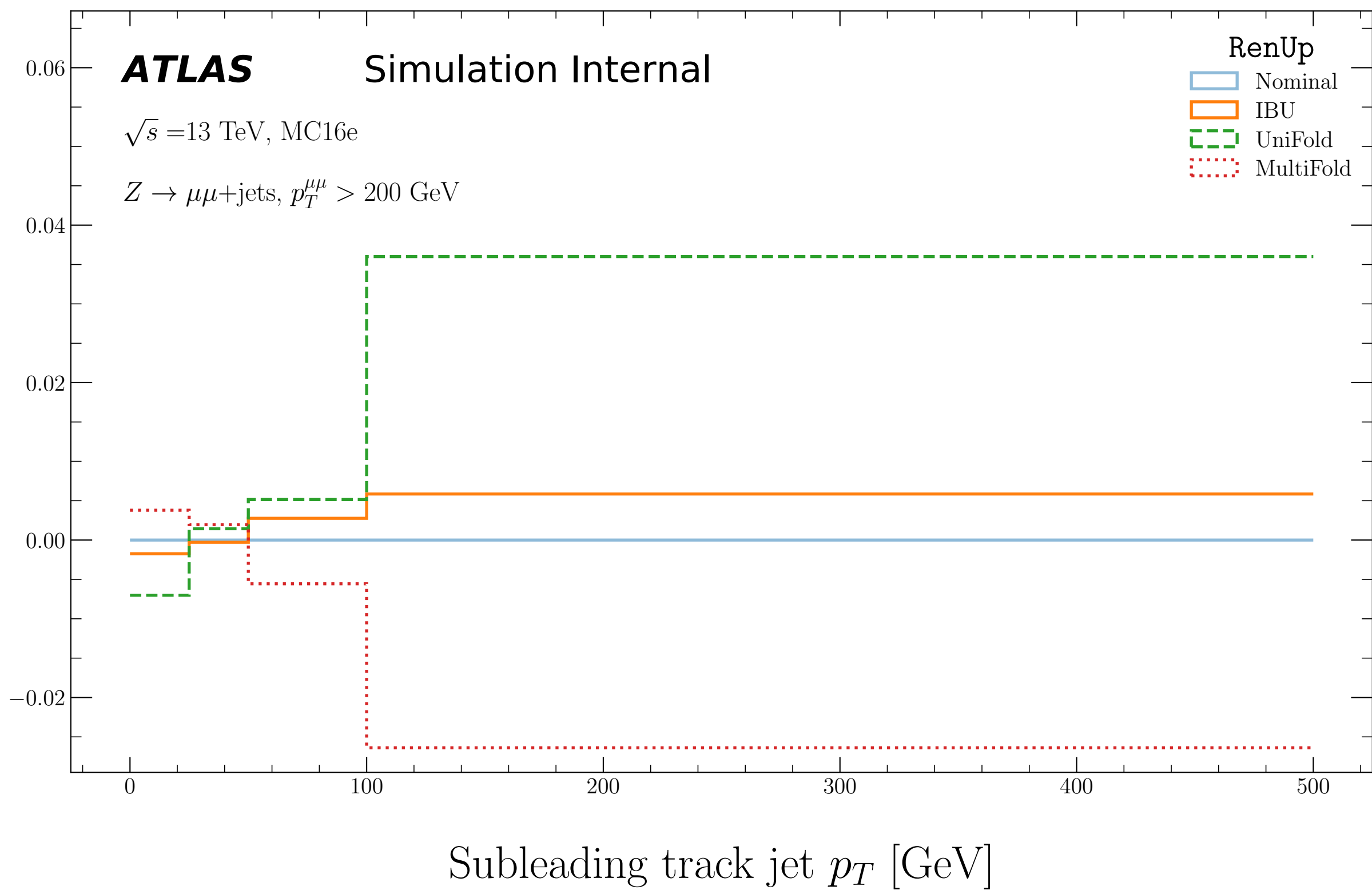
 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

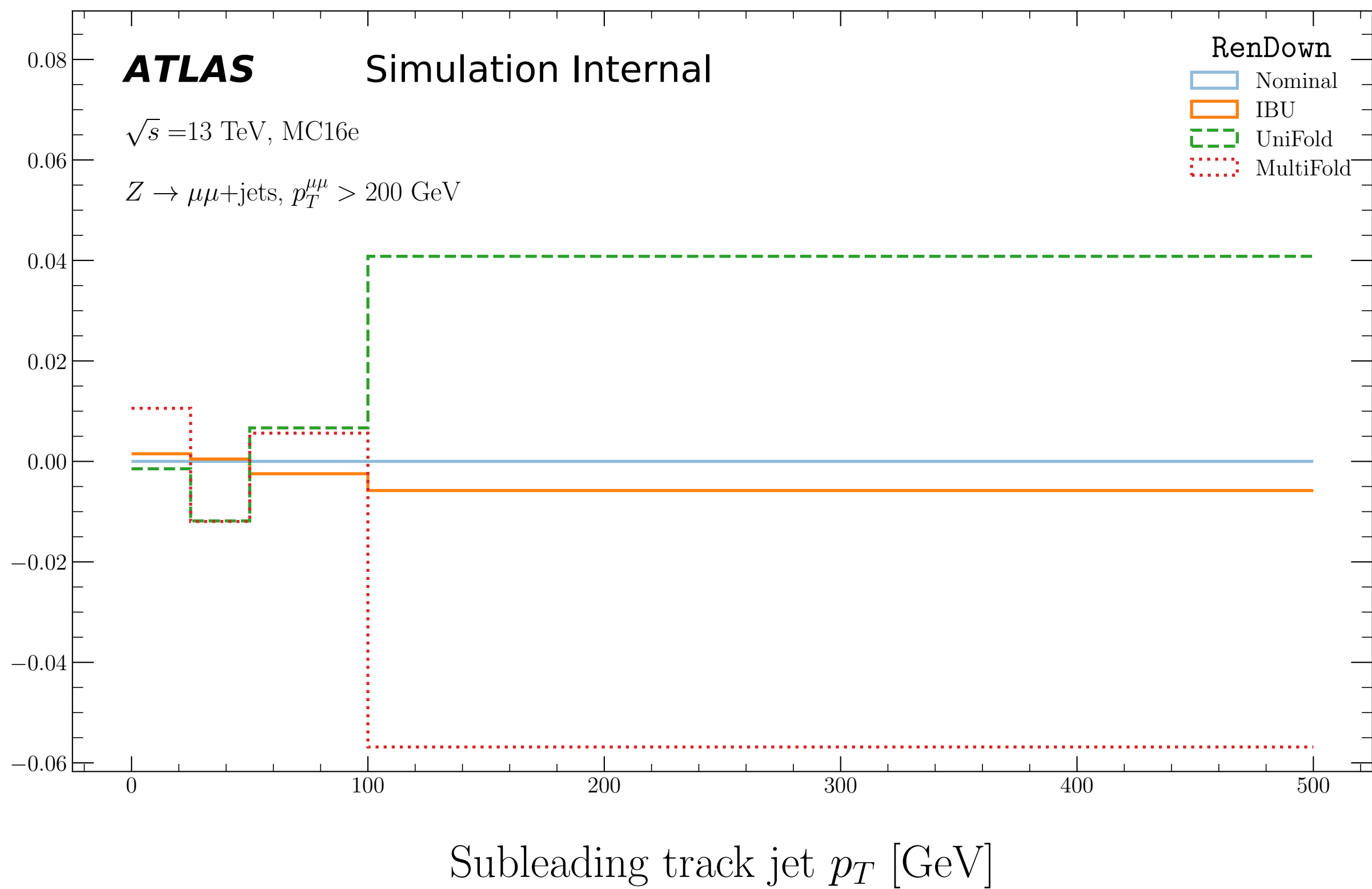
Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet p_T [GeV]







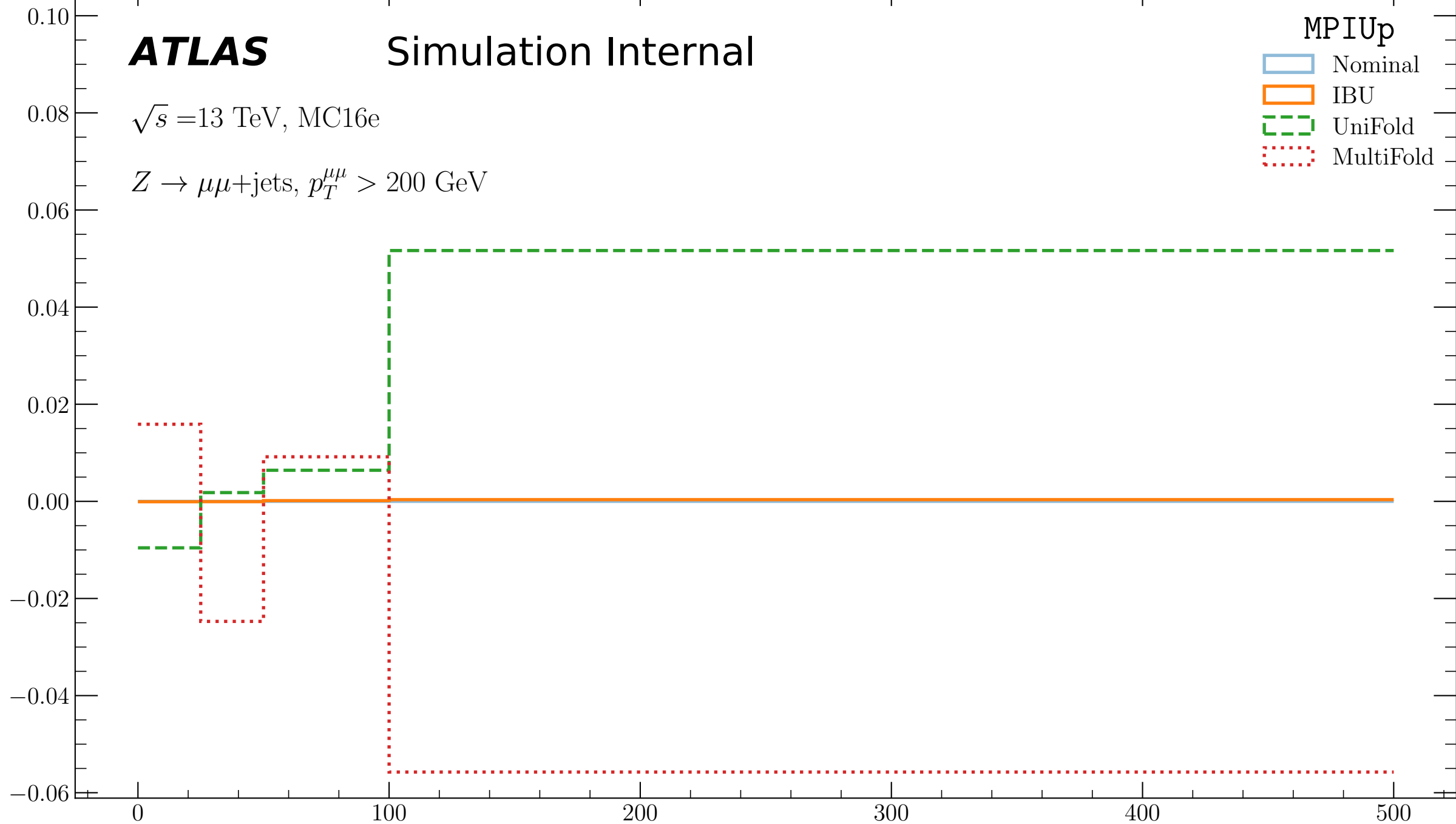
ATLAS

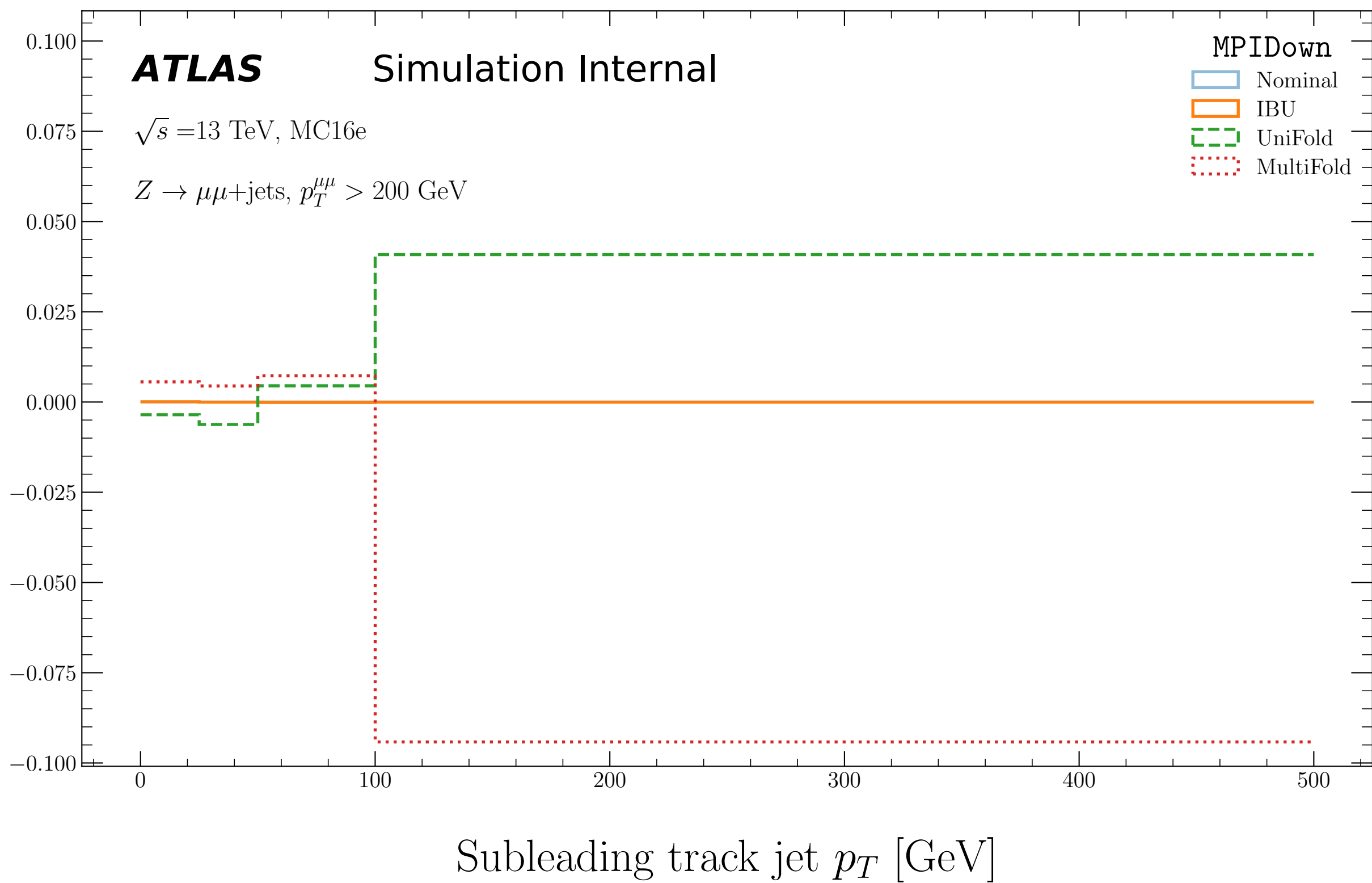
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet p_T [GeV]



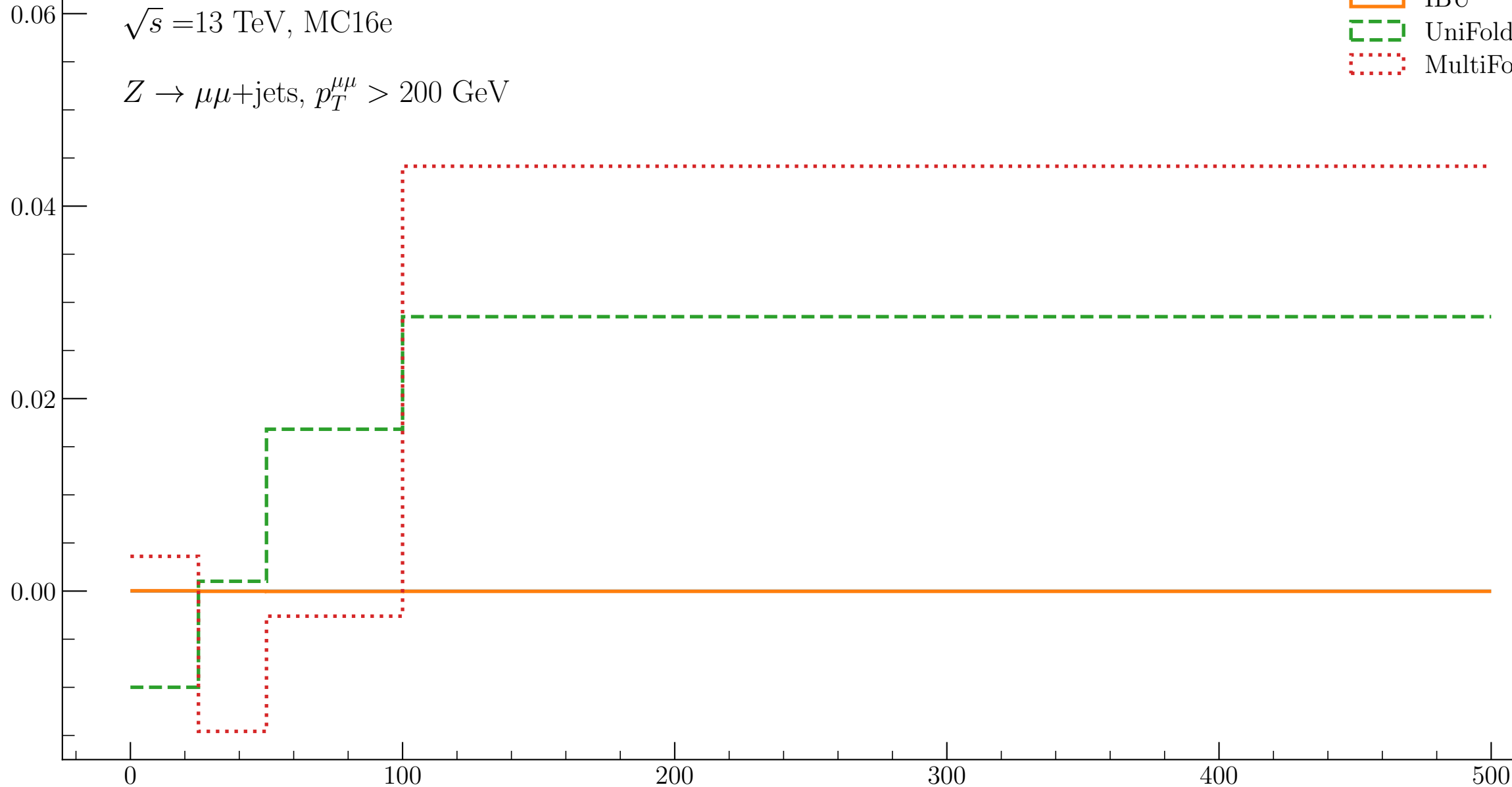
ATLAS

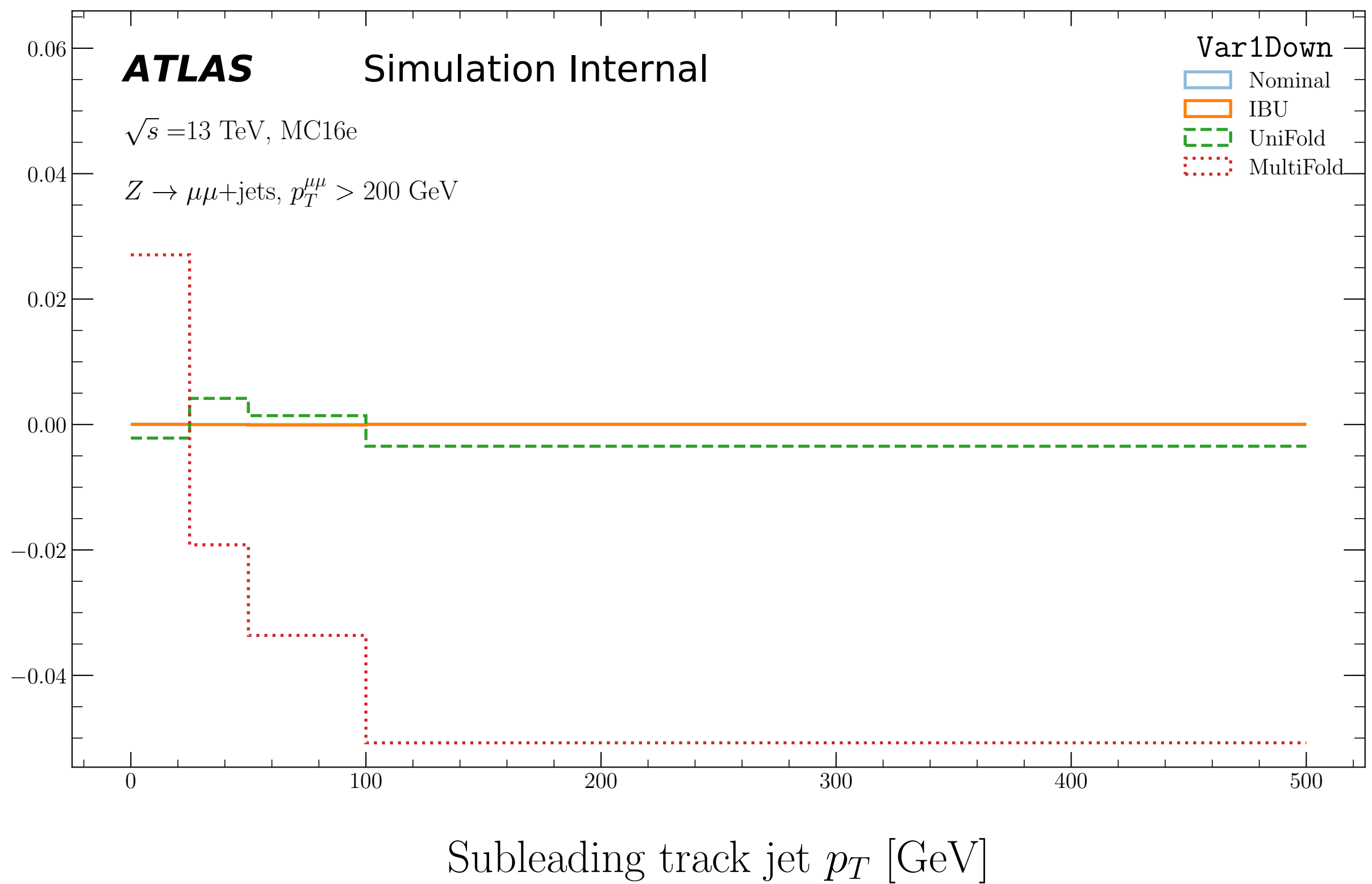
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet p_T [GeV]



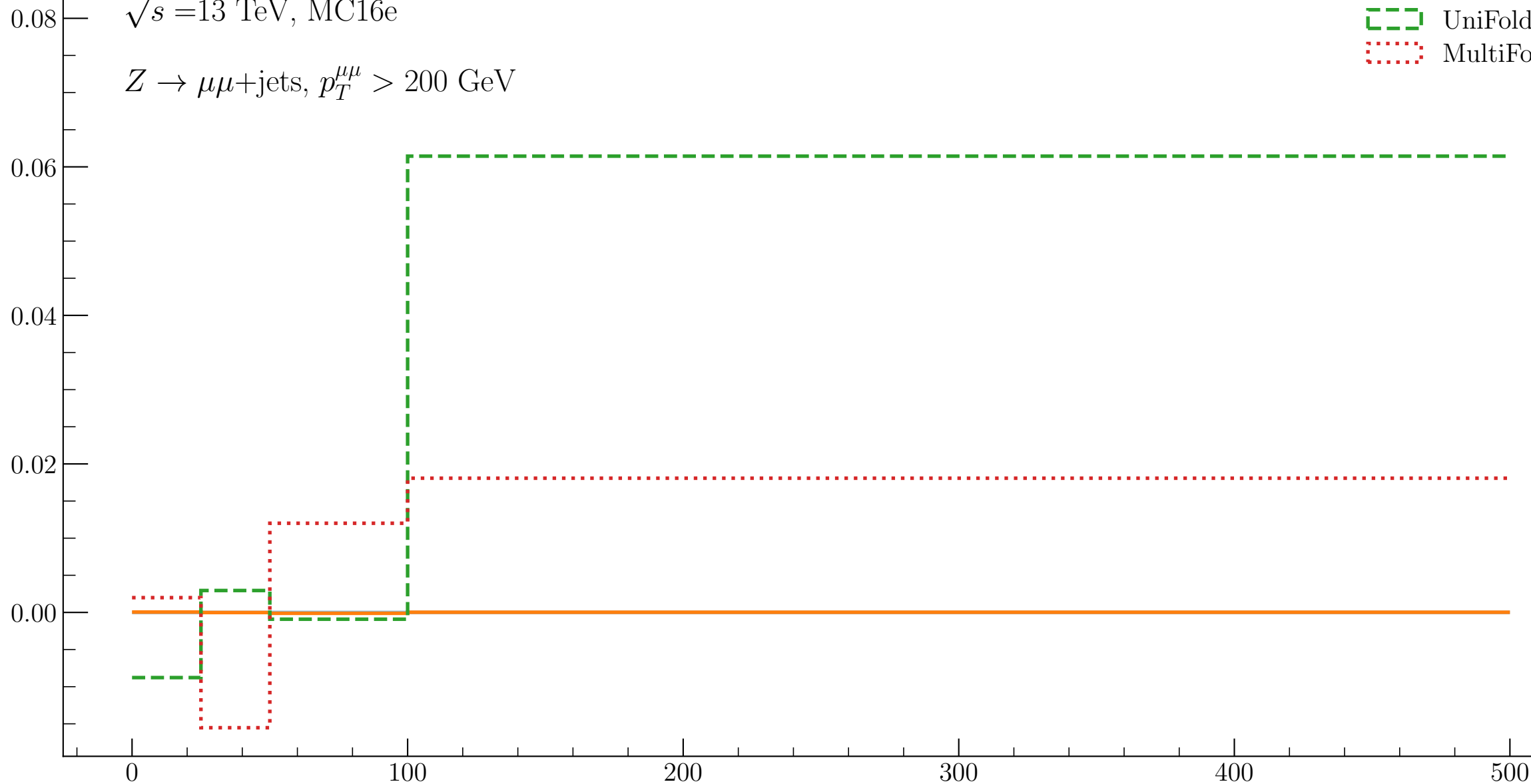
ATLAS

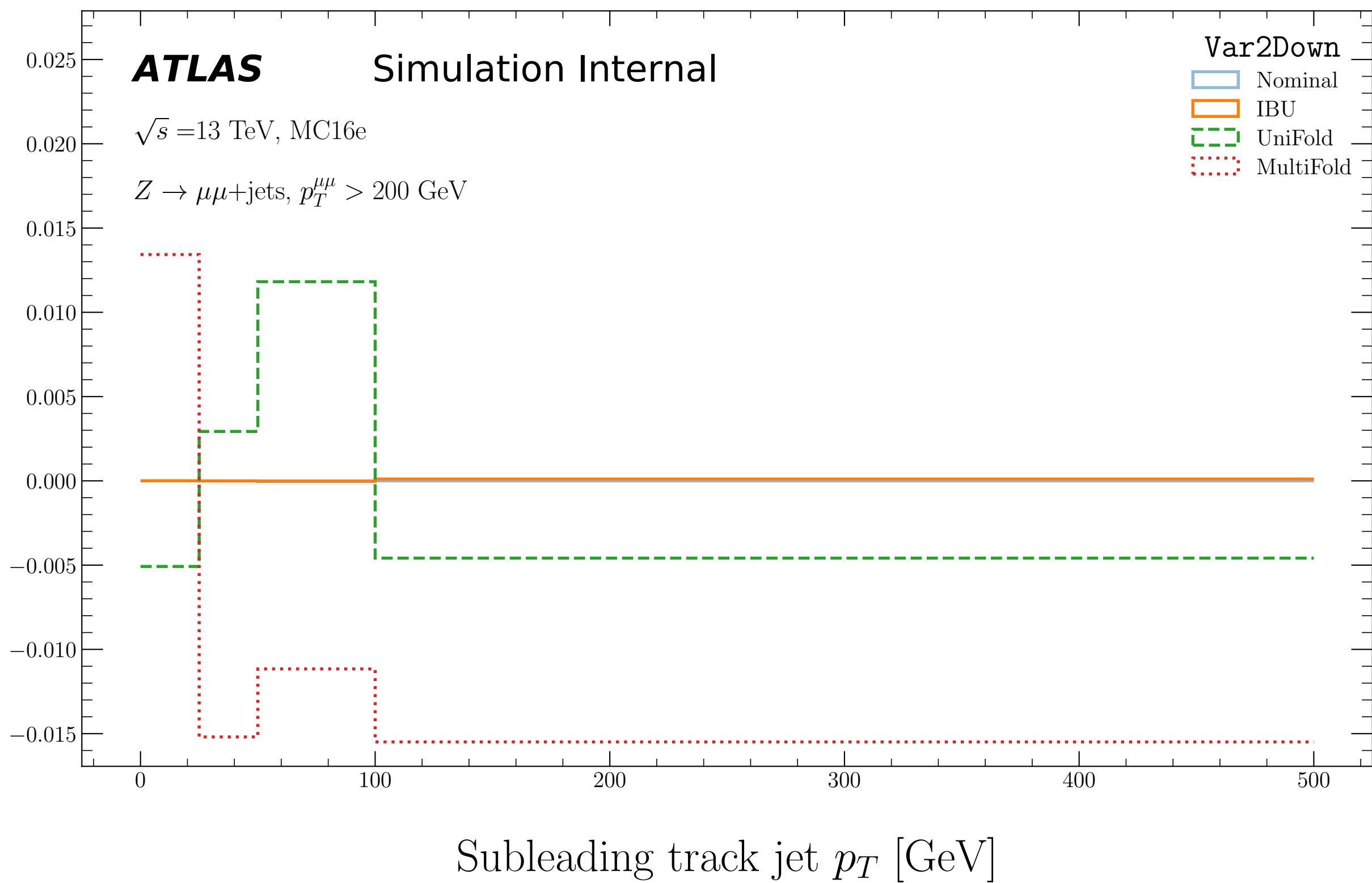
Simulation Internal

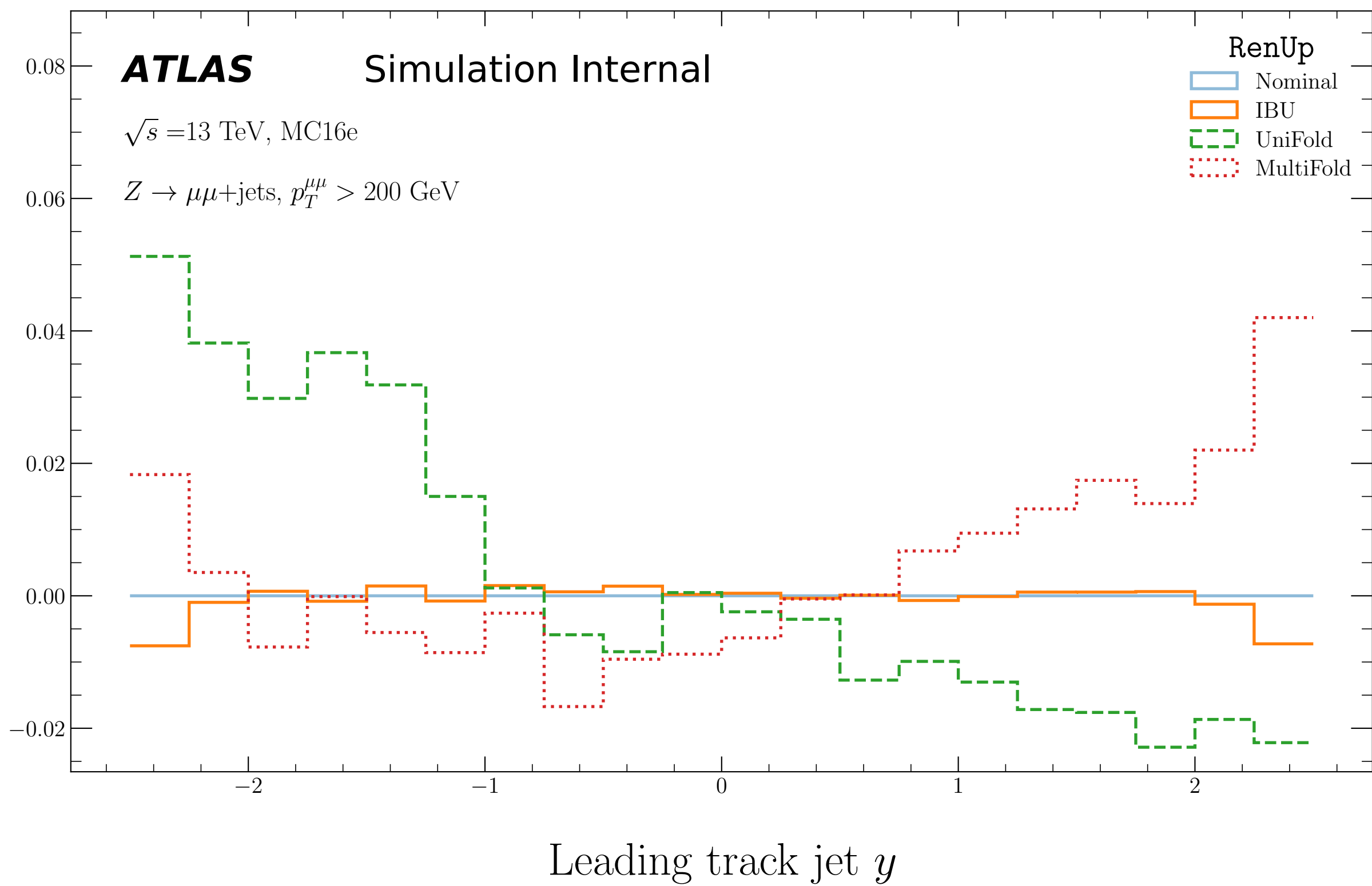
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

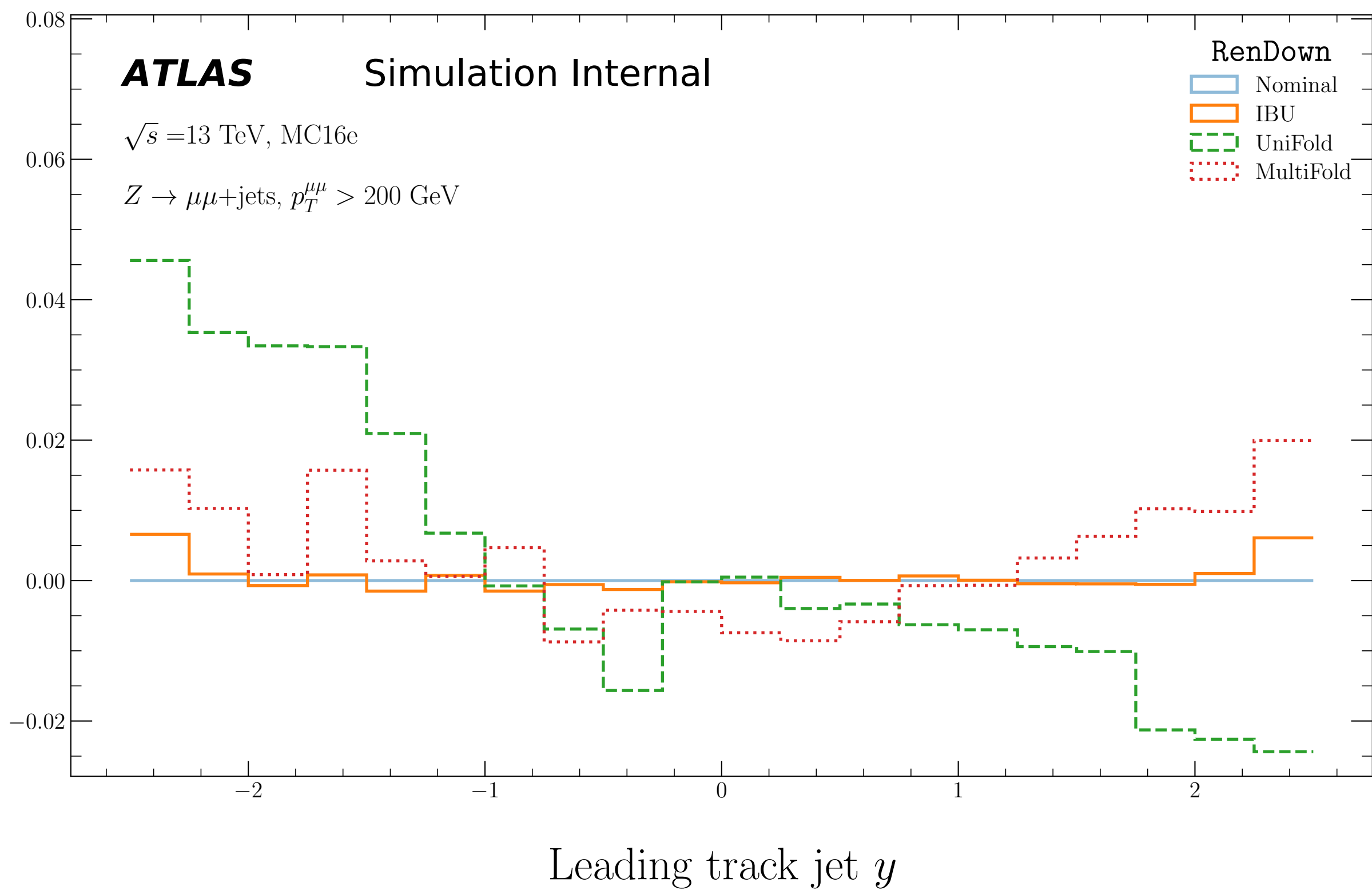
Var2Up

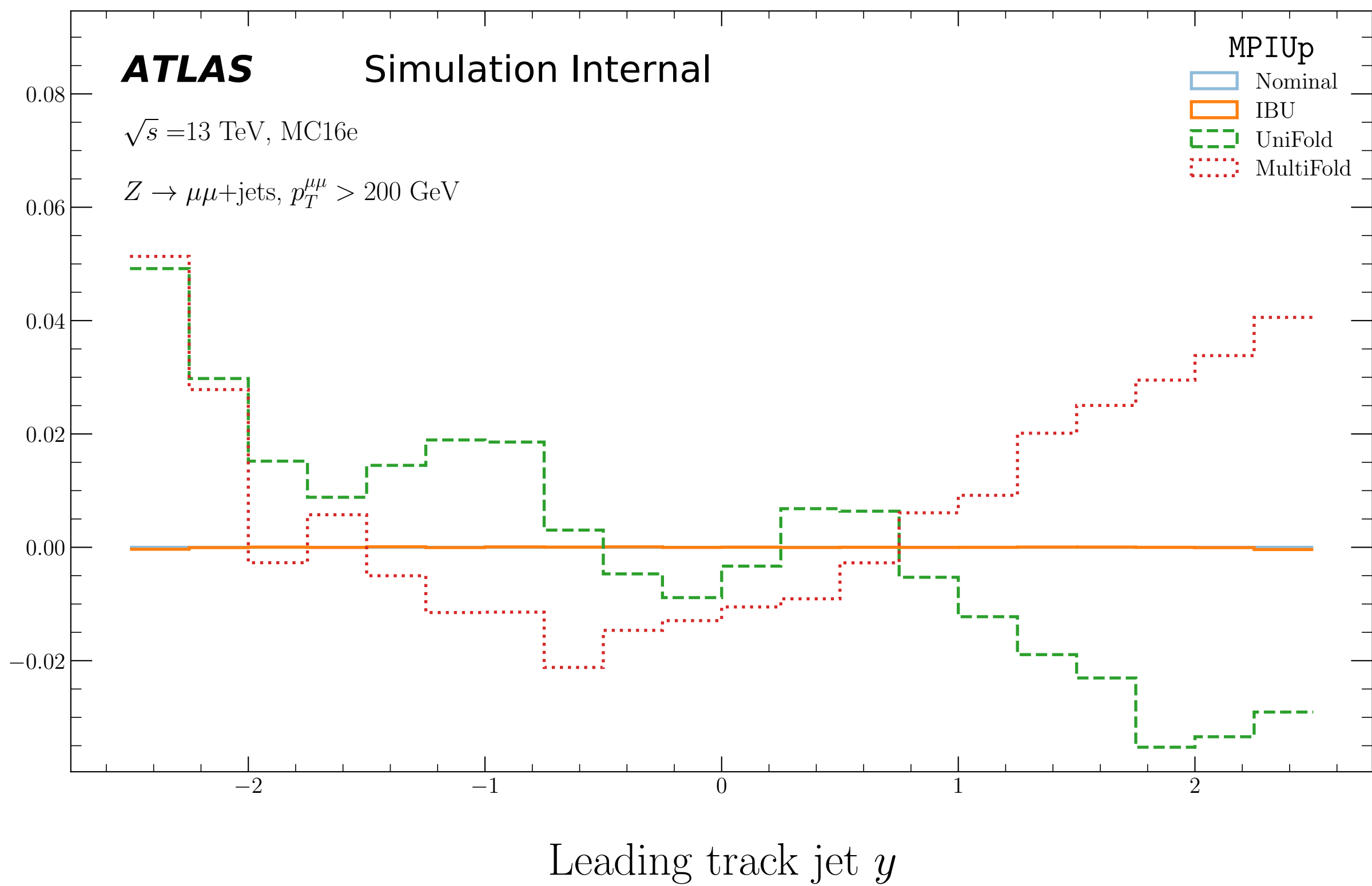
- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet p_T [GeV]









ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

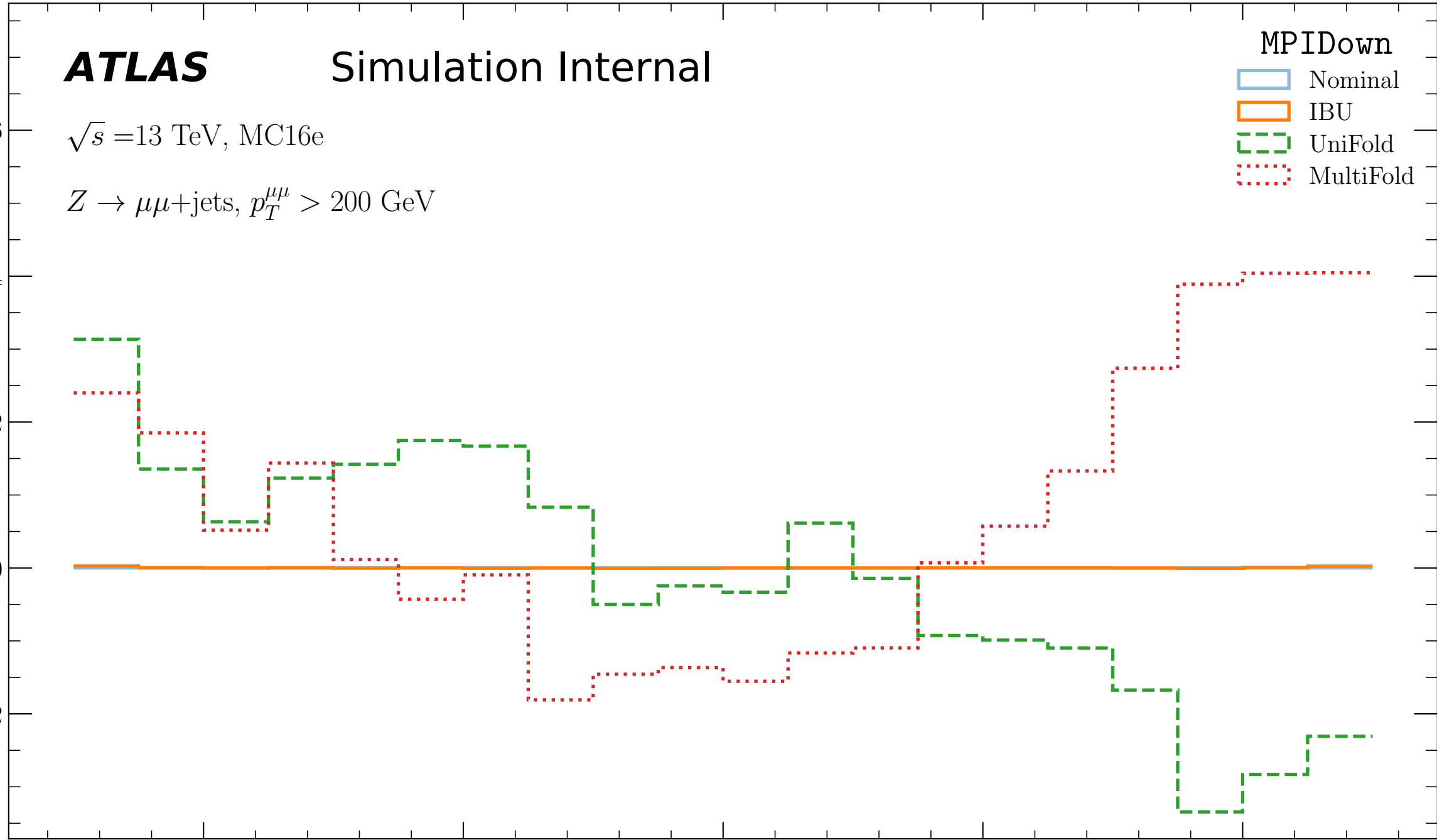
-2

-1

0

1

2

Leading track jet y 

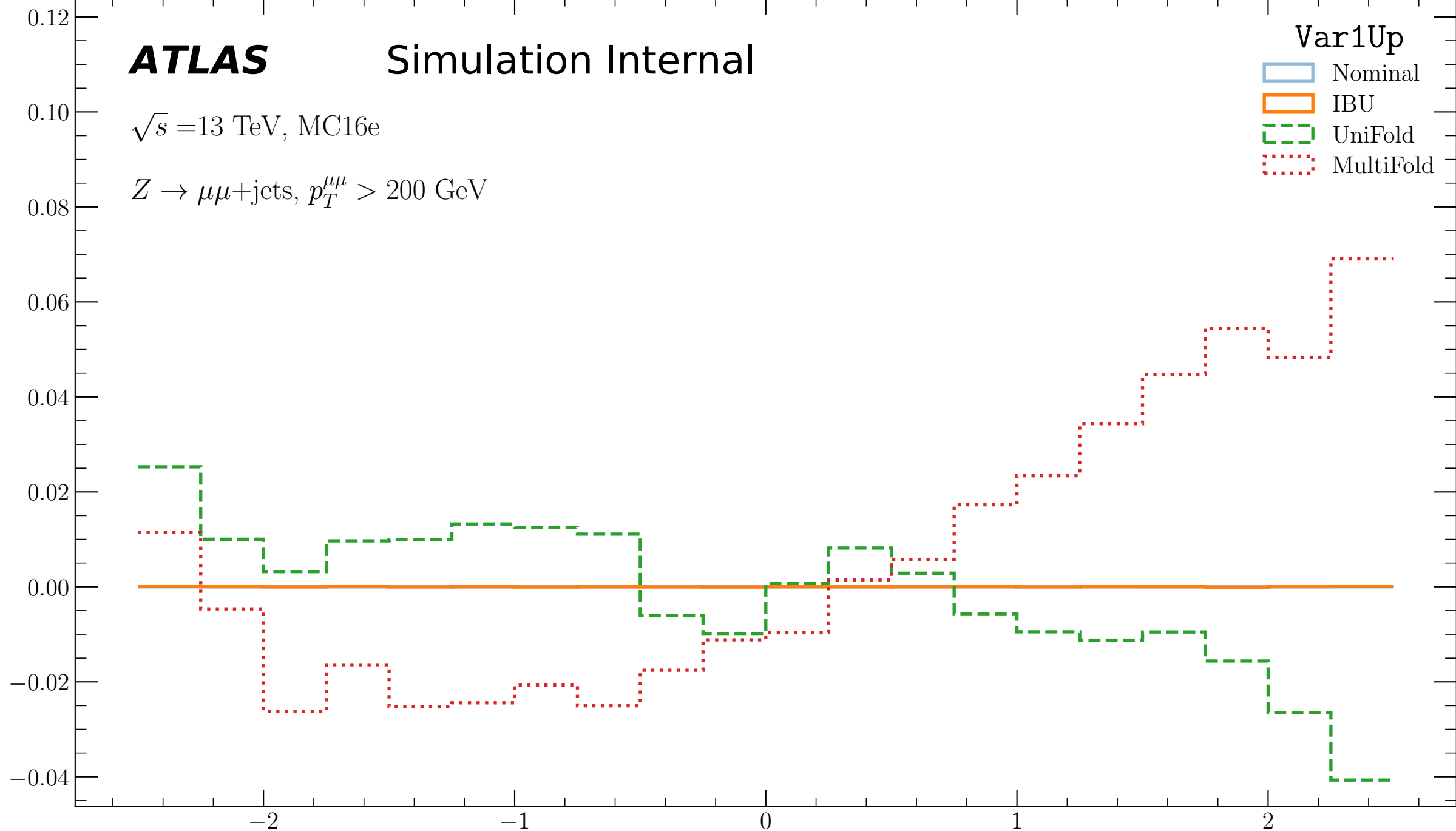
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet y

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

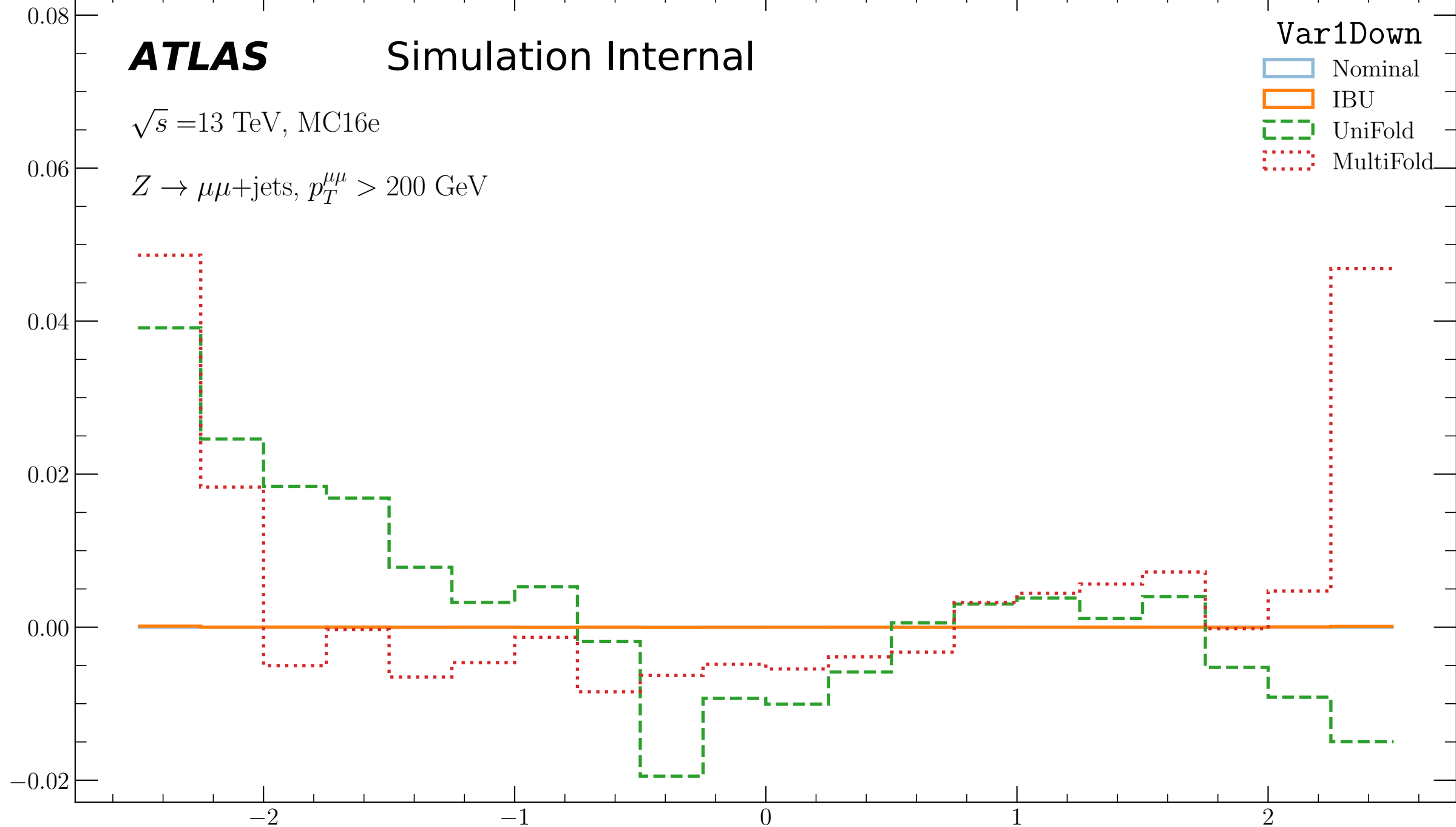
Var1Down

Nominal

IBU

UniFold

MultiFold

Leading track jet y

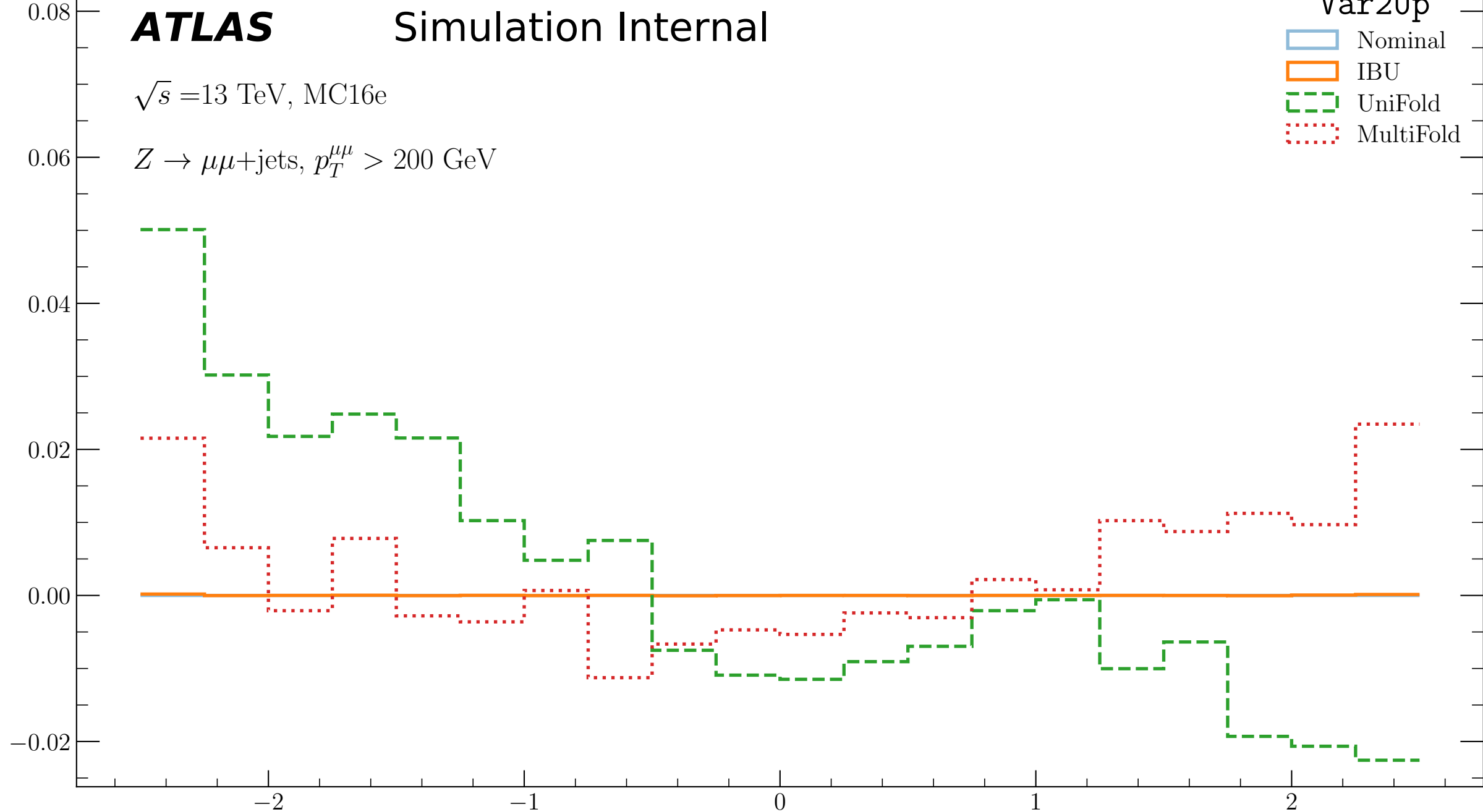
ATLAS

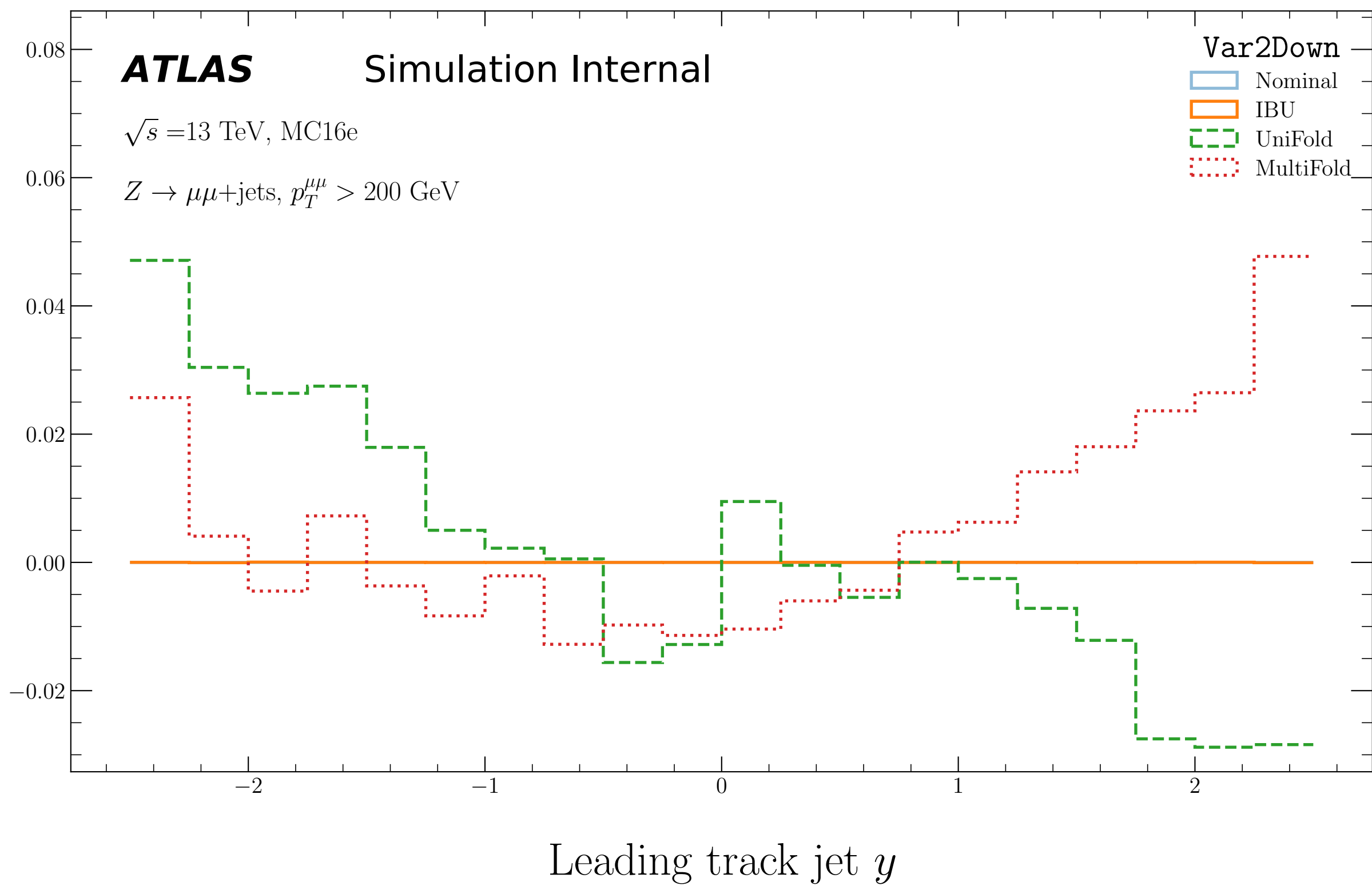
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet y



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.03
0.02
0.01
0.00
-0.01
-0.02

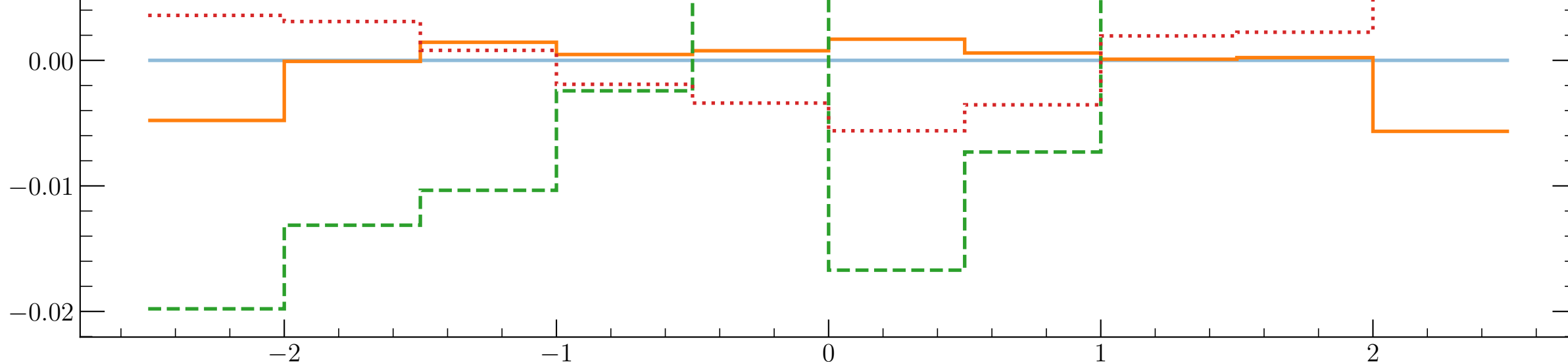
-2

-1

0

1

2

Subleading track jet y 

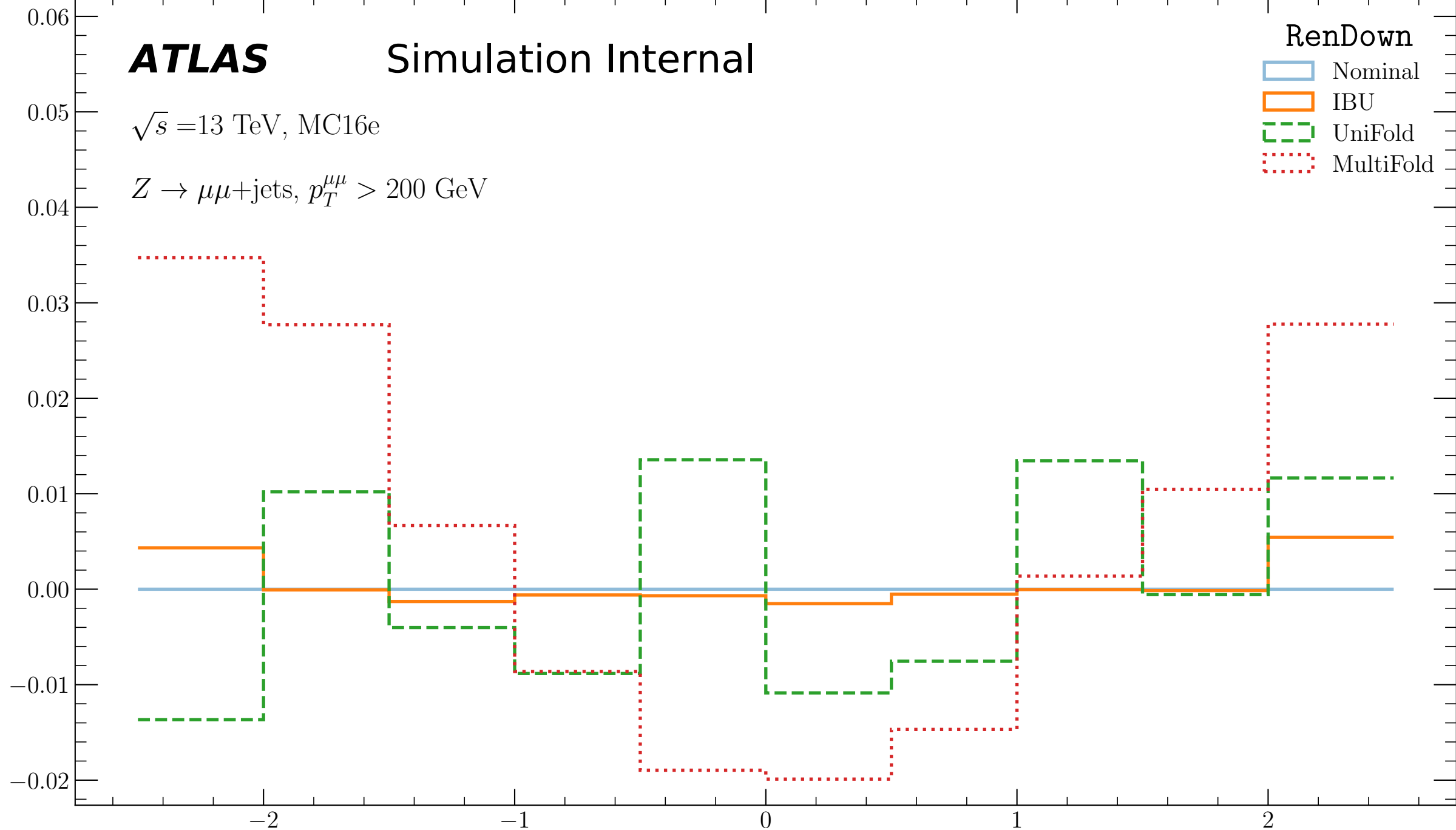
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet y

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.03
0.02
0.01
0.00
-0.01
-0.02

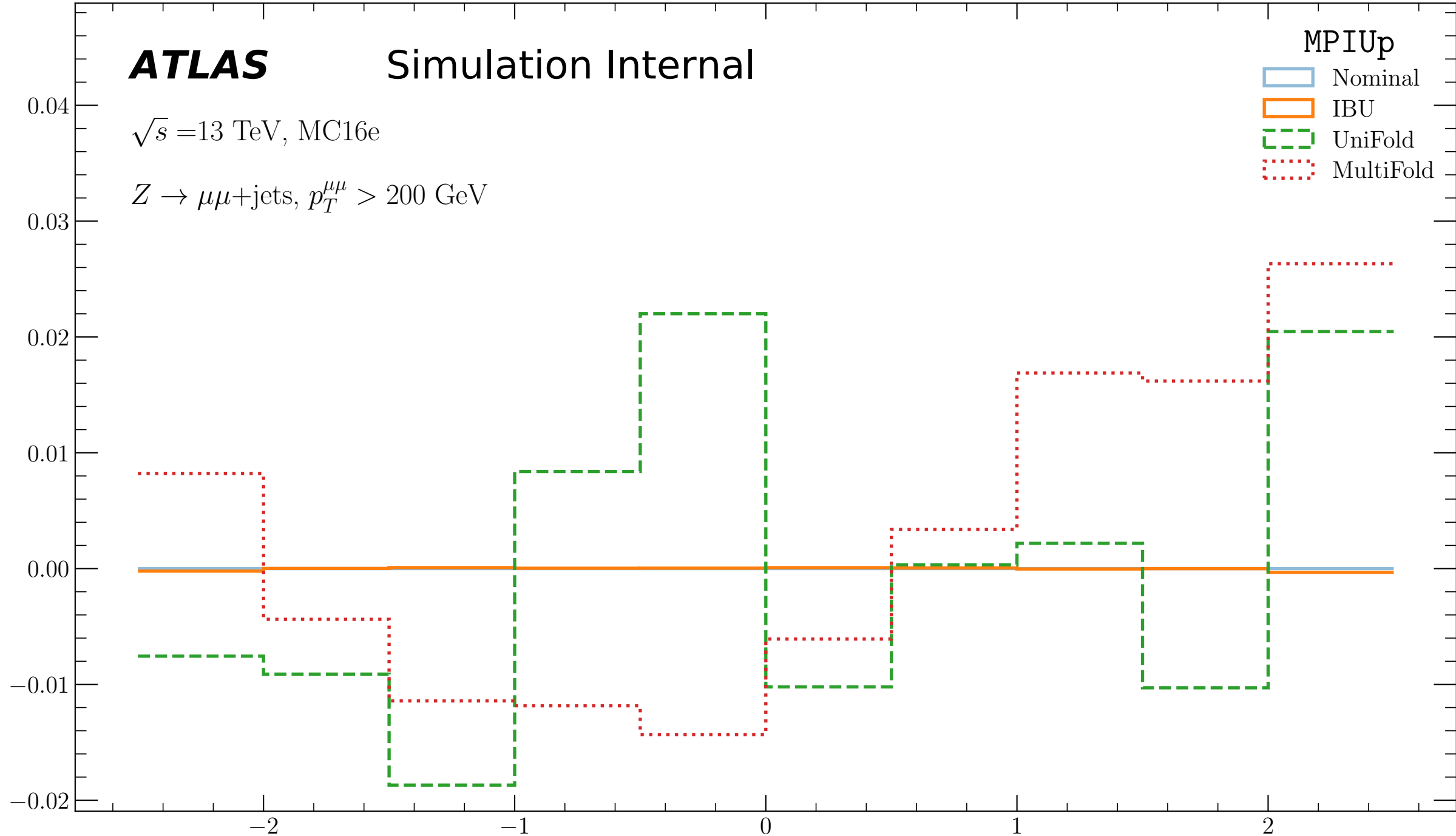
-2

-1

0

1

2

Subleading track jet y 

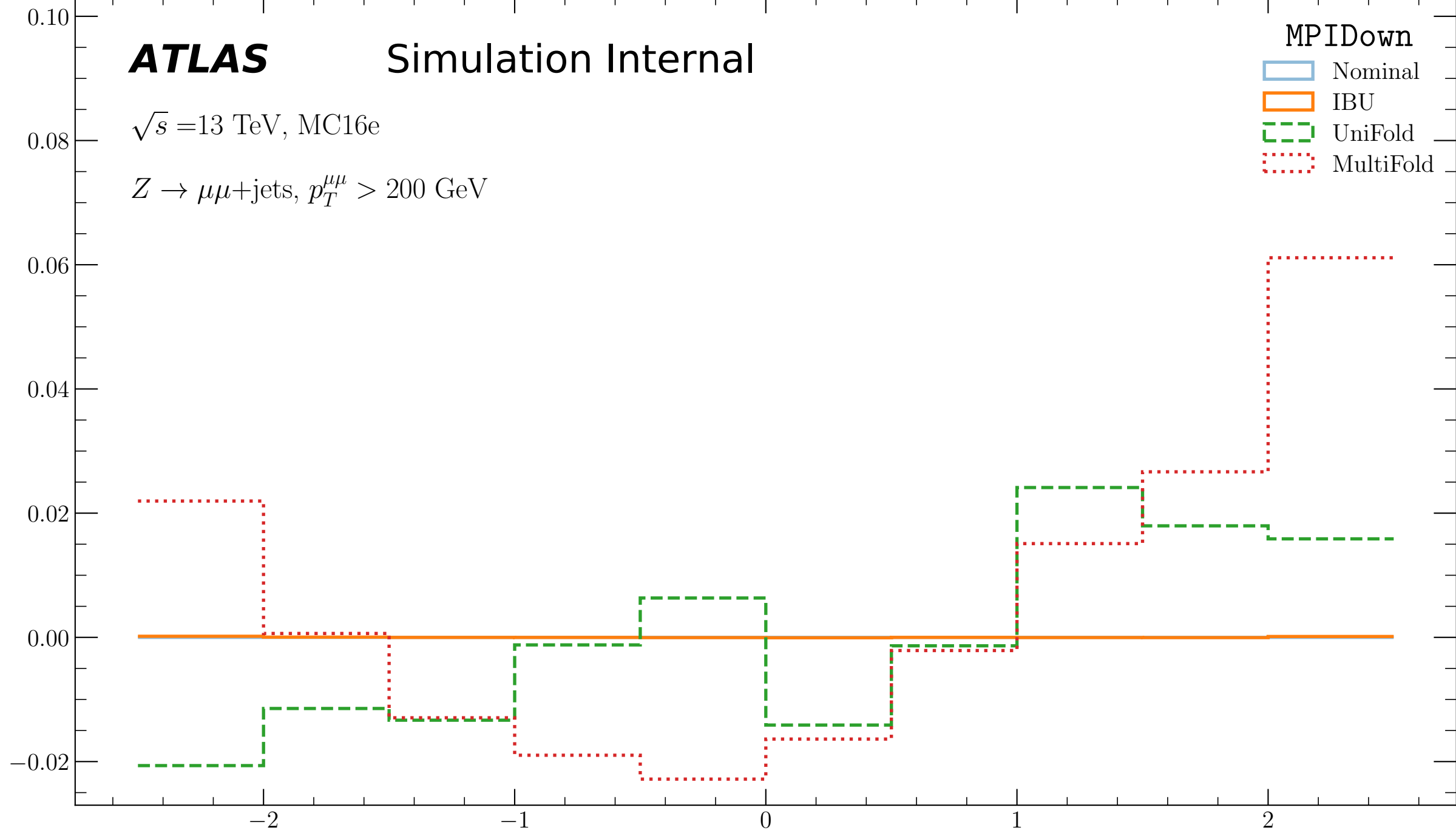
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet y

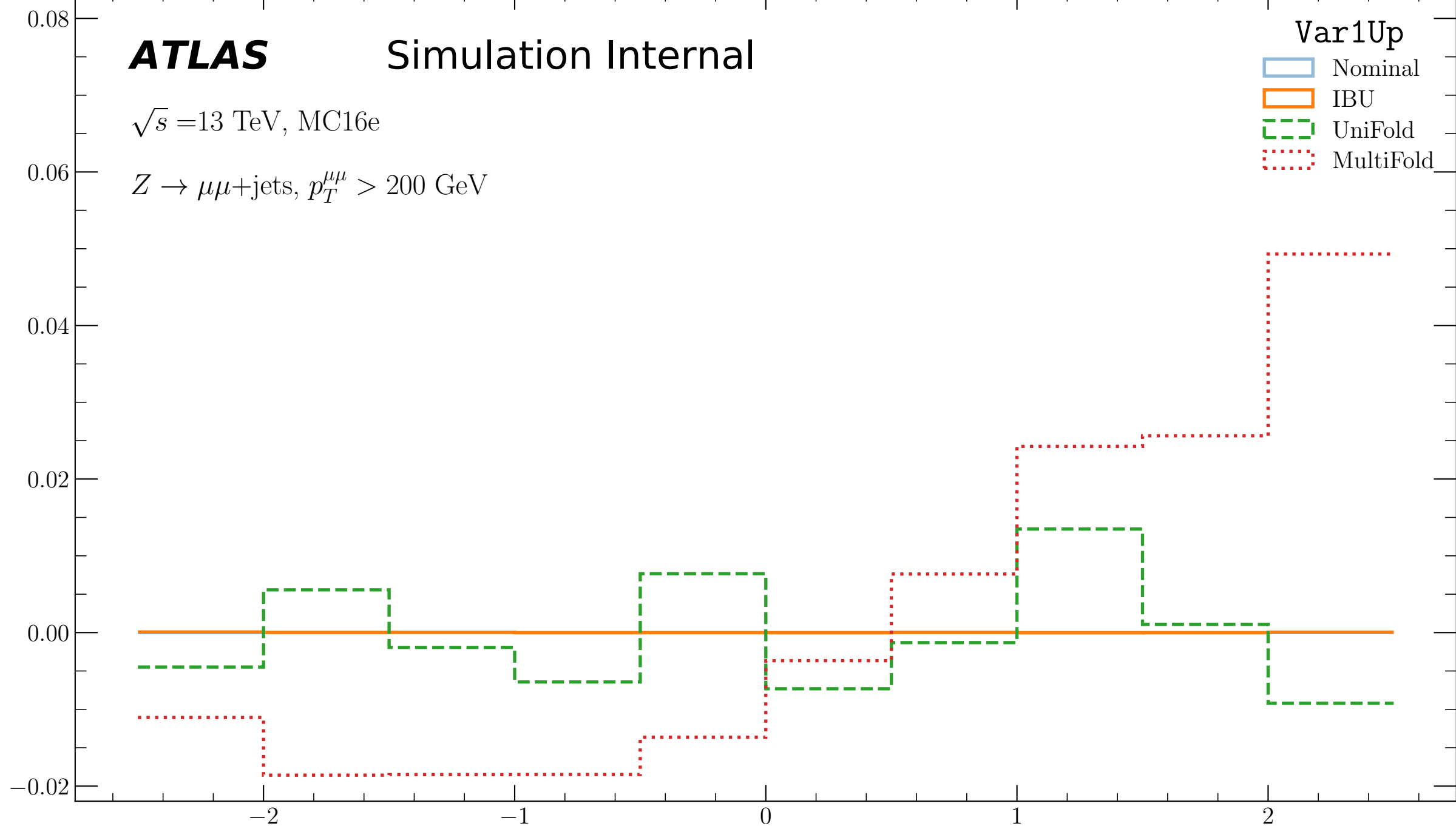
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet y

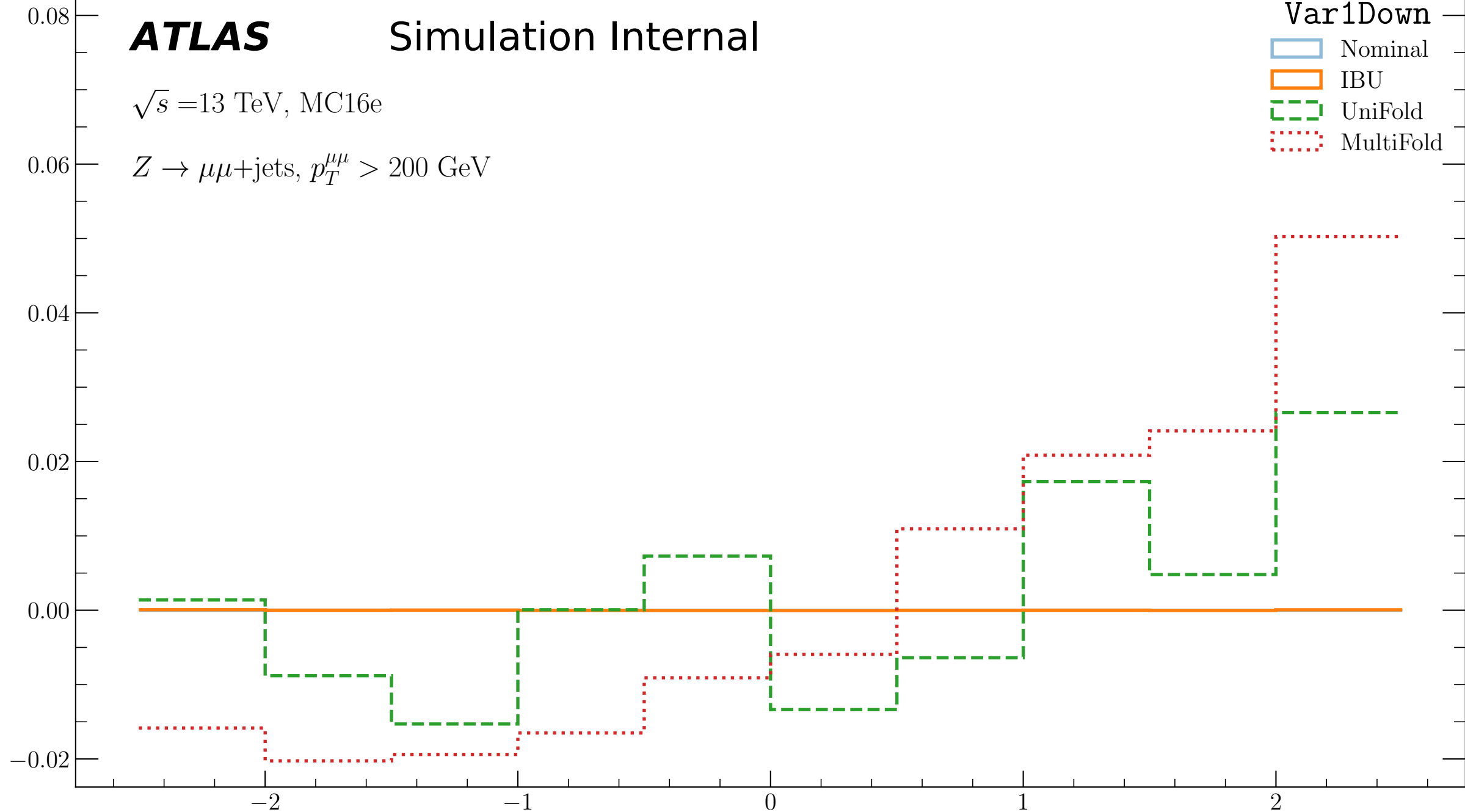
ATLAS

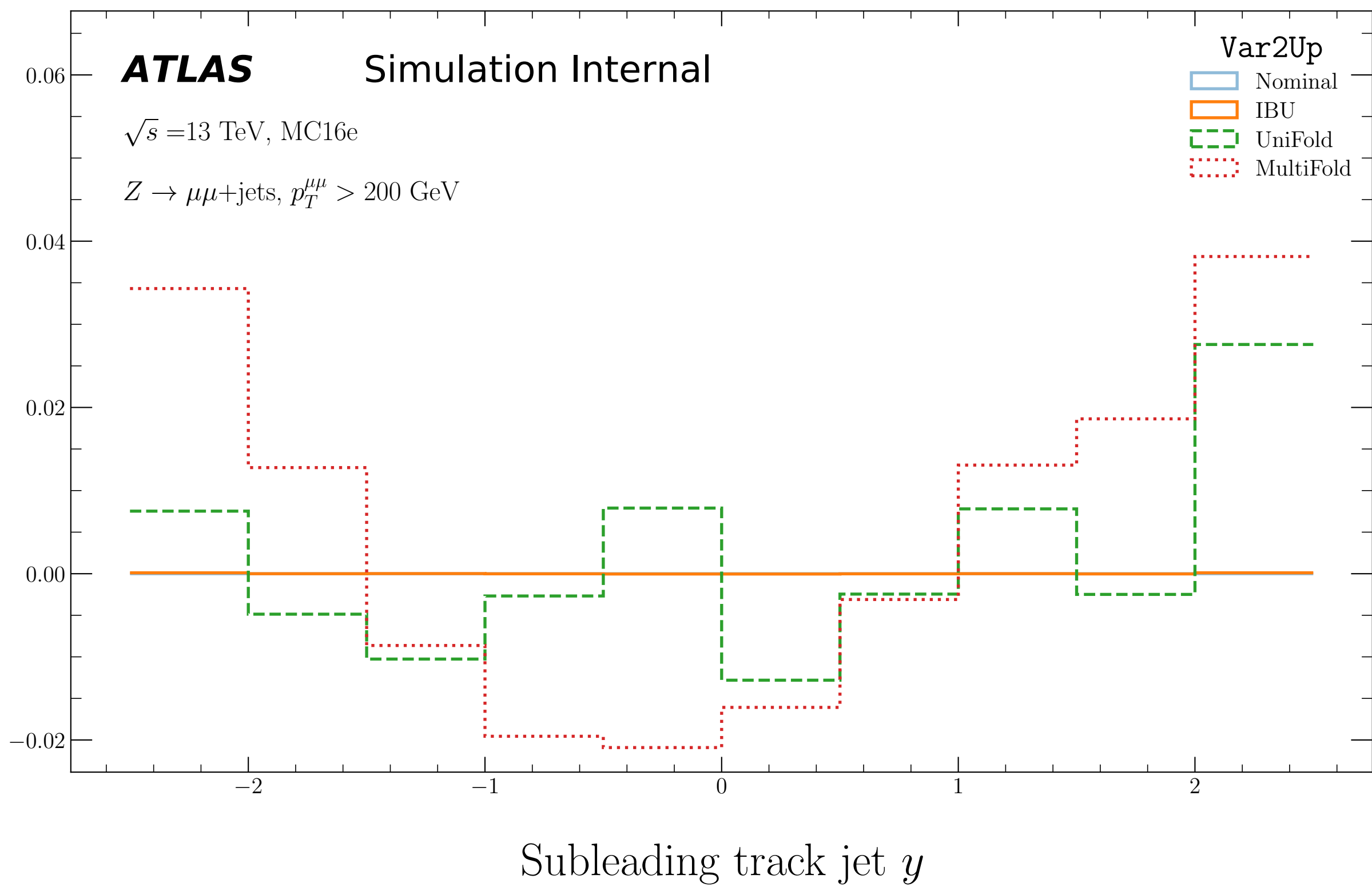
Simulation Internal

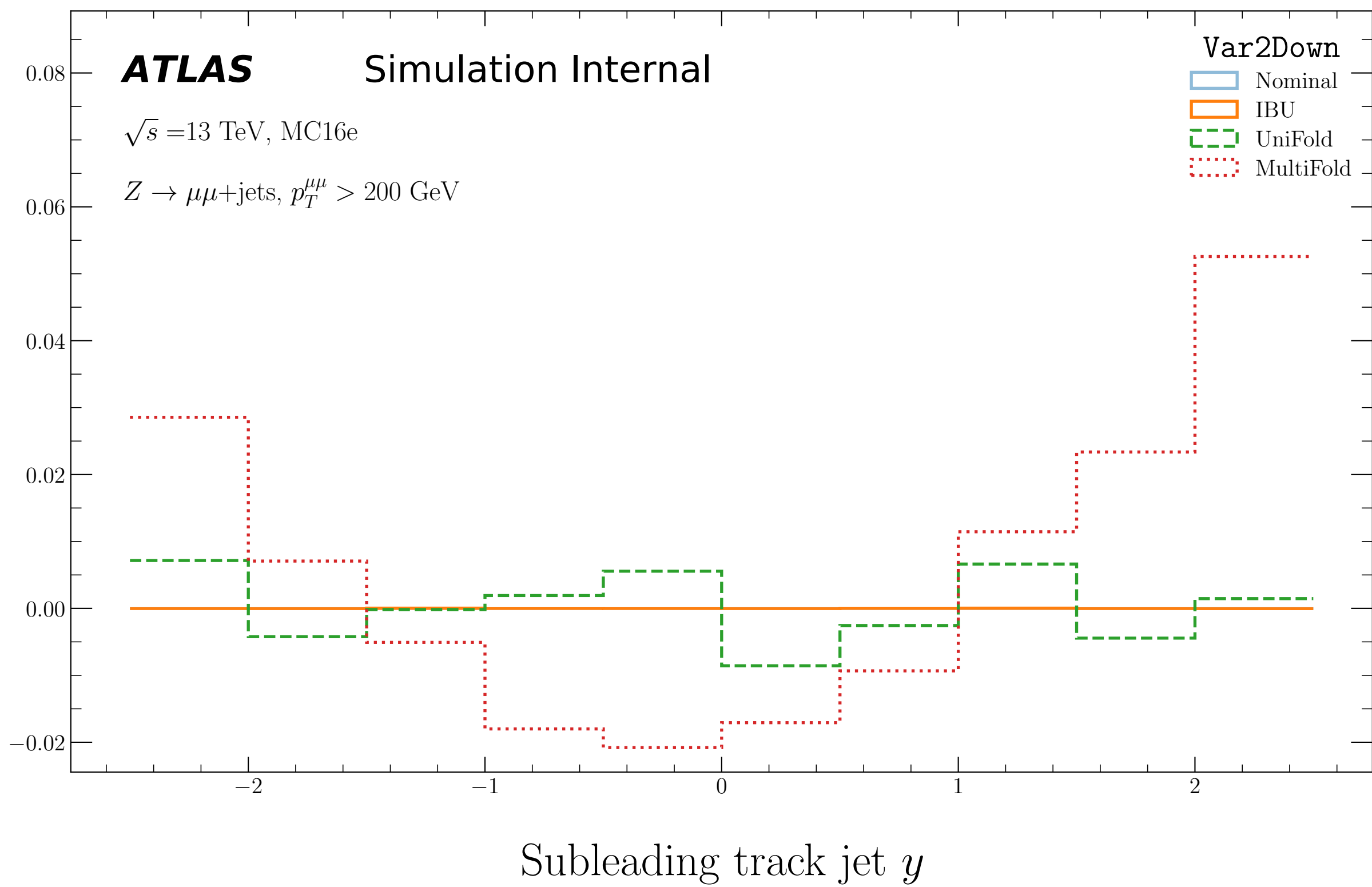
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet y





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

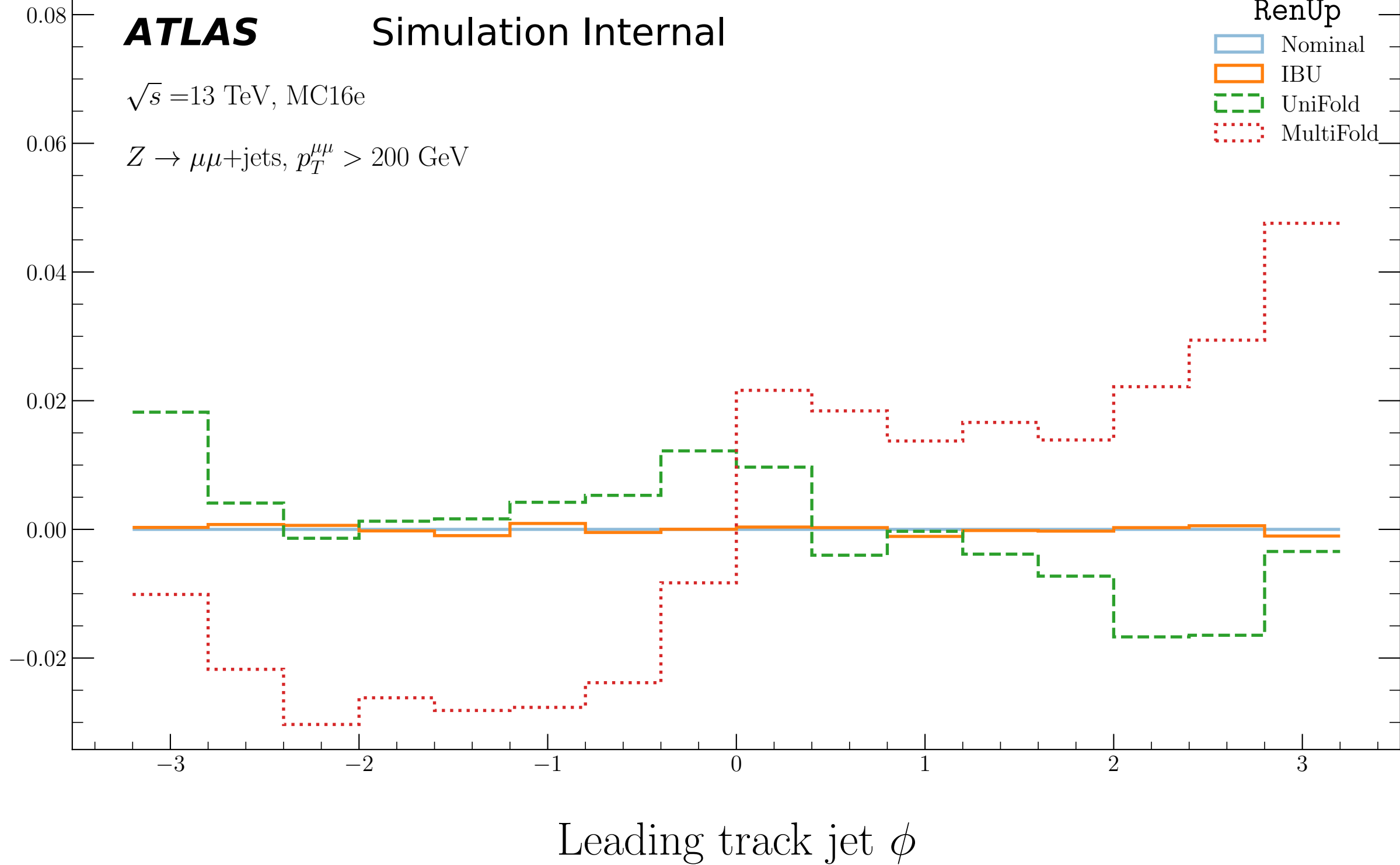
RenUp

Nominal

IBU

UniFold

MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

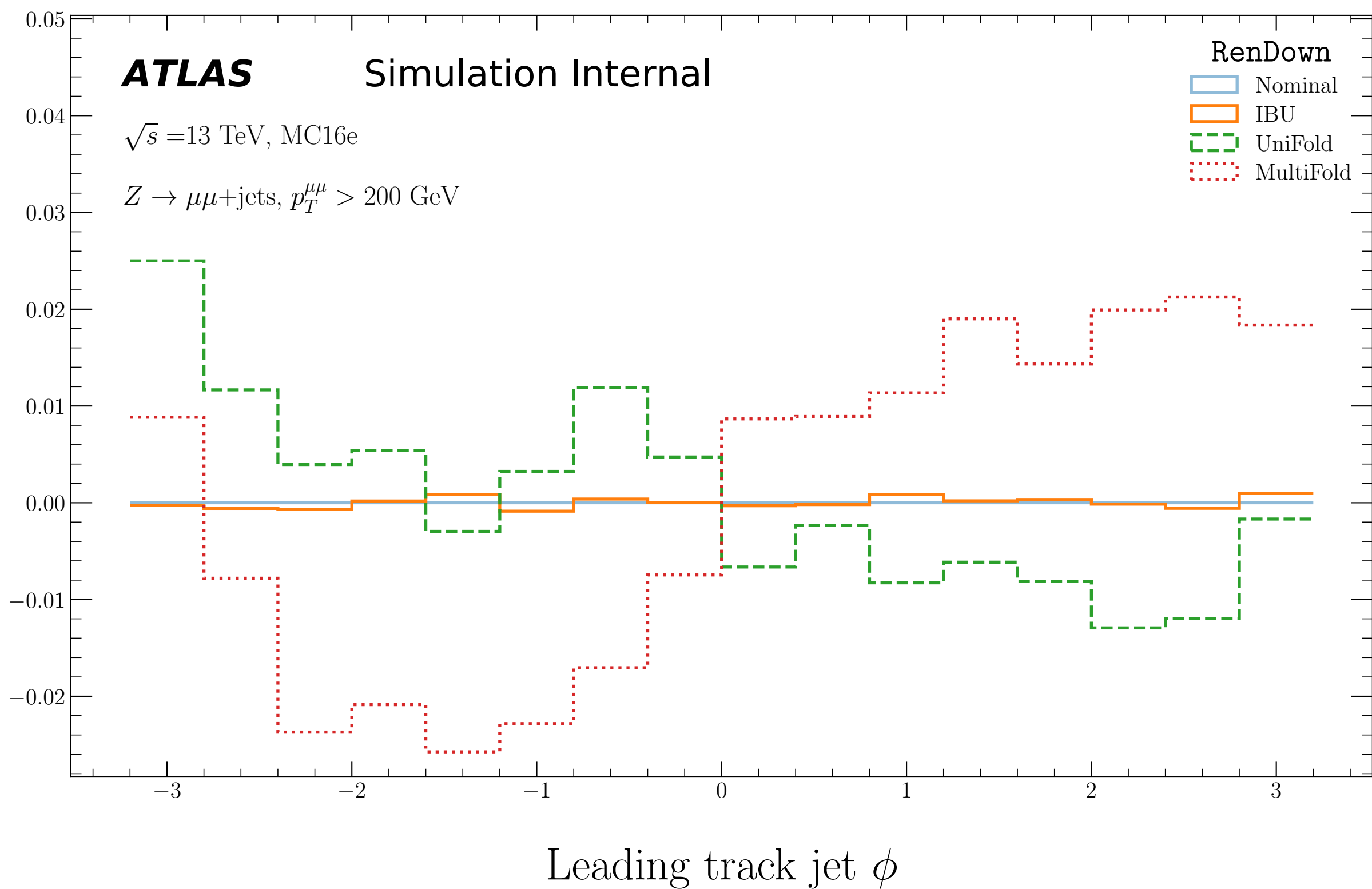
RenDown

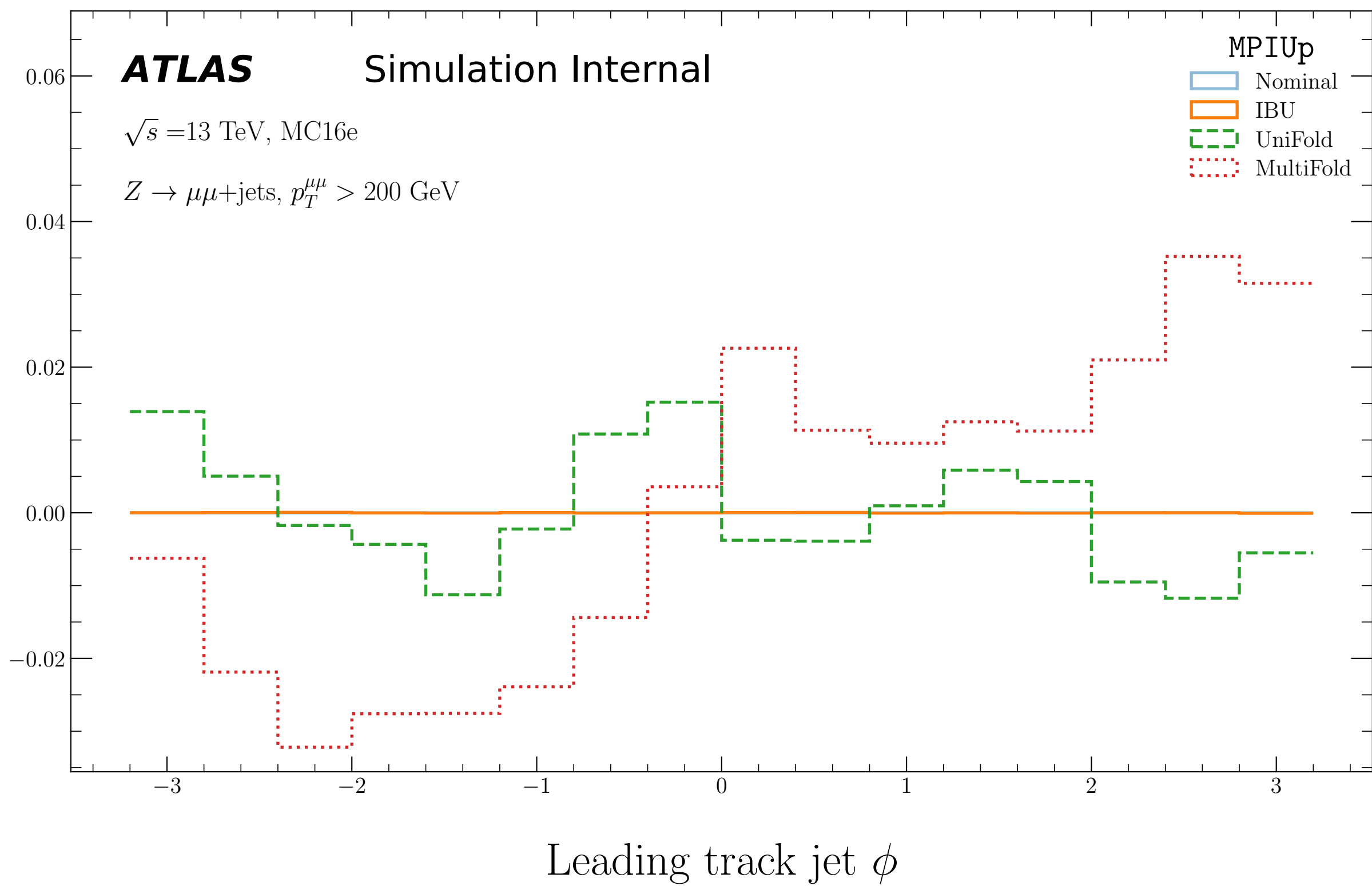
Nominal

IBU

UniFold

MultiFold





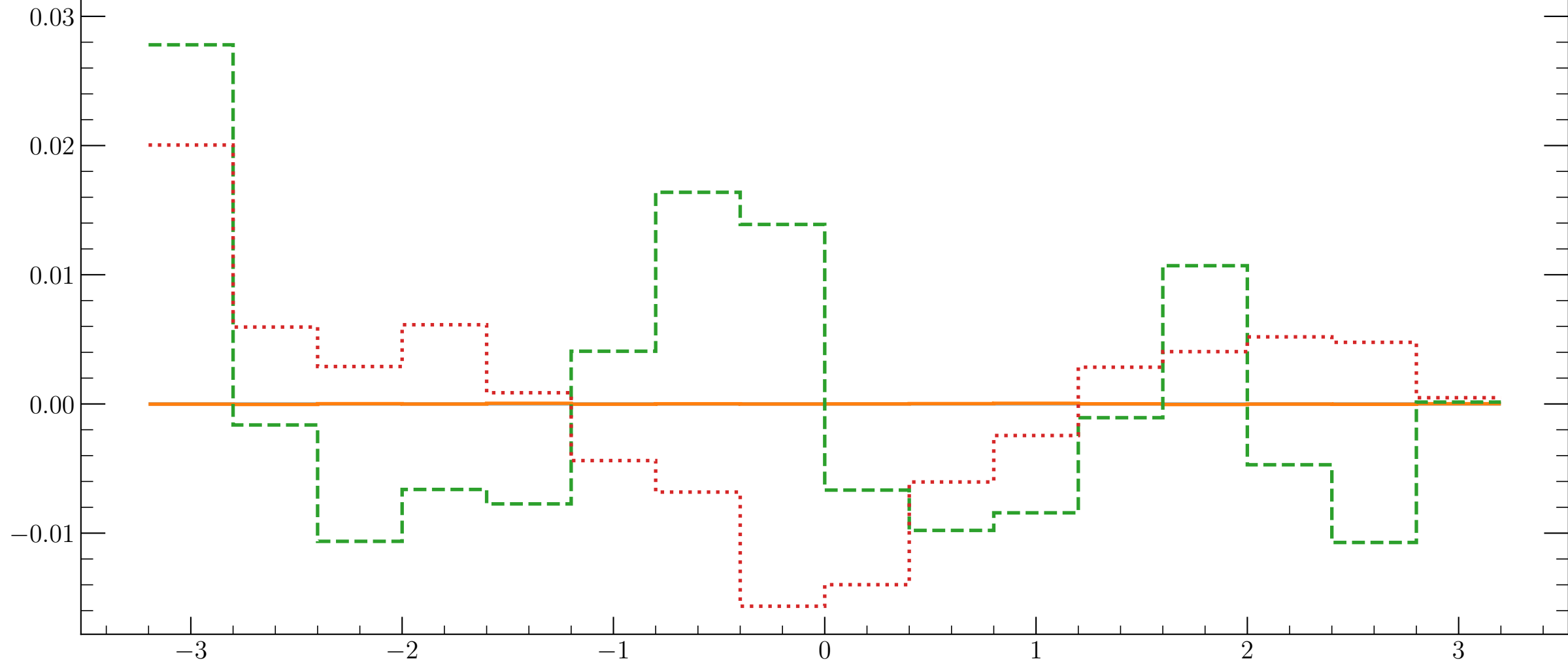
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet ϕ

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

0.08
0.06
0.04
0.02
0.00
-0.02

-3

-2

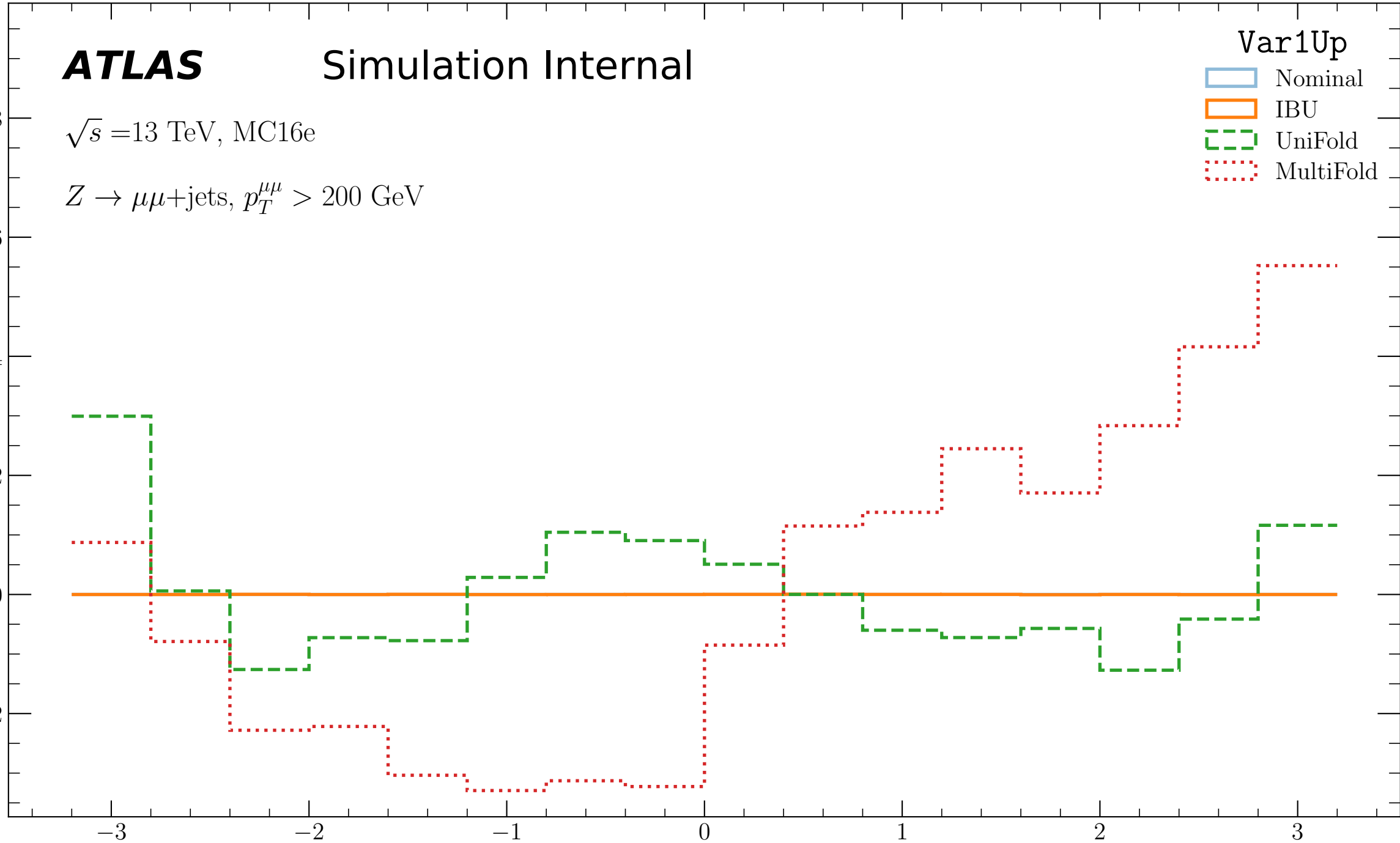
-1

0

1

2

3

Leading track jet ϕ 

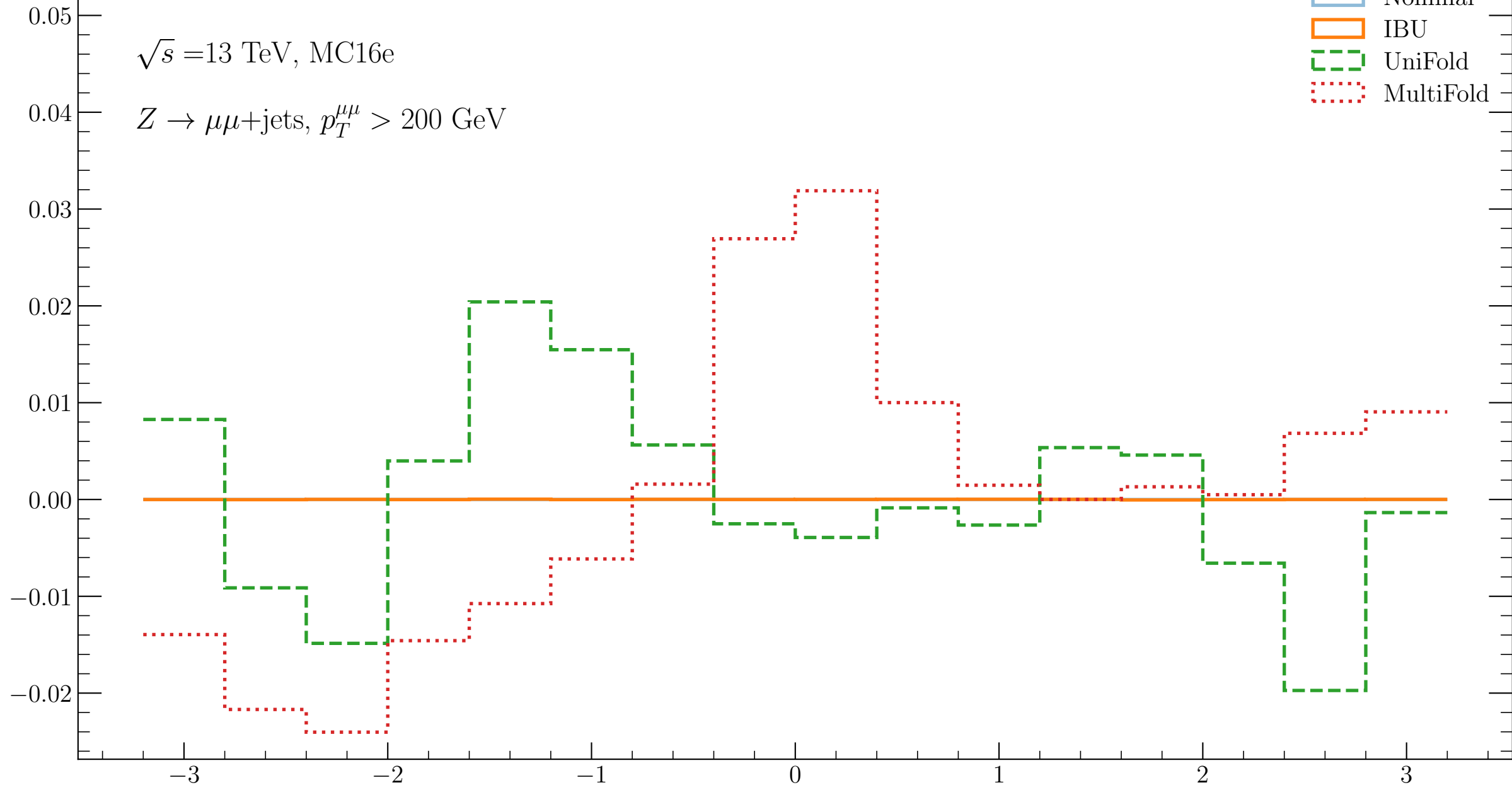
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet ϕ

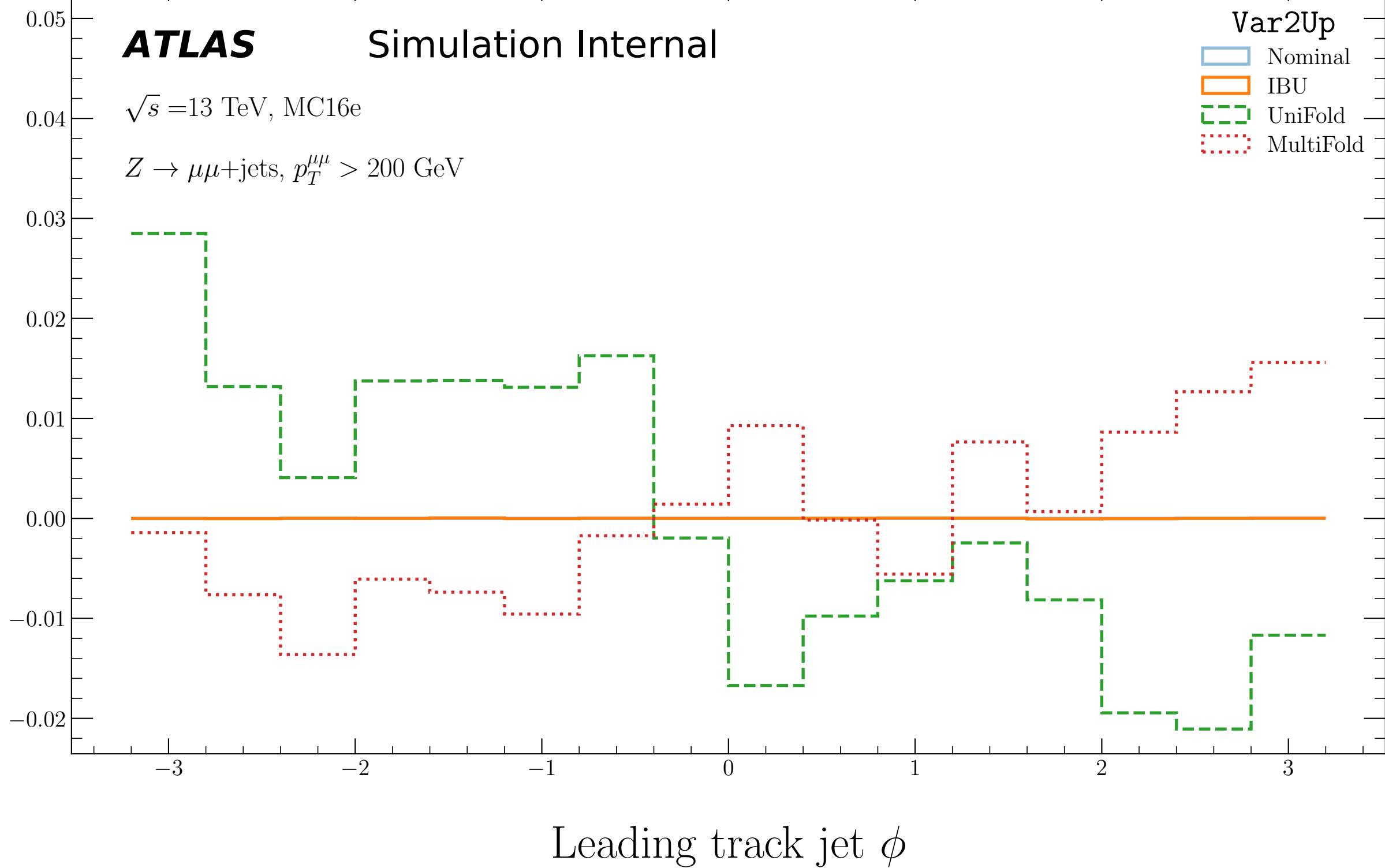
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold



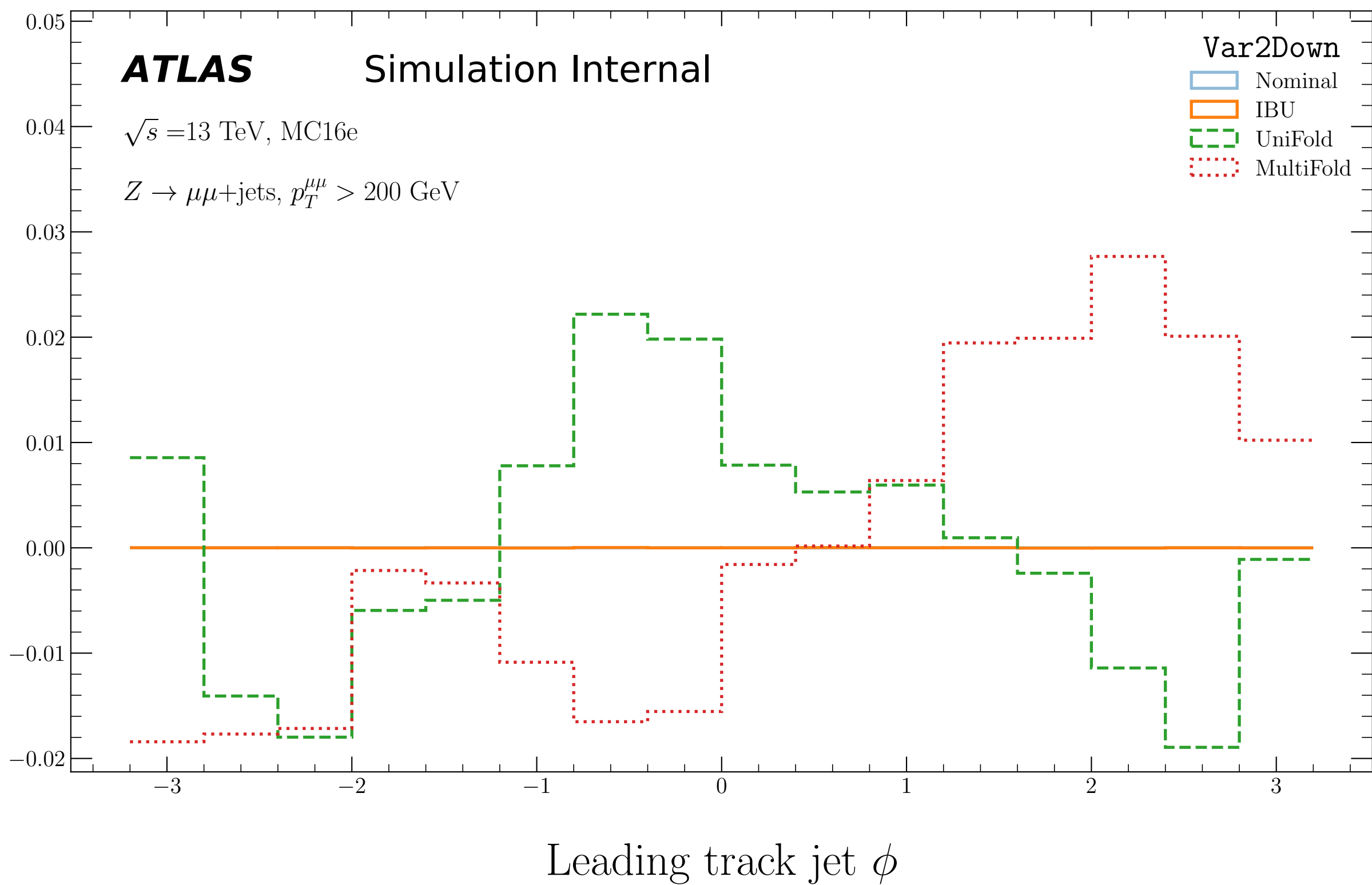
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold



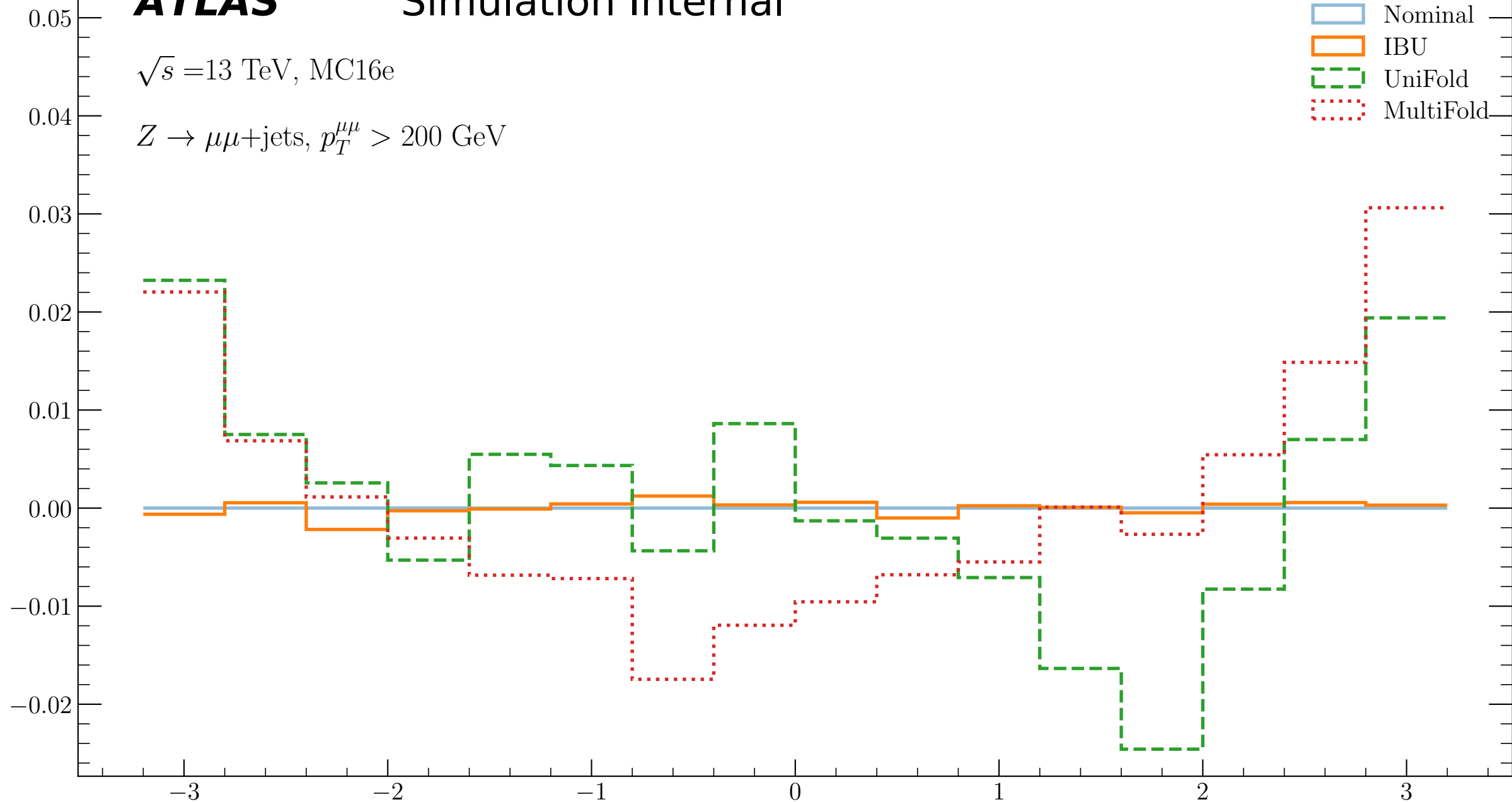
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet ϕ

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

-3

-2

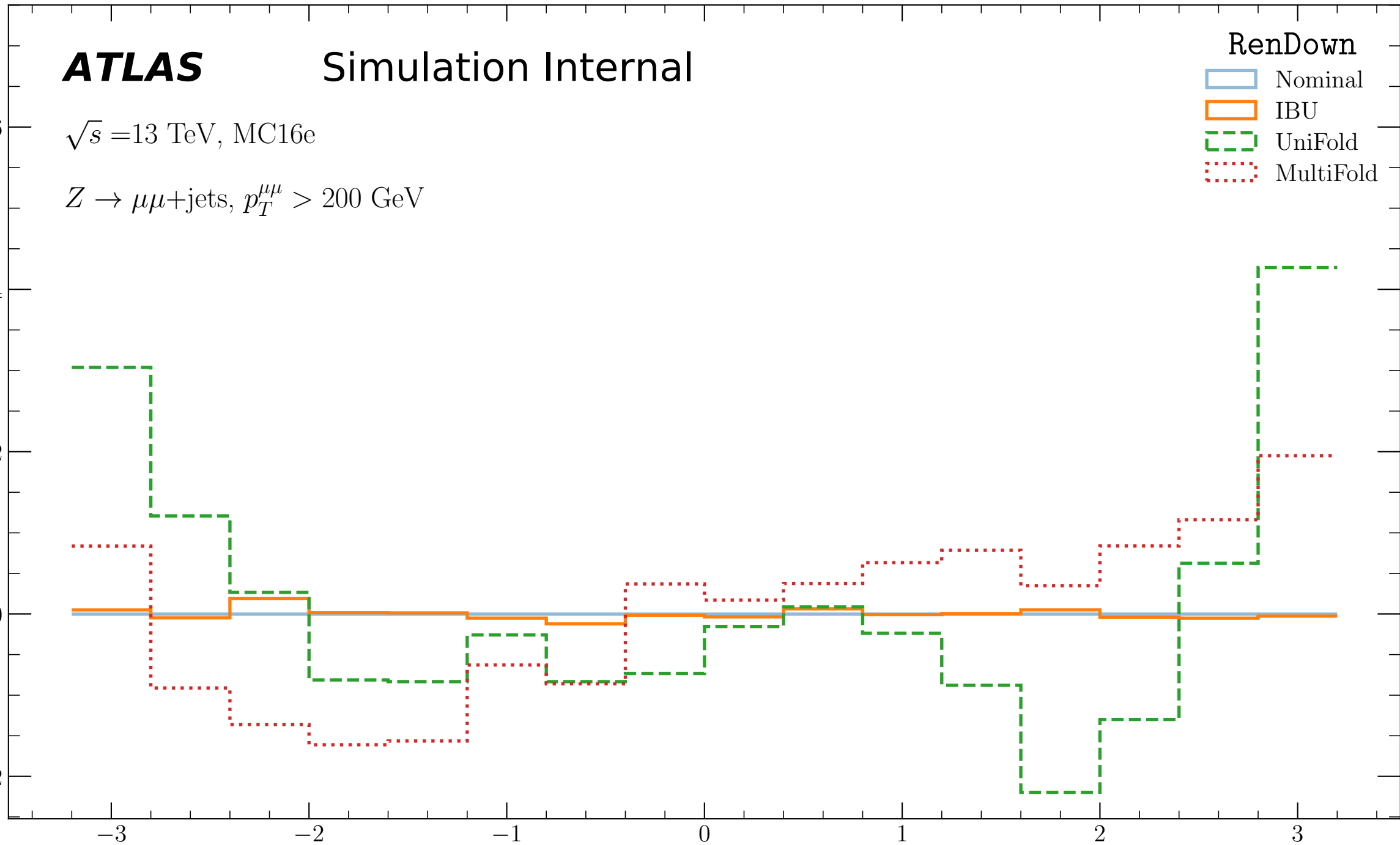
-1

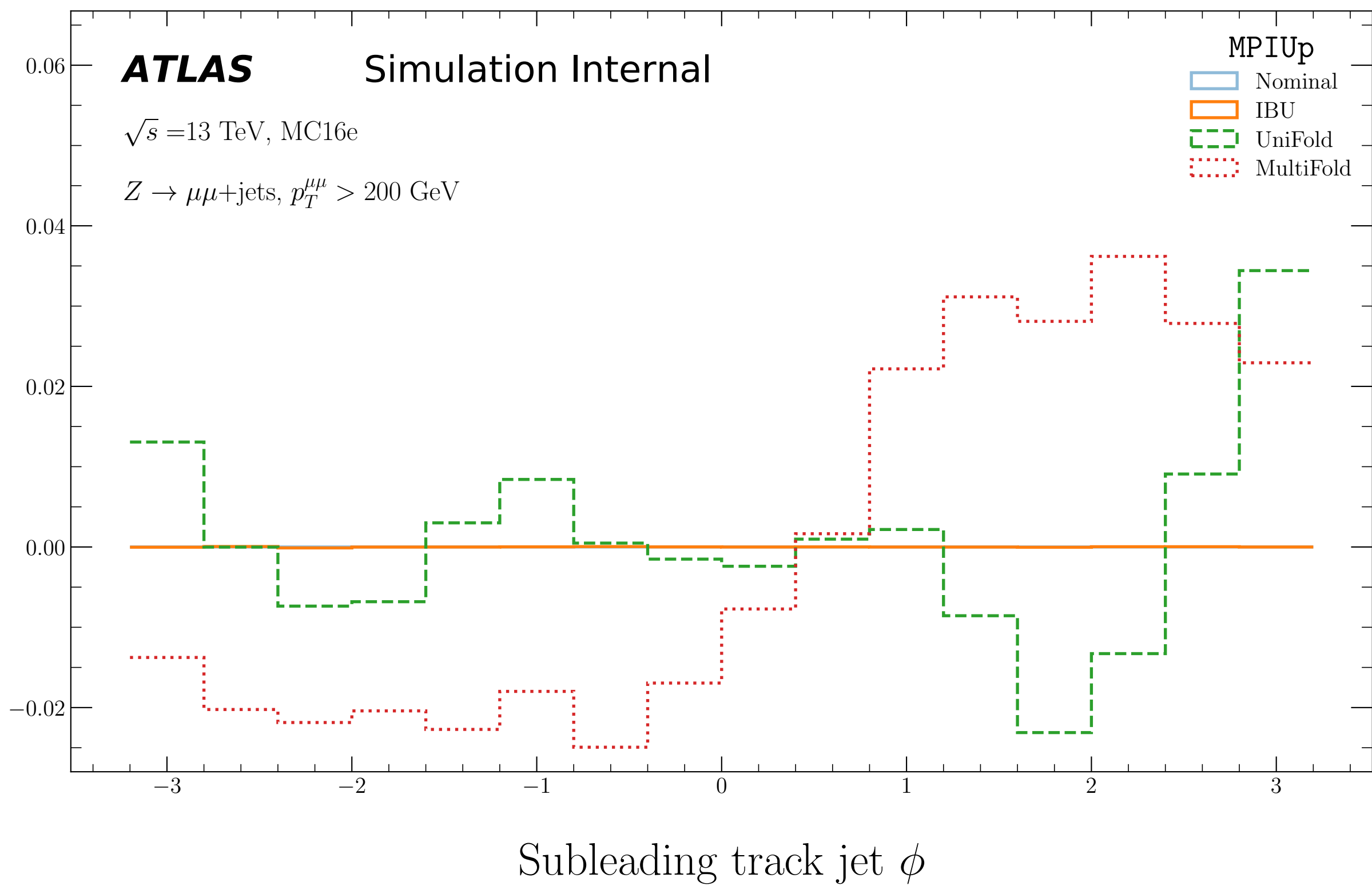
0

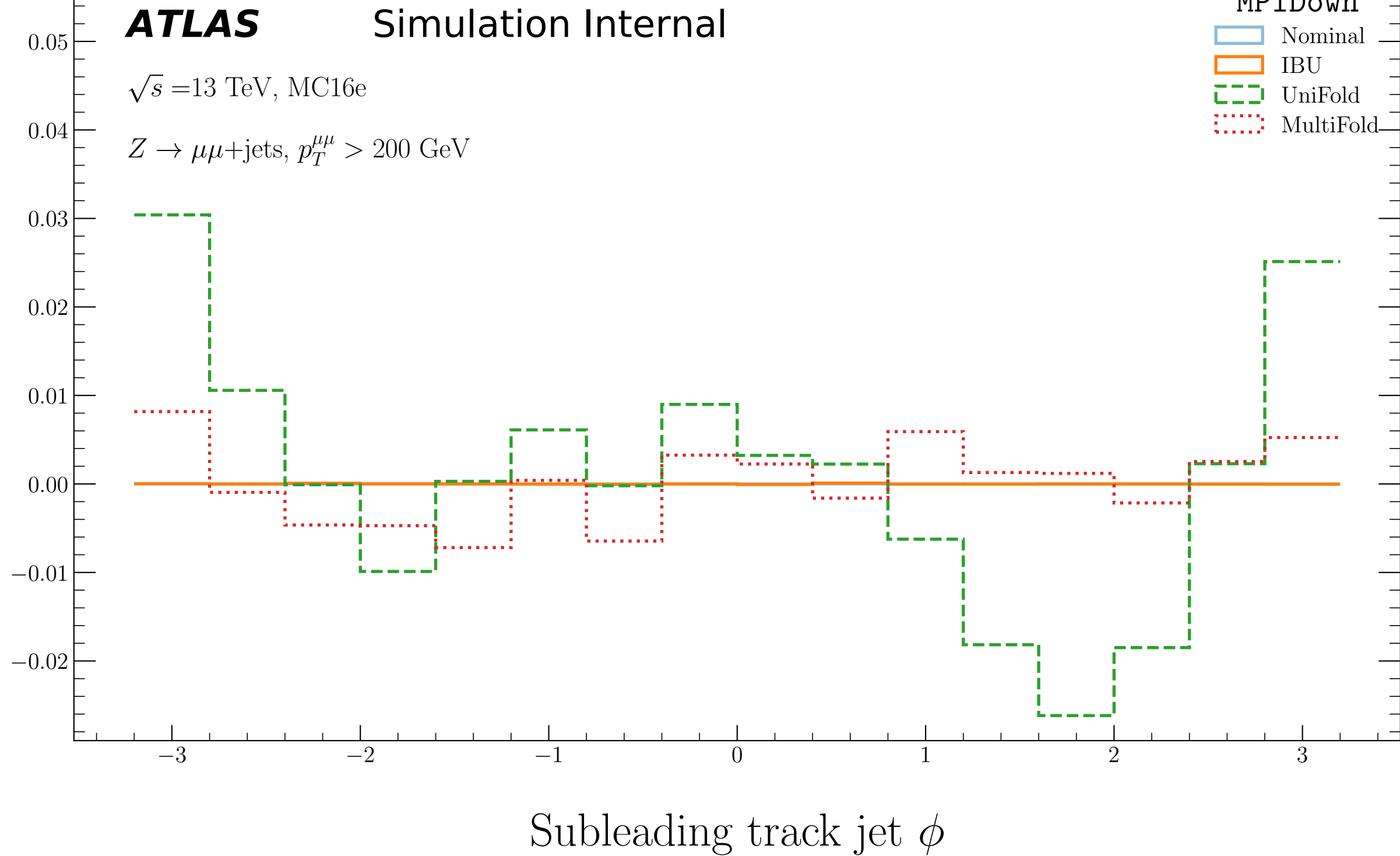
1

2

3

Subleading track jet ϕ 





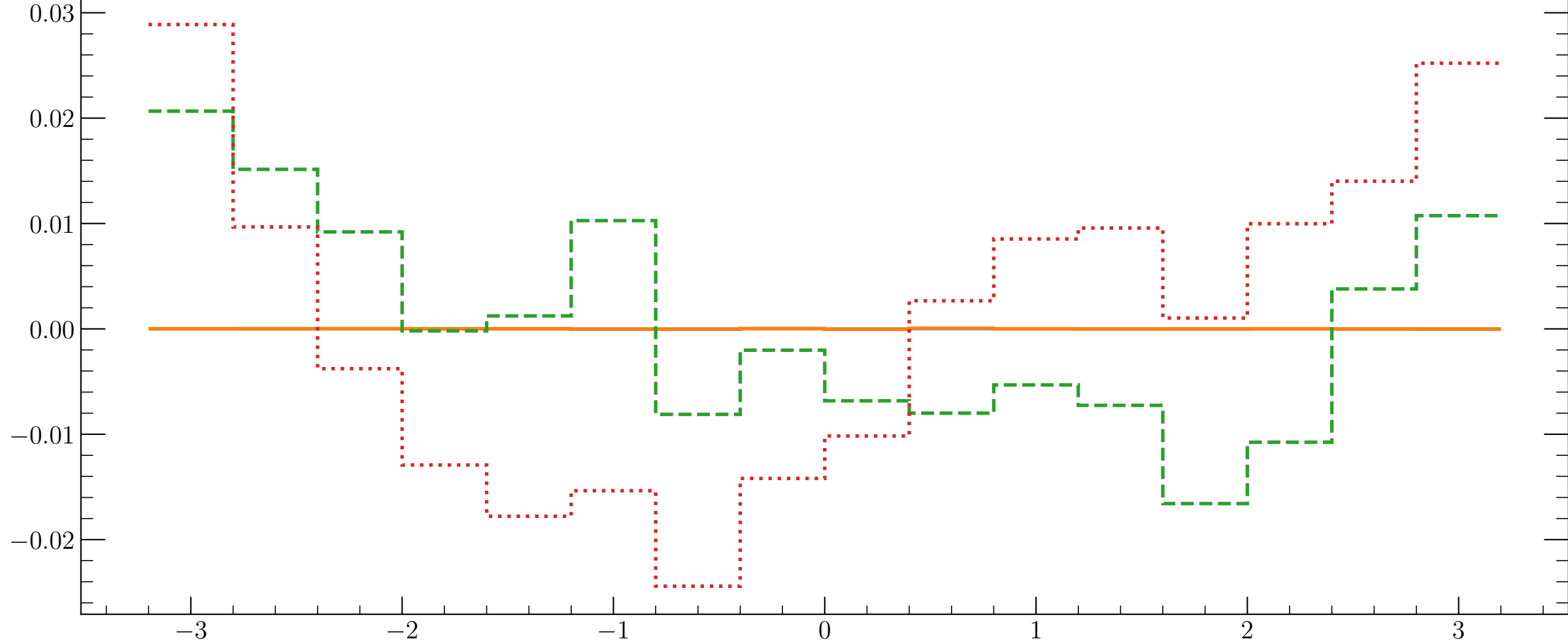
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet ϕ

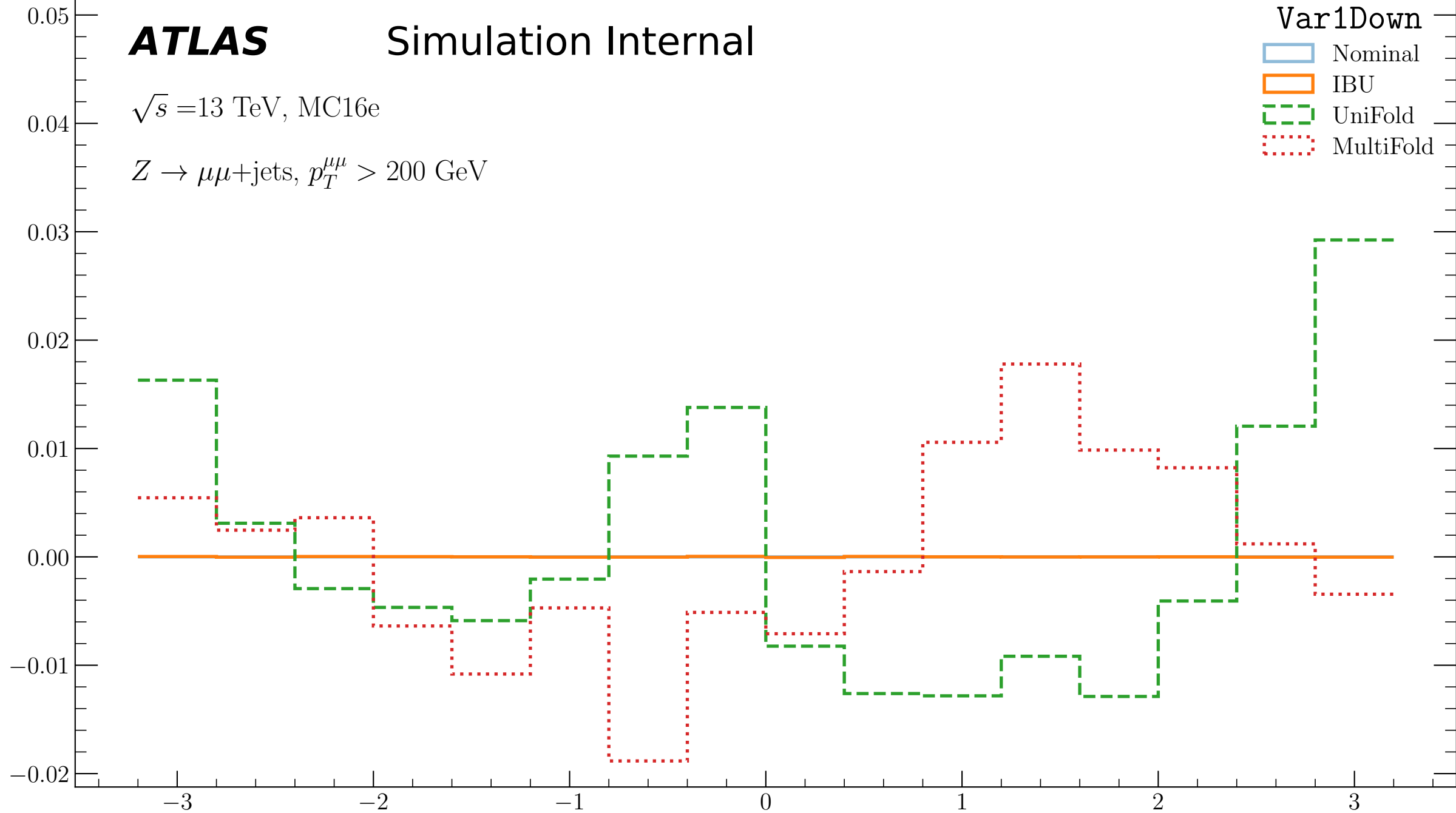
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet ϕ

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.03
0.02
0.01
0.00
-0.01
-0.02

-3

-2

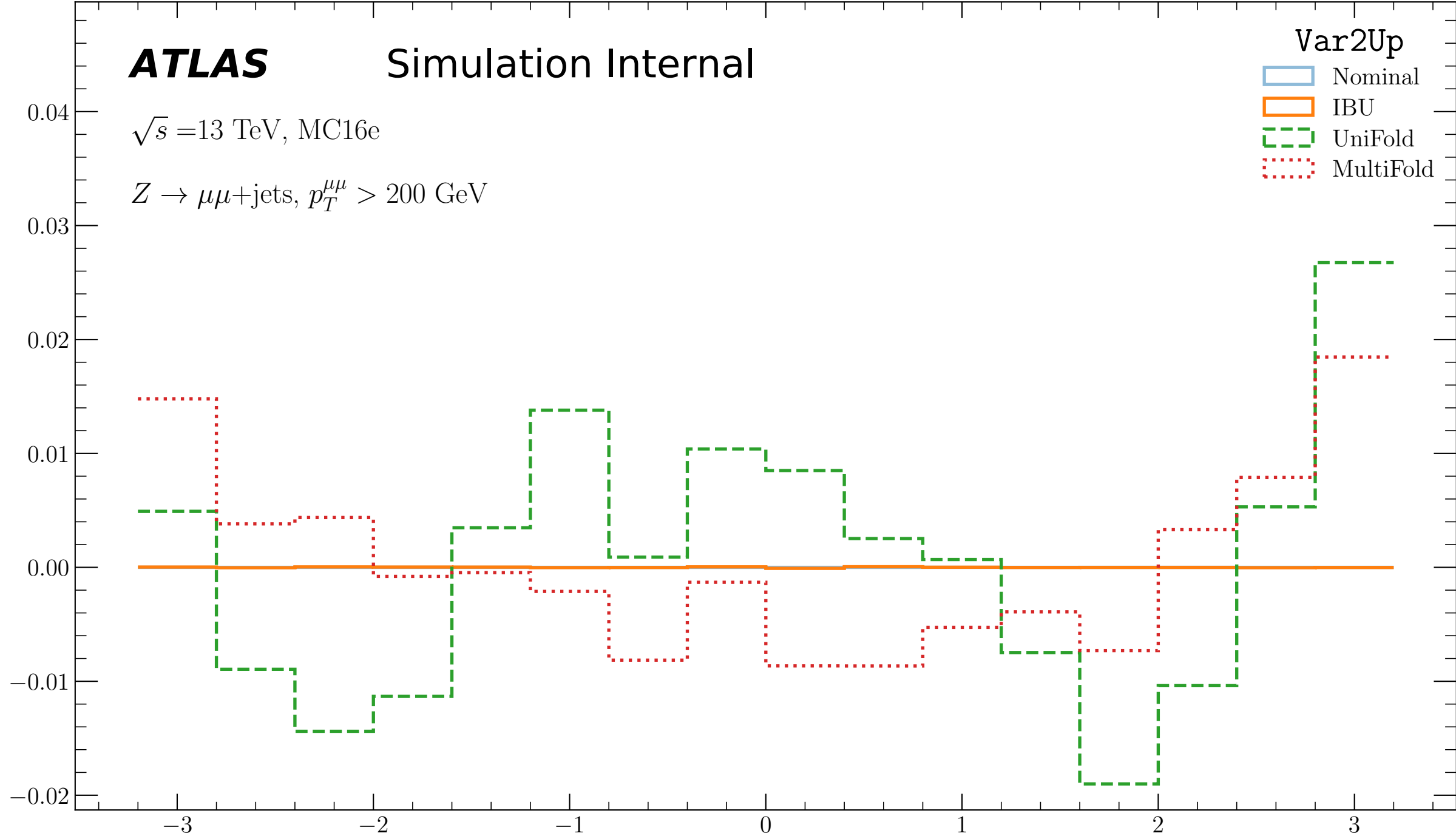
-1

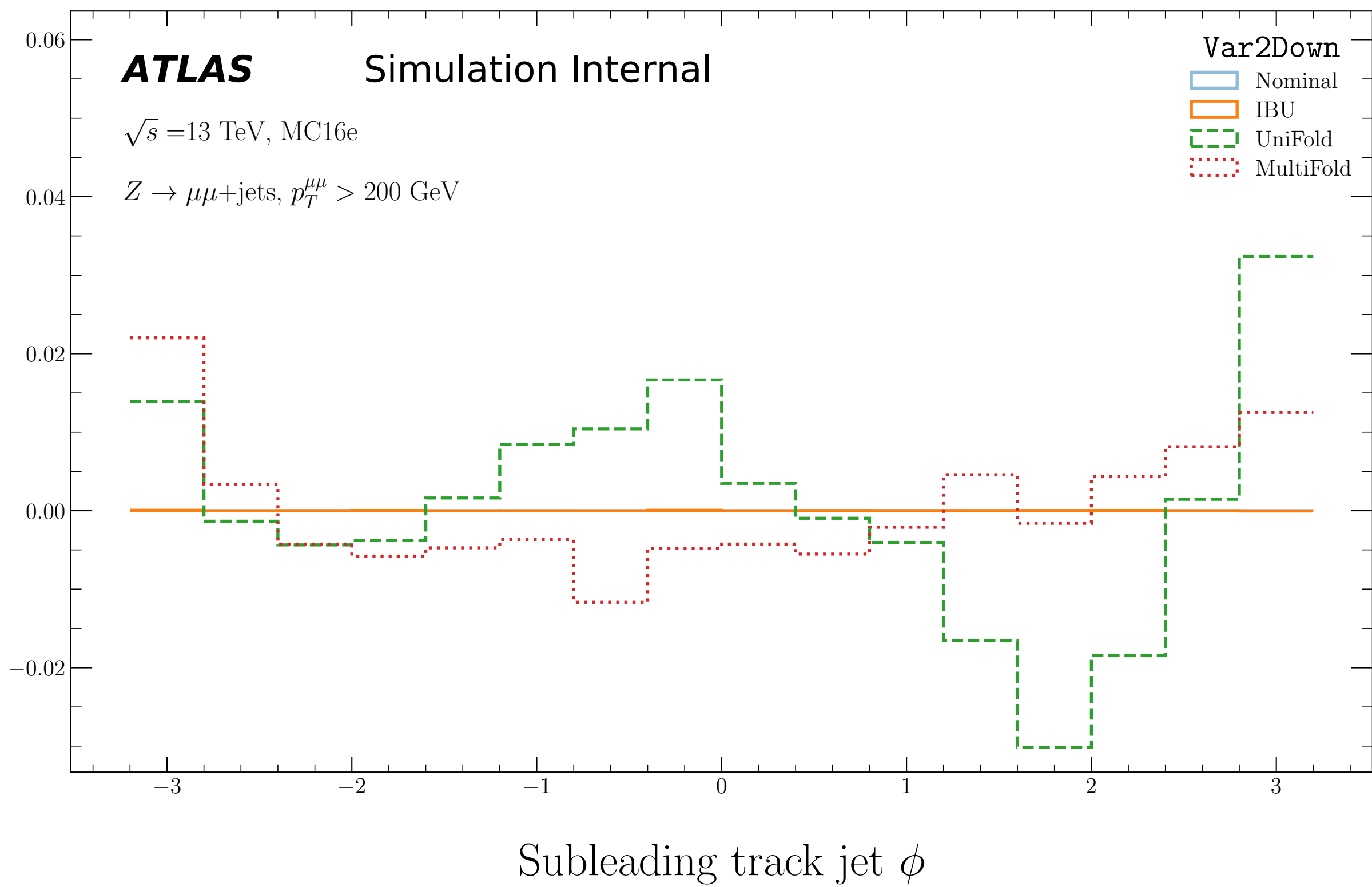
0

1

2

3

Subleading track jet ϕ 



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.02
0.00
-0.02
-0.04

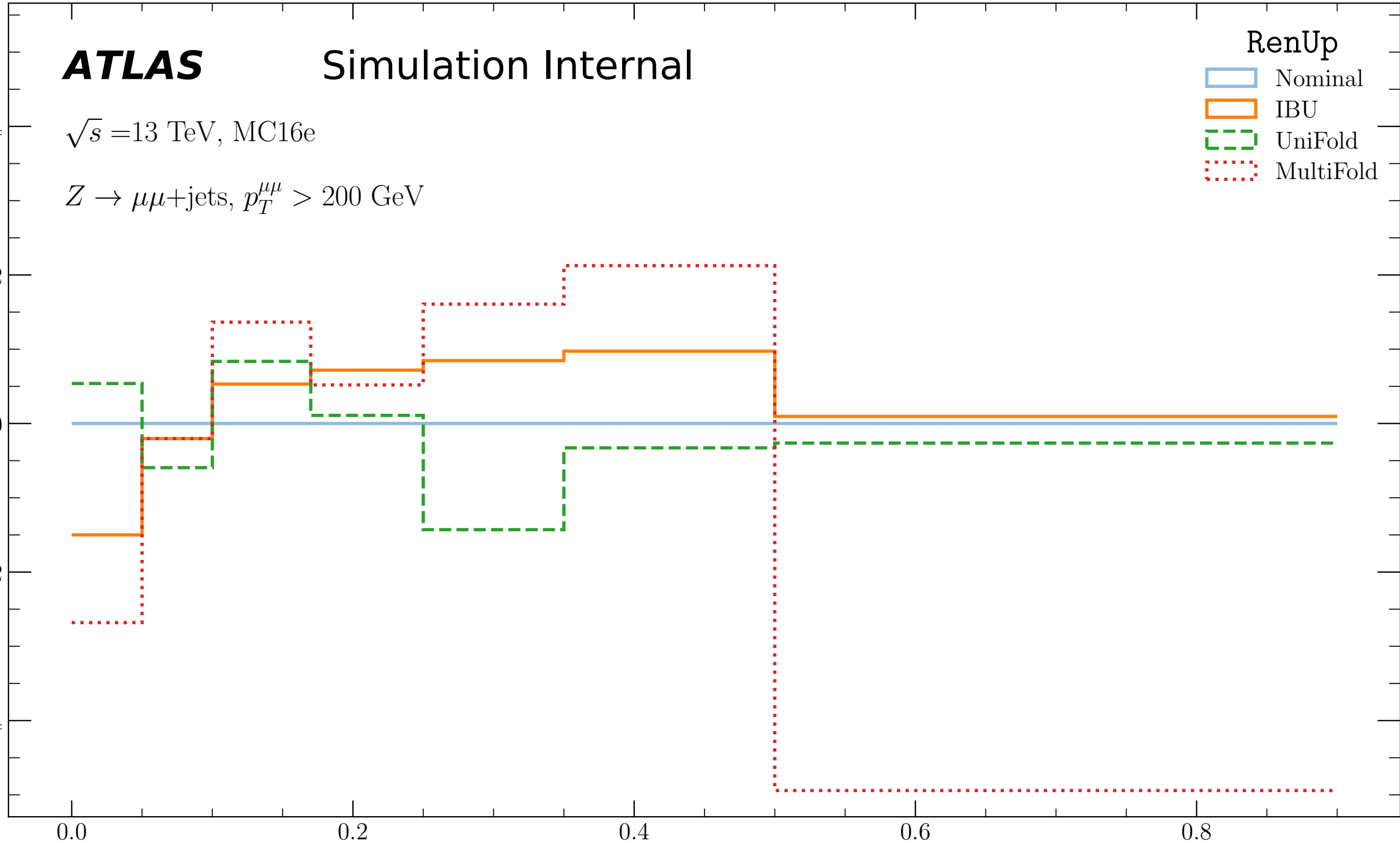
0.0

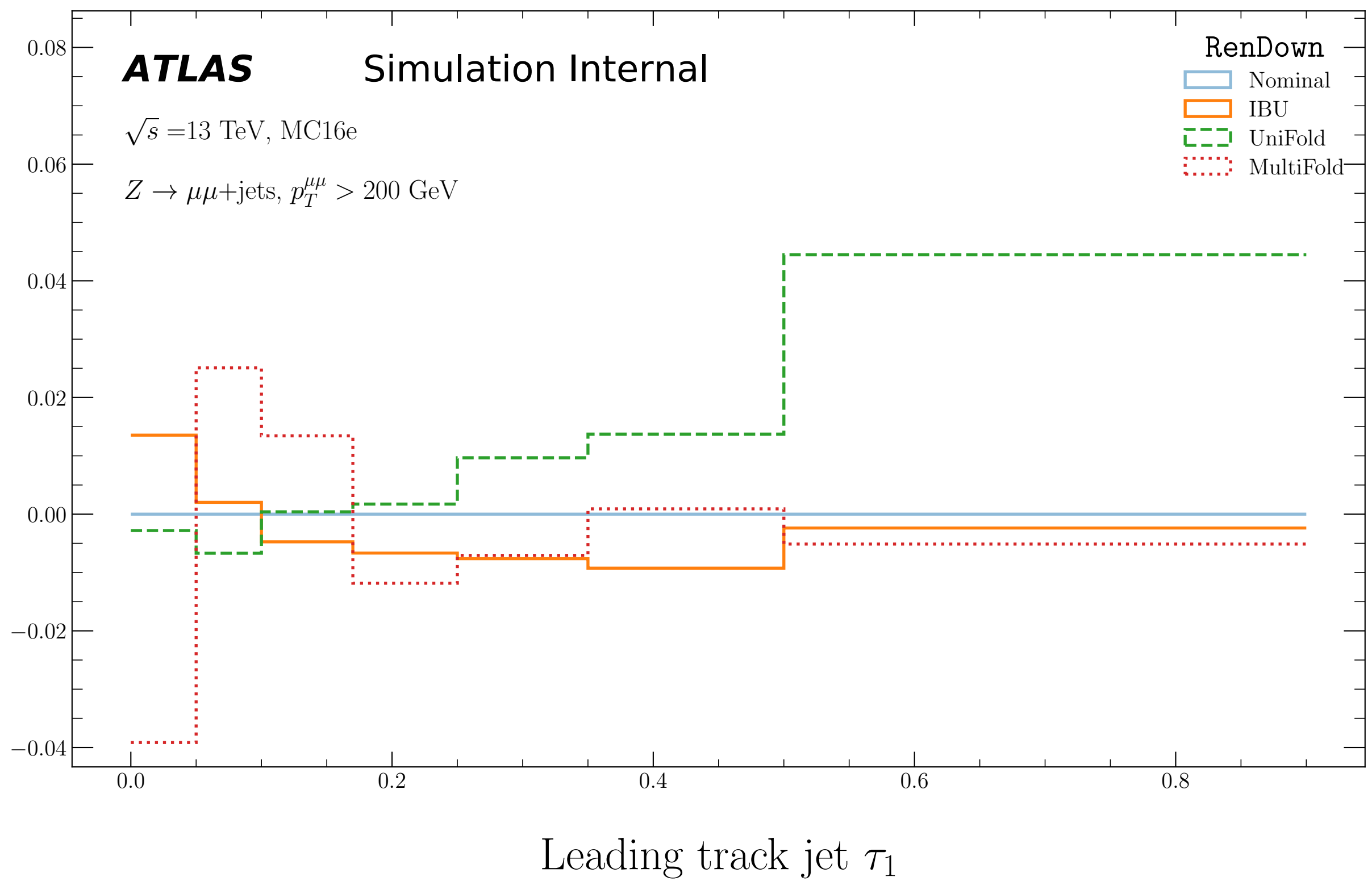
0.2

0.4

0.6

0.8

Leading track jet τ_1 



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold

0.10
0.08
0.06
0.04
0.02
0.00

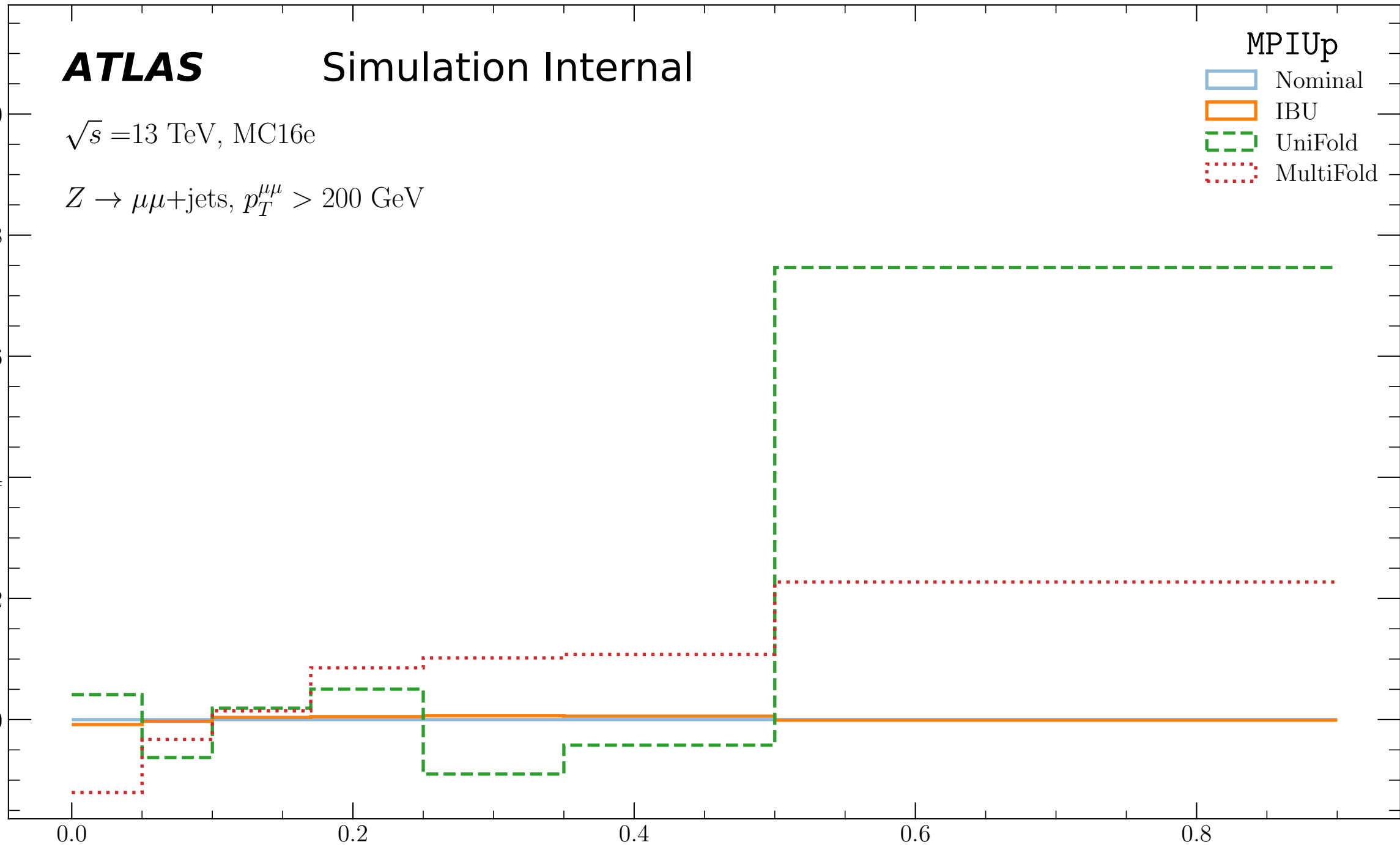
0.0

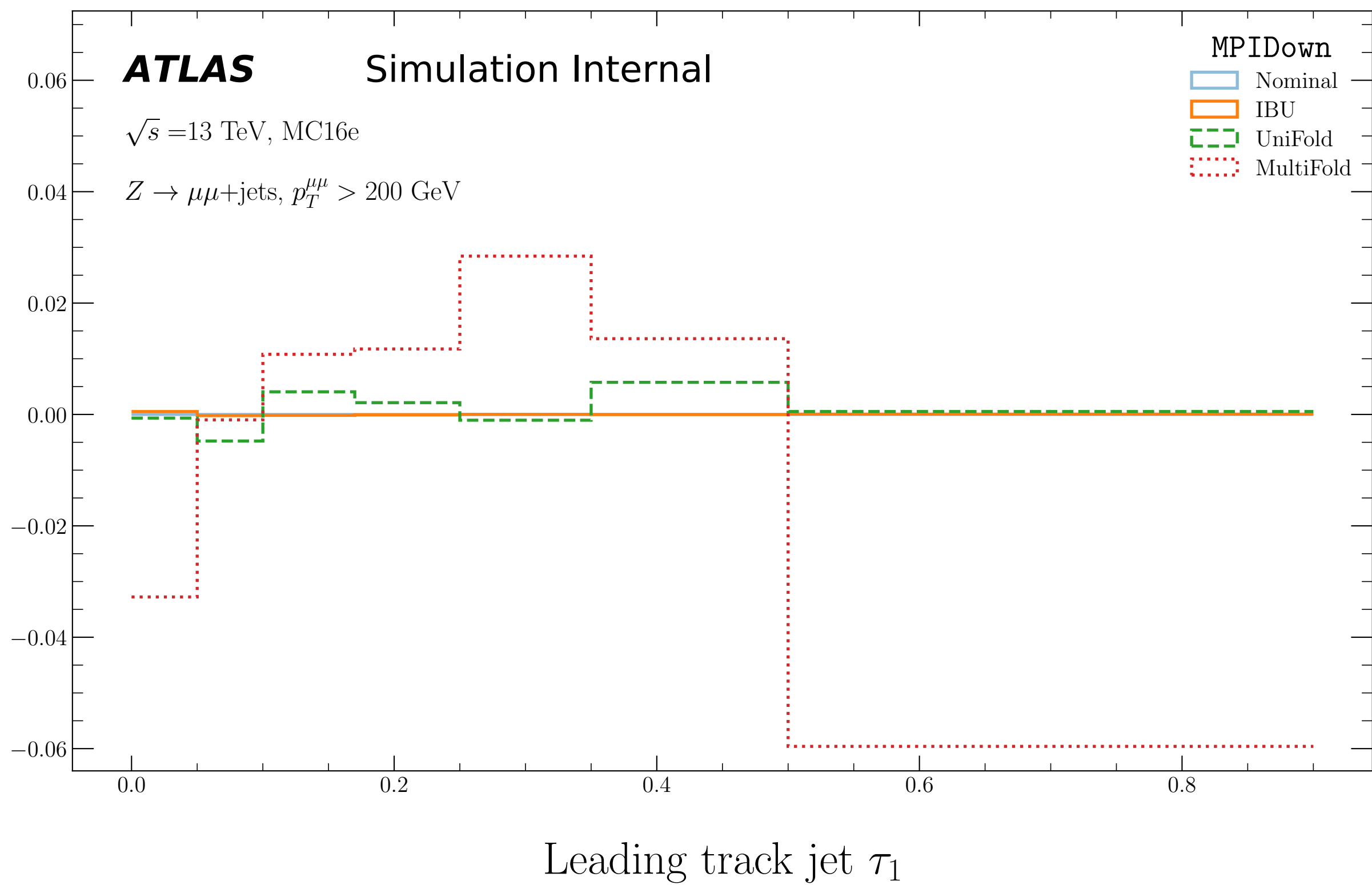
0.2

0.4

0.6

0.8

Leading track jet τ_1 



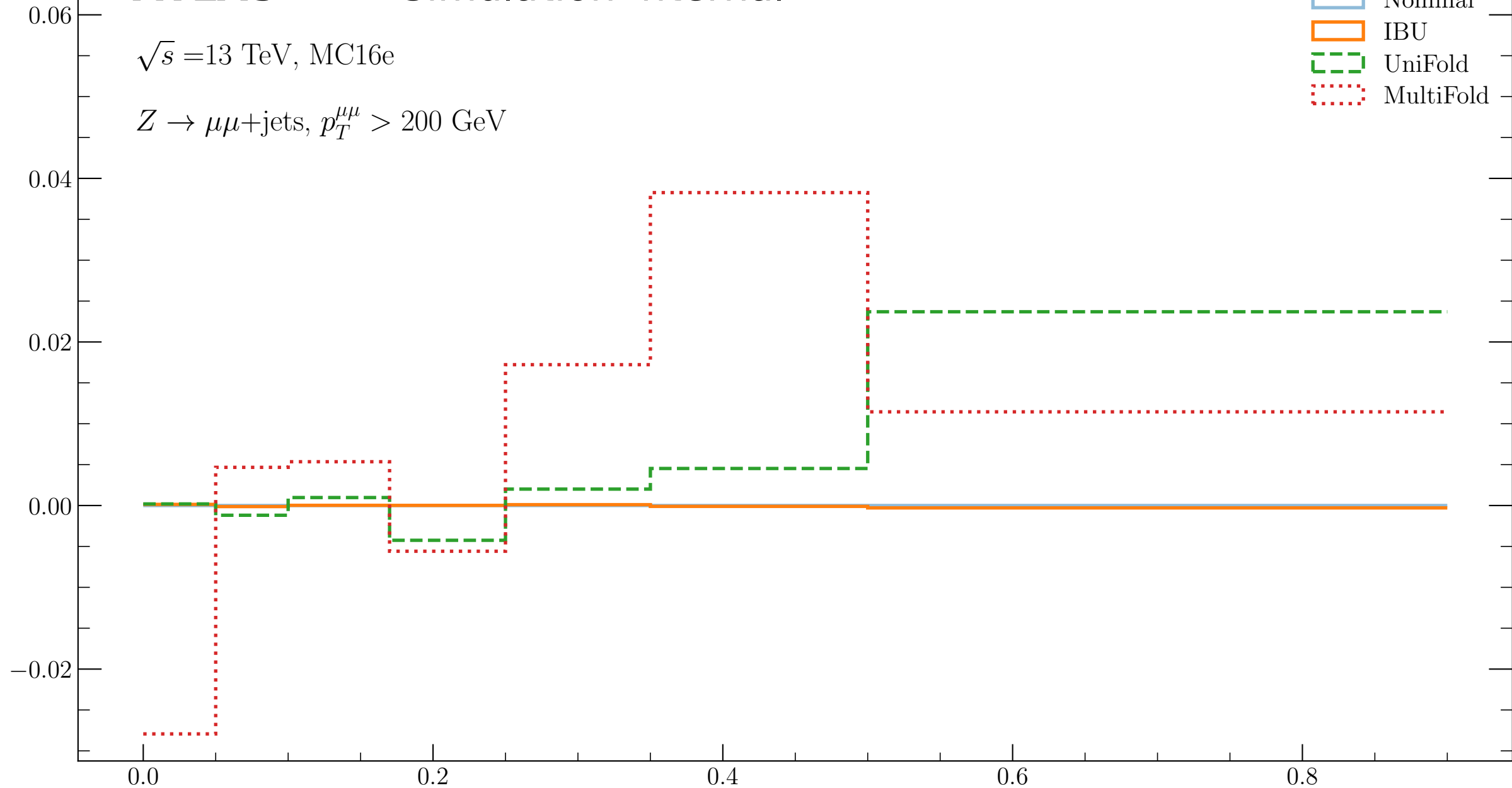
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_1

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

Nominal

IBU

UniFold

MultiFold

0.06
0.04
0.02
0.00
-0.02

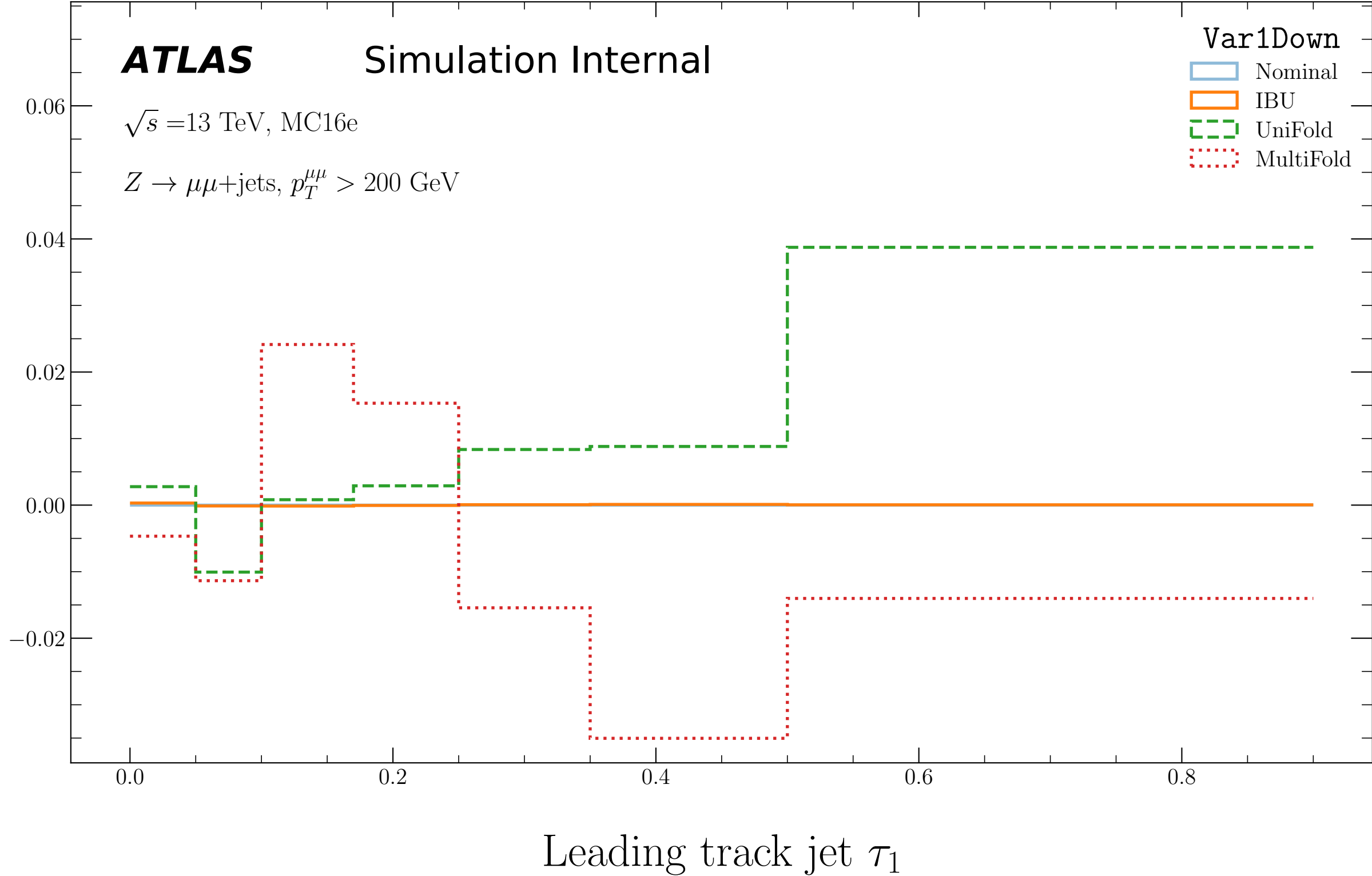
0.0

0.2

0.4

0.6

0.8

Leading track jet τ_1 

ATLAS

Simulation Internal

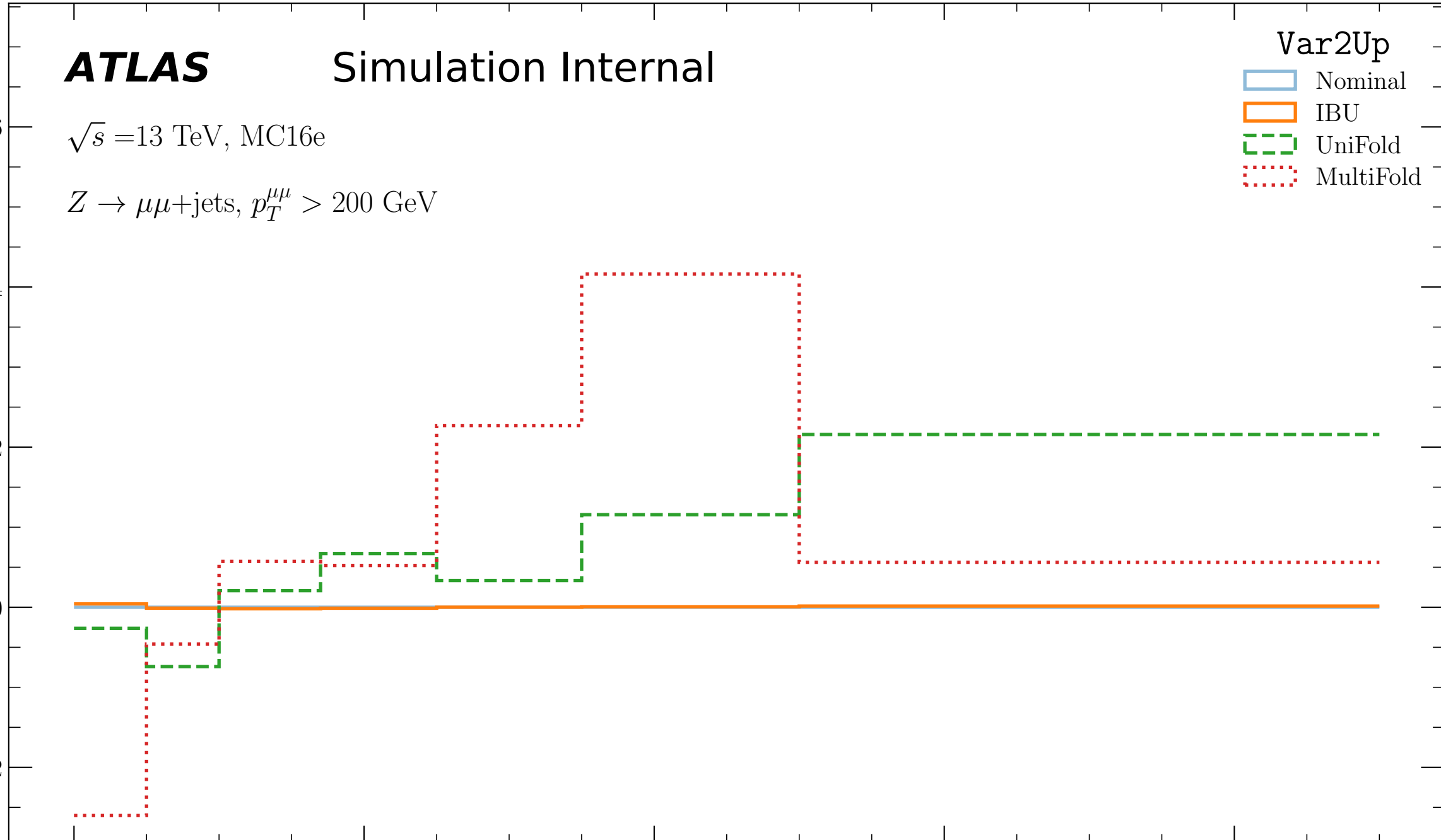
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

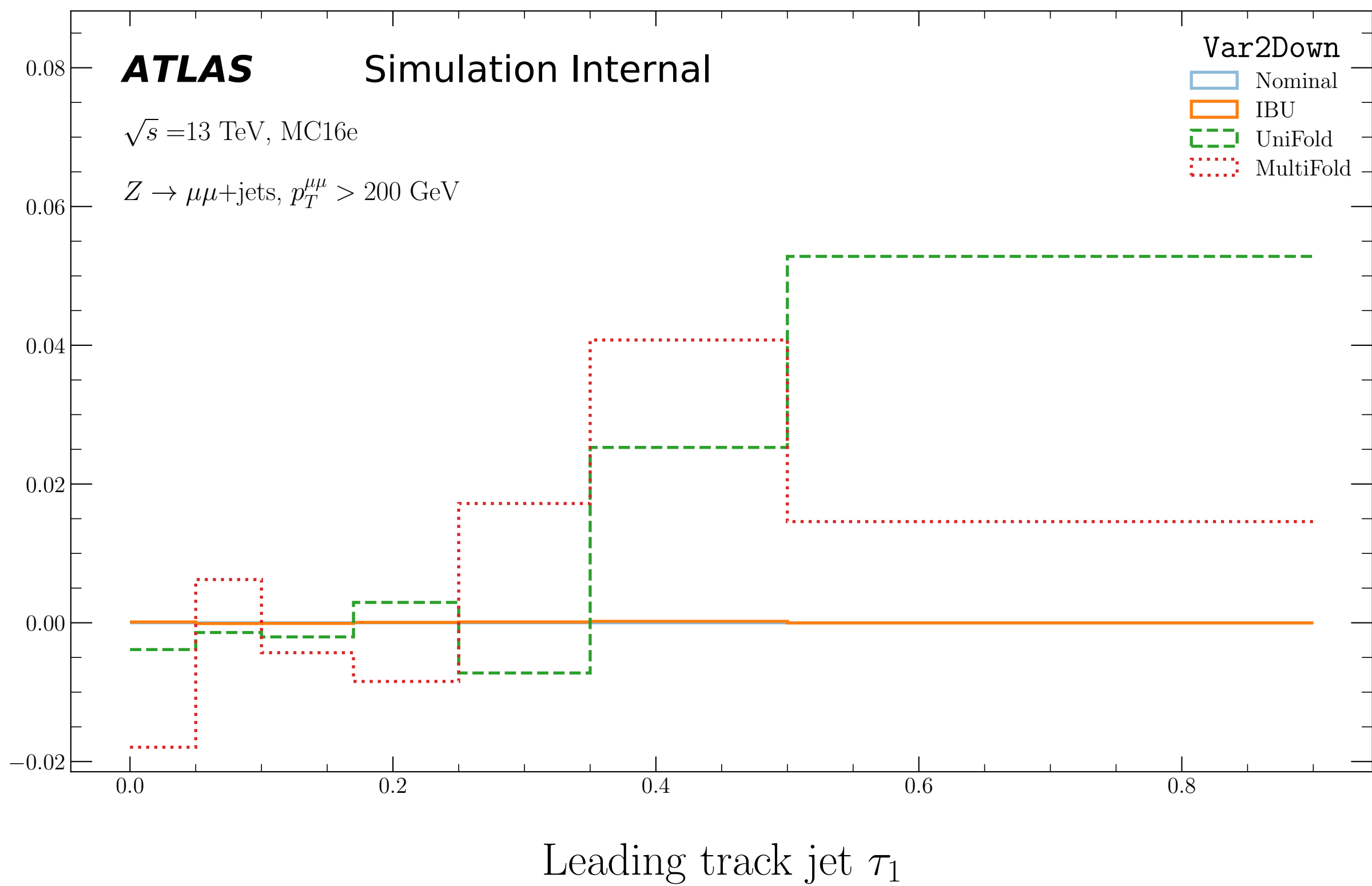
Var2Up

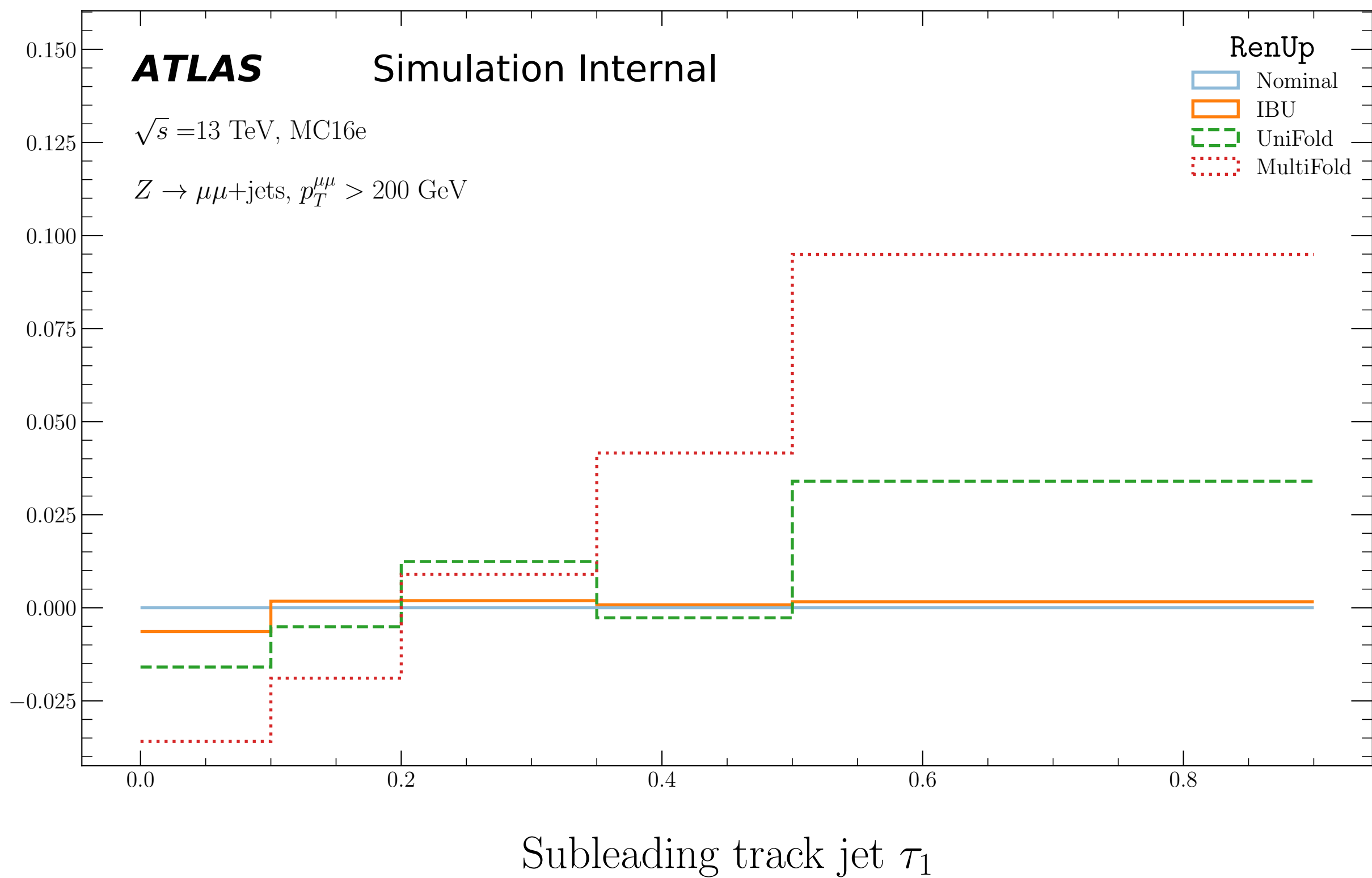
- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

0.0 0.2 0.4 0.6 0.8

Leading track jet τ_1 





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

0.15

0.10

0.05

0.00

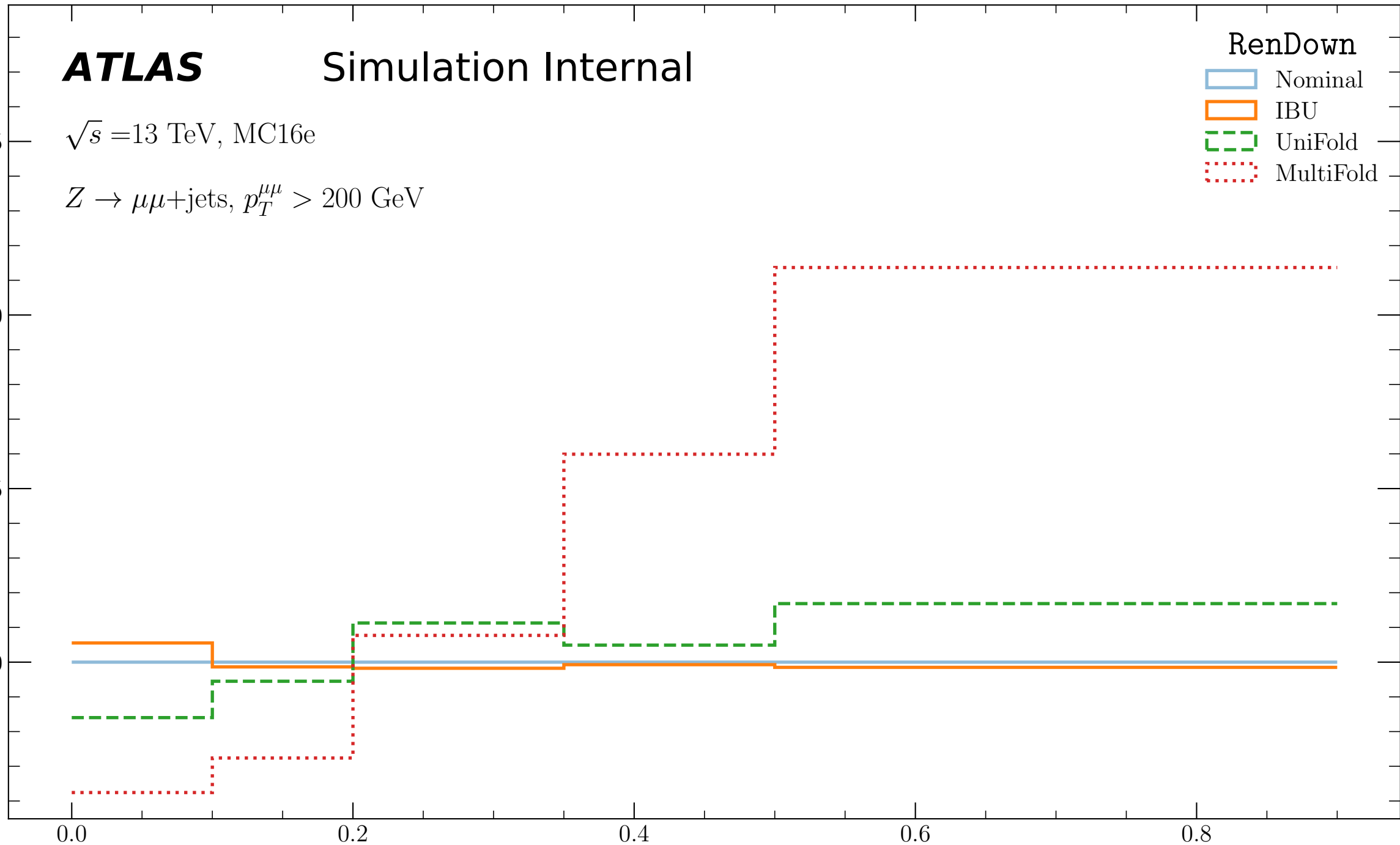
0.0

0.2

0.4

0.6

0.8

Subleading track jet τ_1 

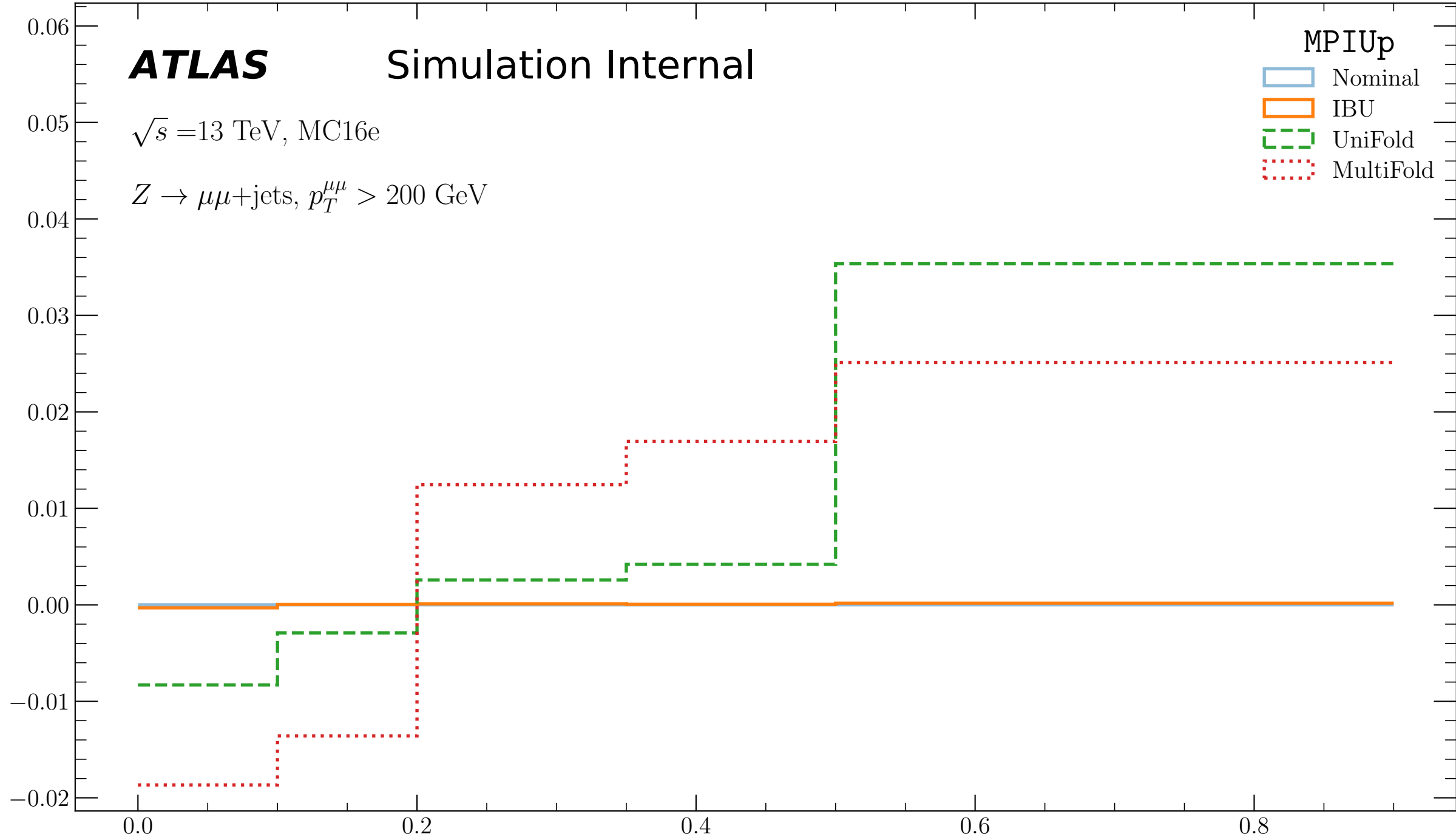
ATLAS

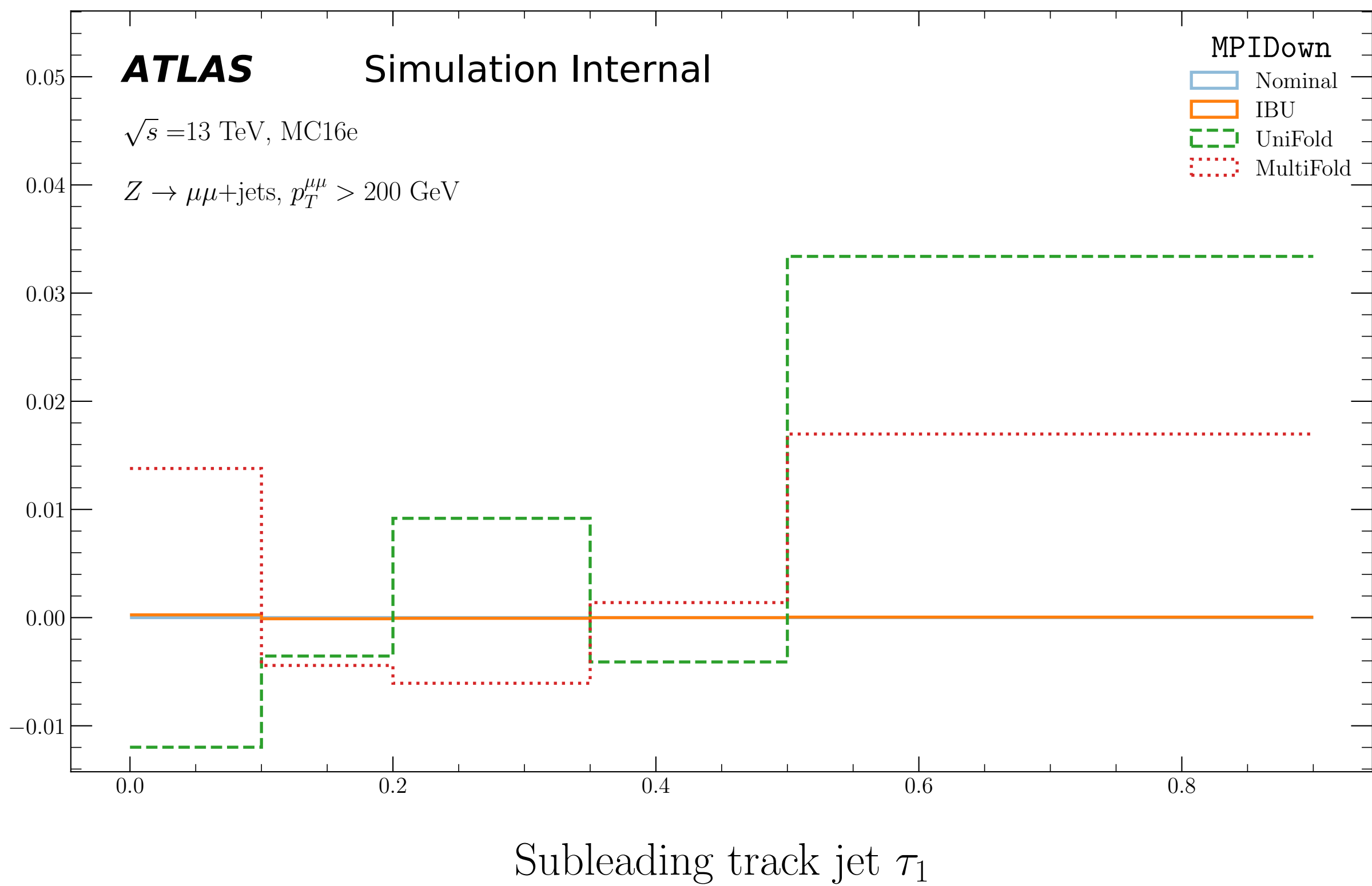
Simulation Internal

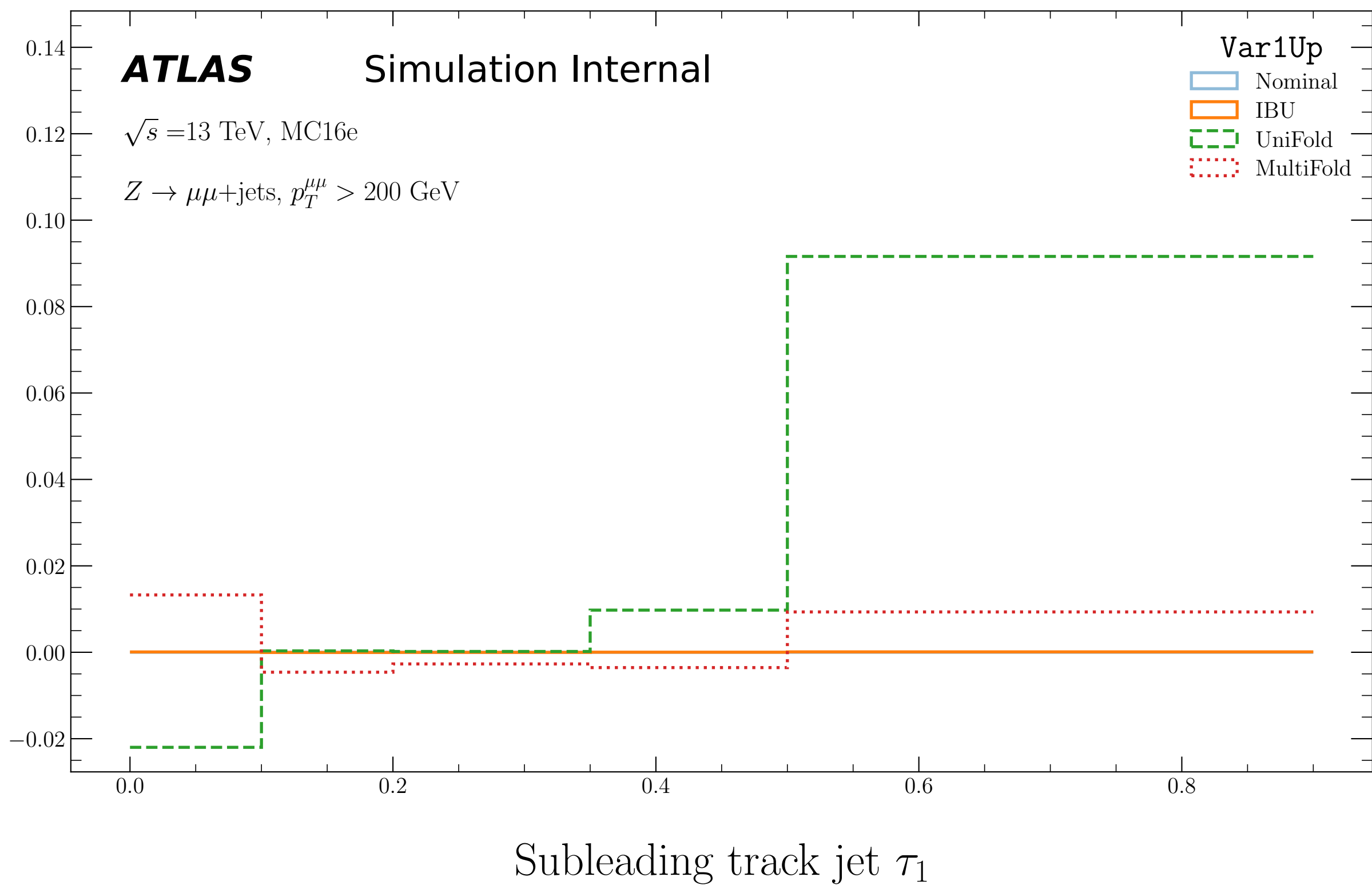
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_1





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

Nominal

IBU

UniFold

MultiFold

0.04
0.03
0.02
0.01
0.00
-0.01

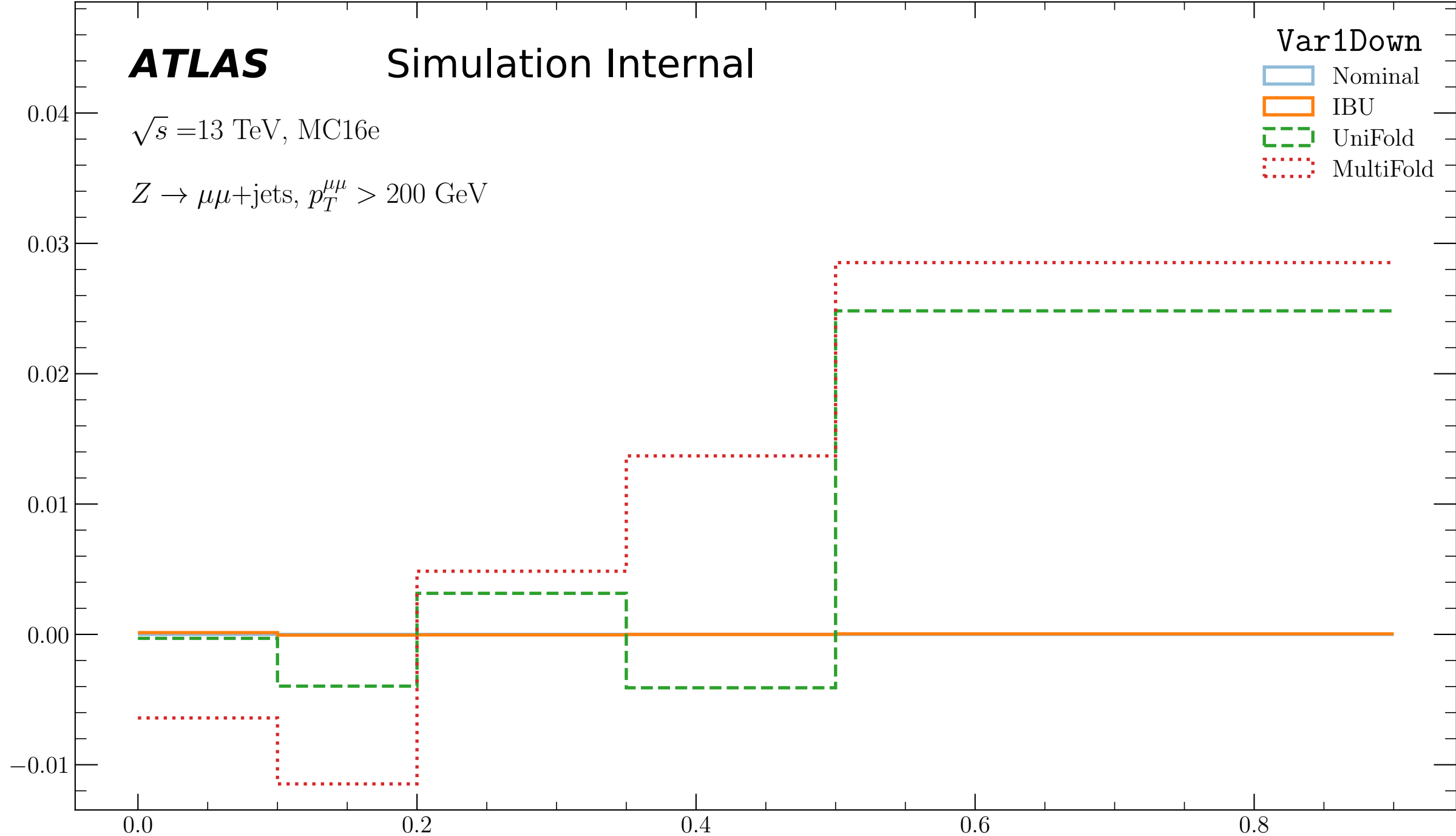
0.0

0.2

0.4

0.6

0.8

Subleading track jet τ_1 

ATLAS

Simulation Internal

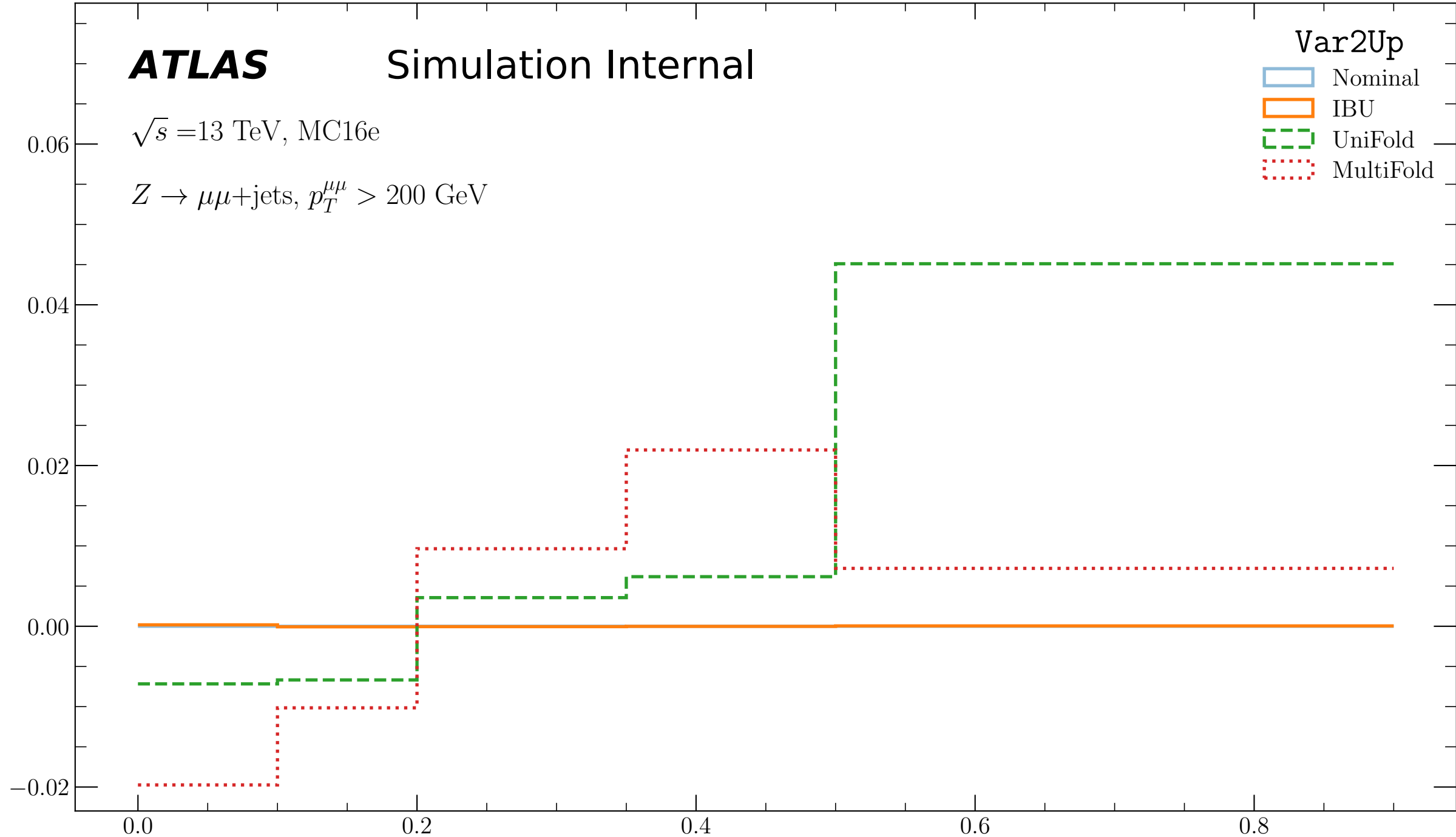
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

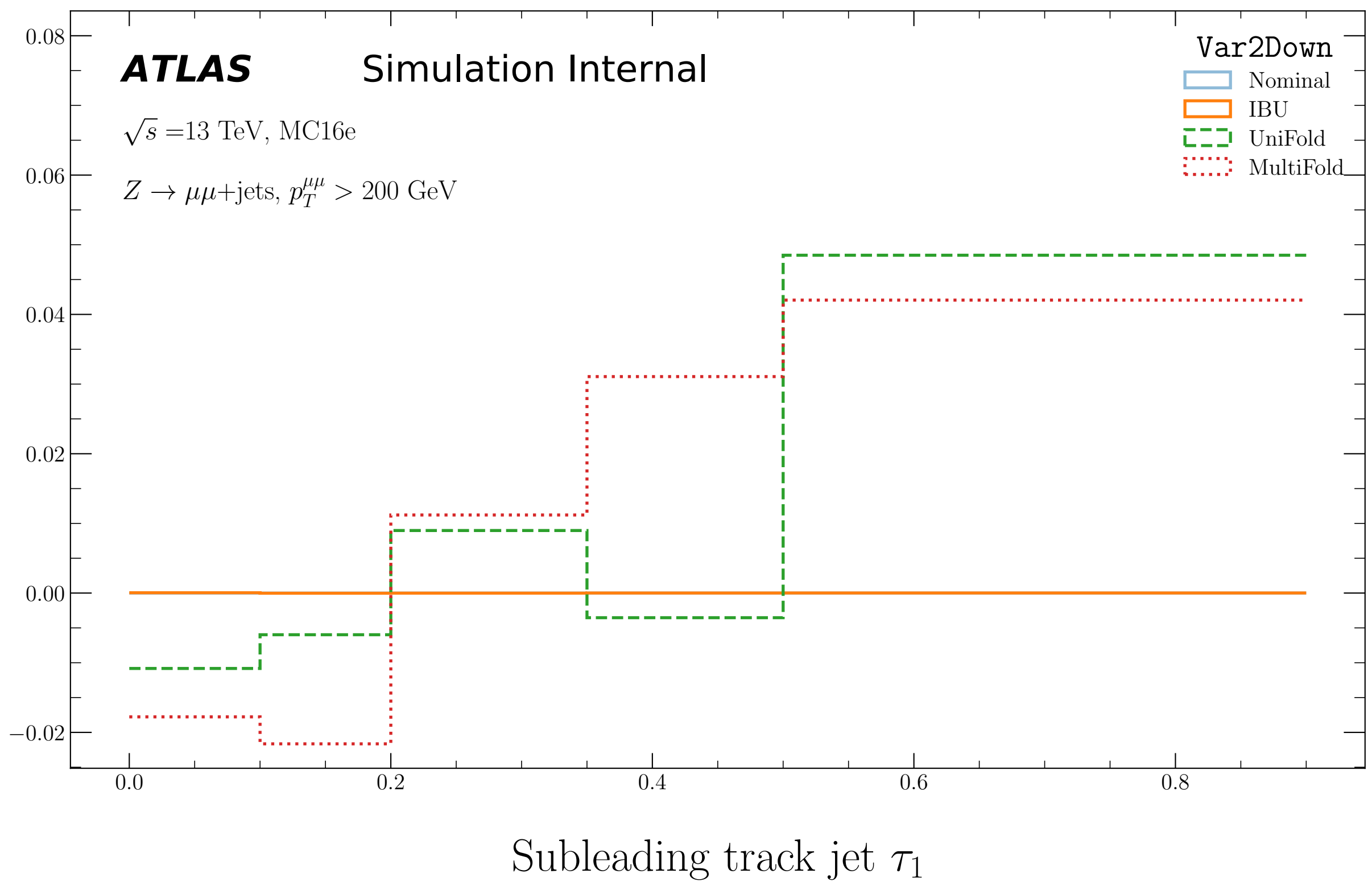
Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

0.0 0.2 0.4 0.6 0.8

Subleading track jet τ_1 



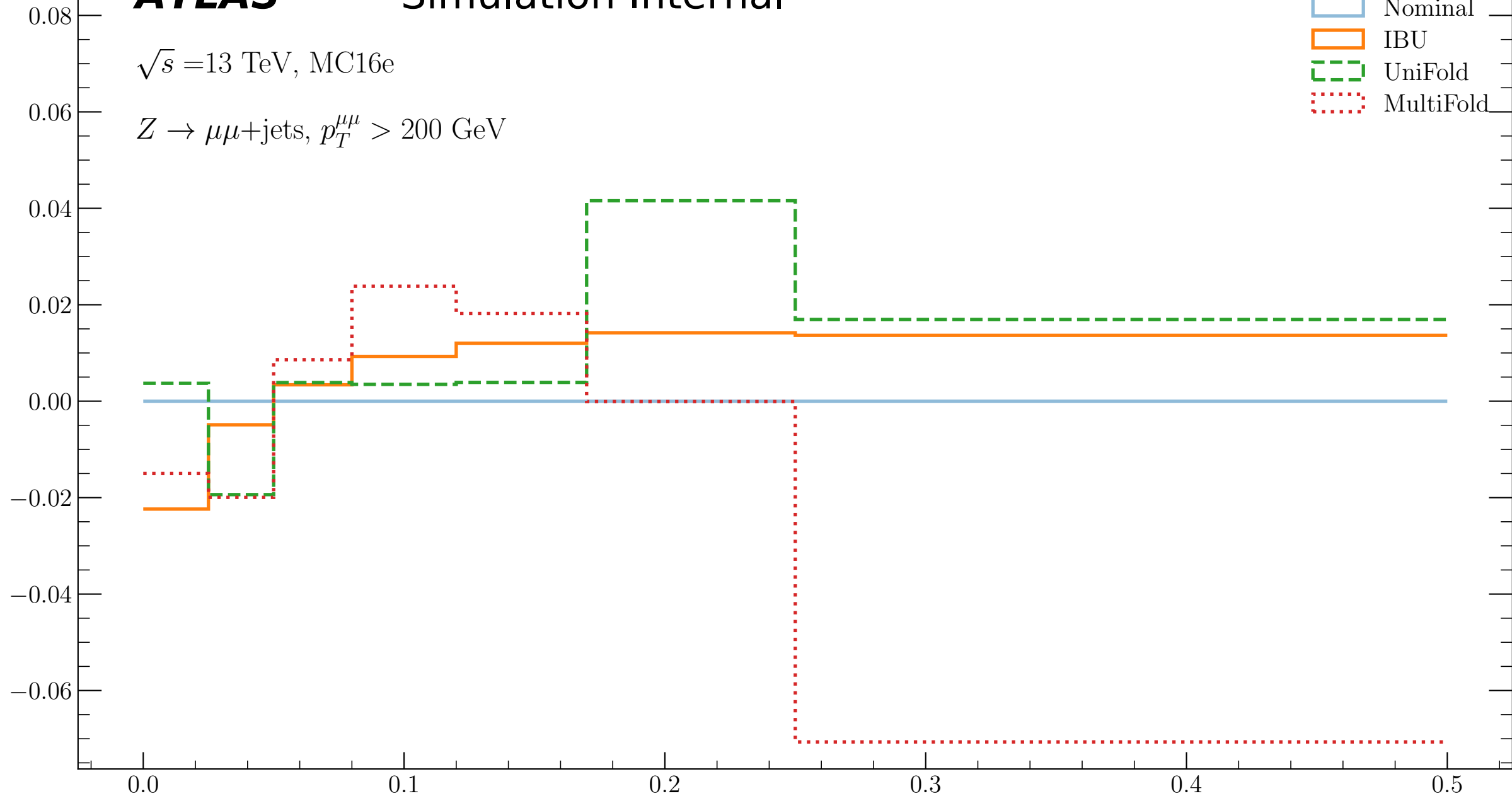
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold



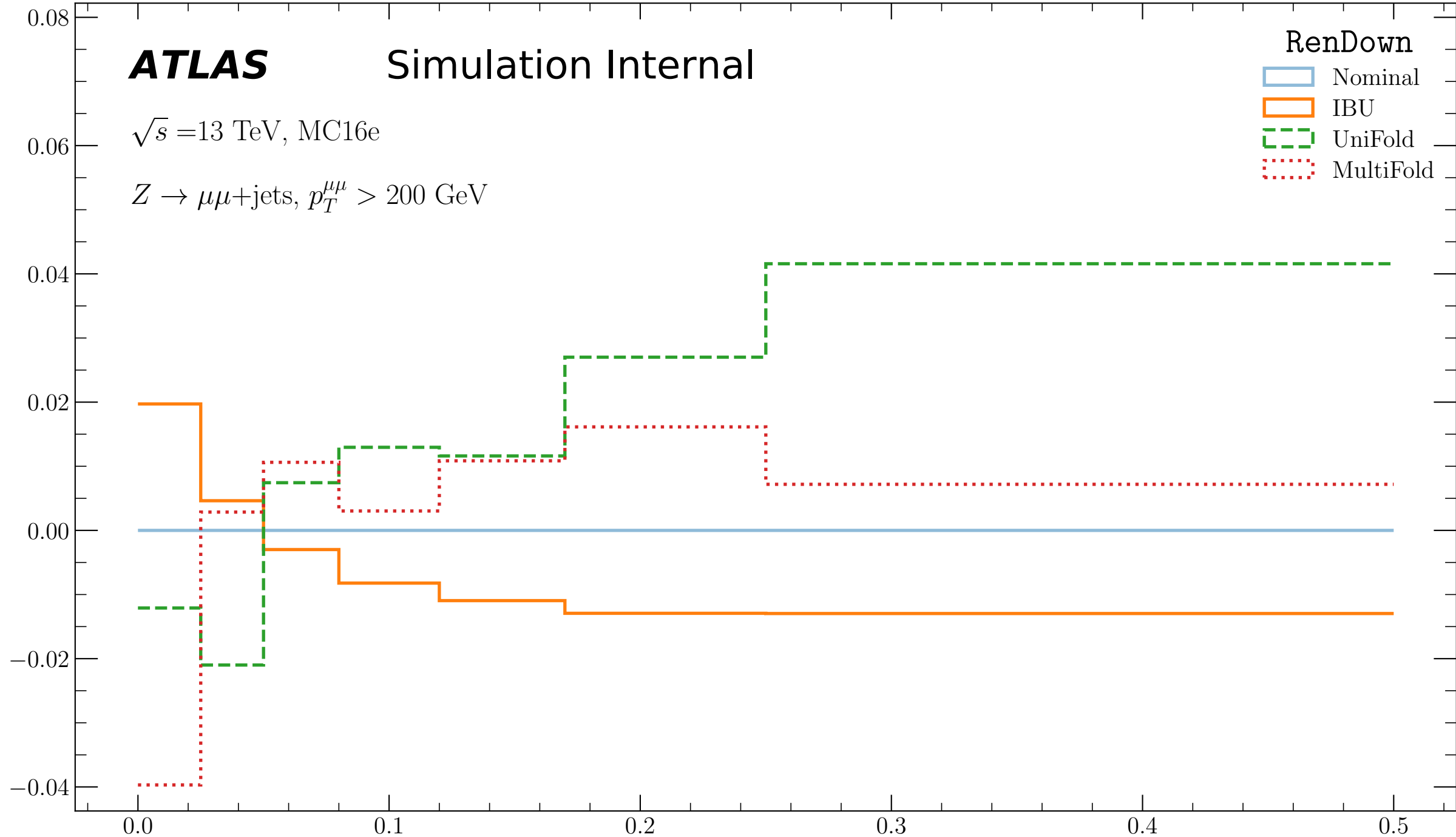
ATLAS

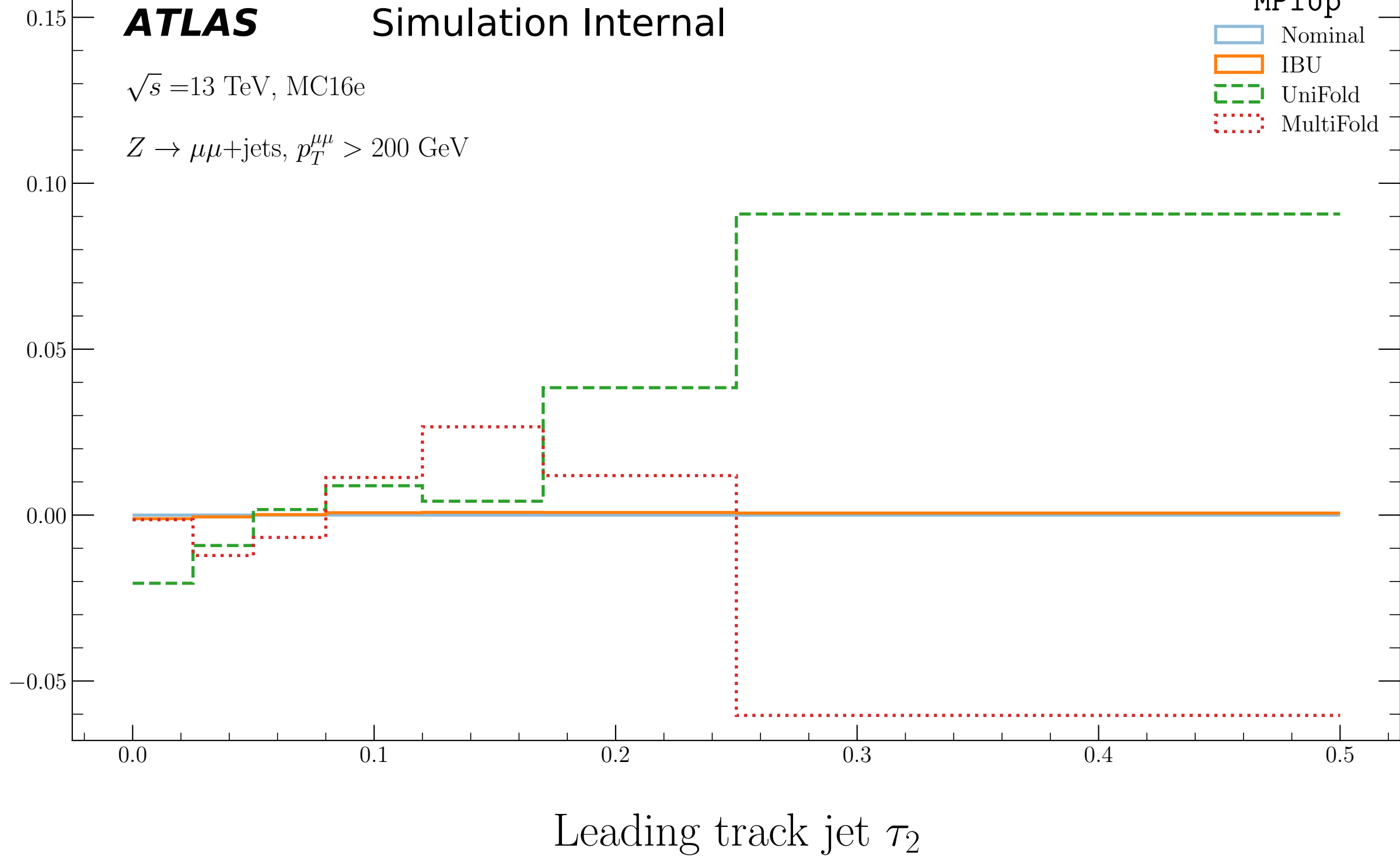
Simulation Internal

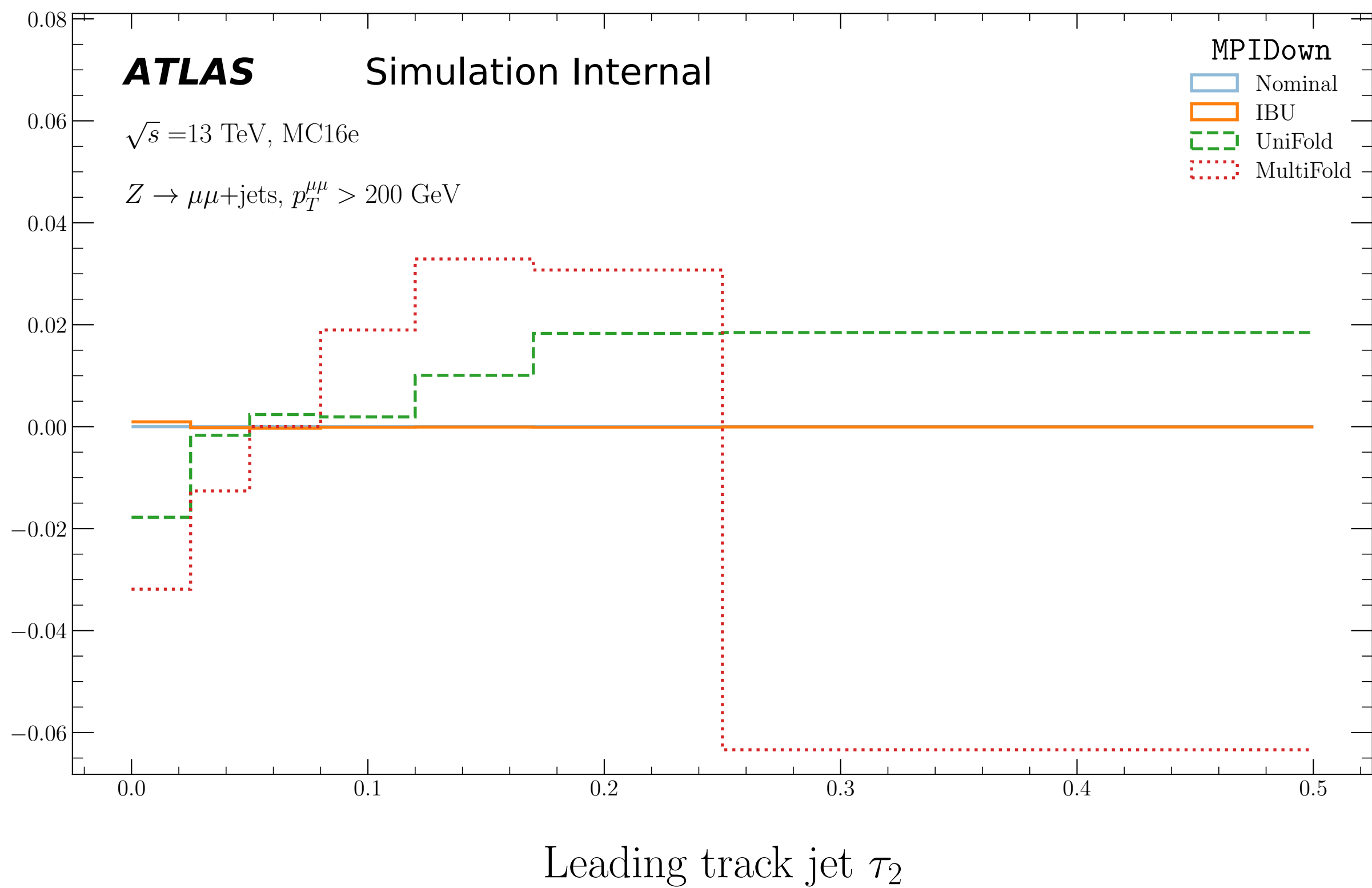
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_2





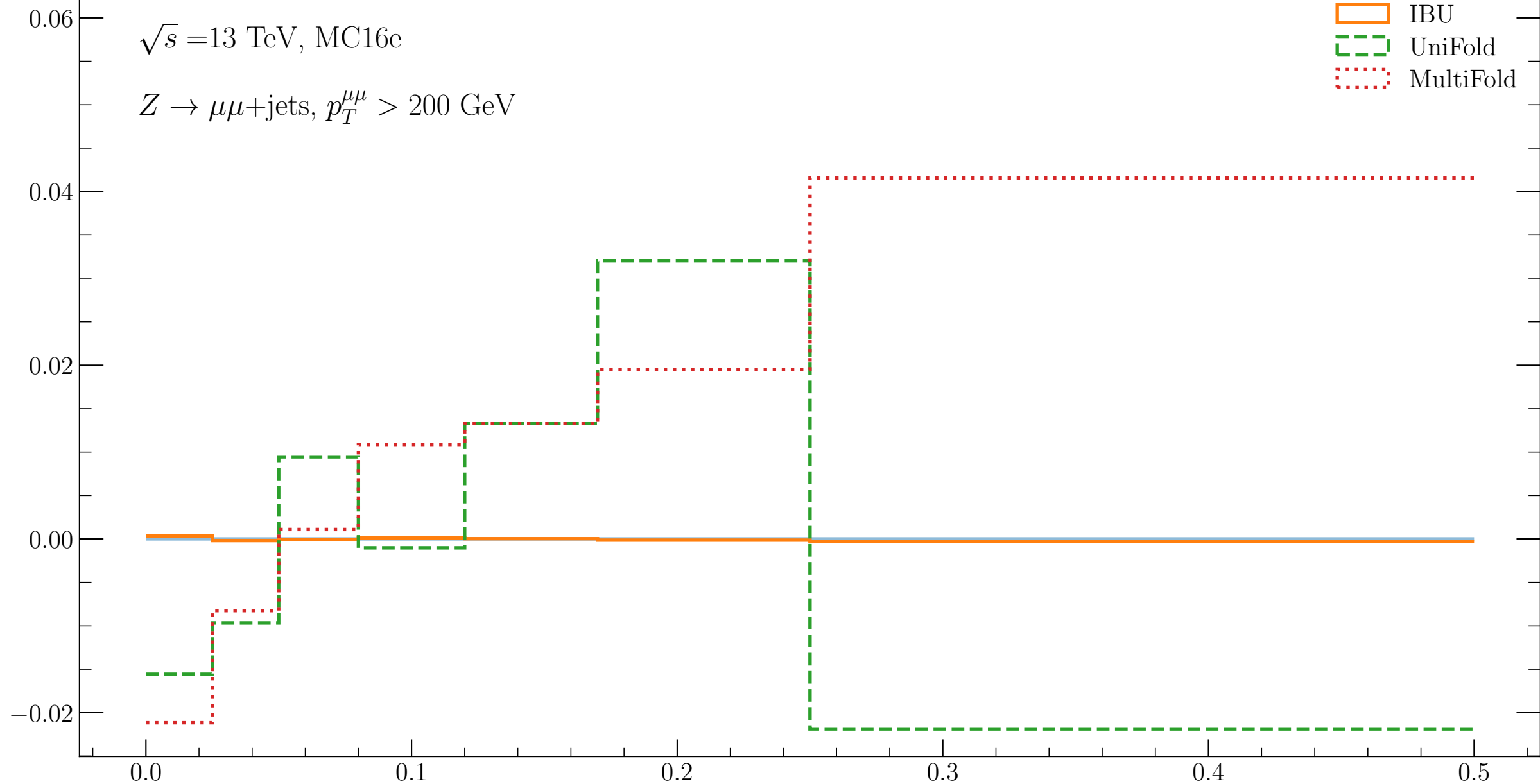
ATLAS

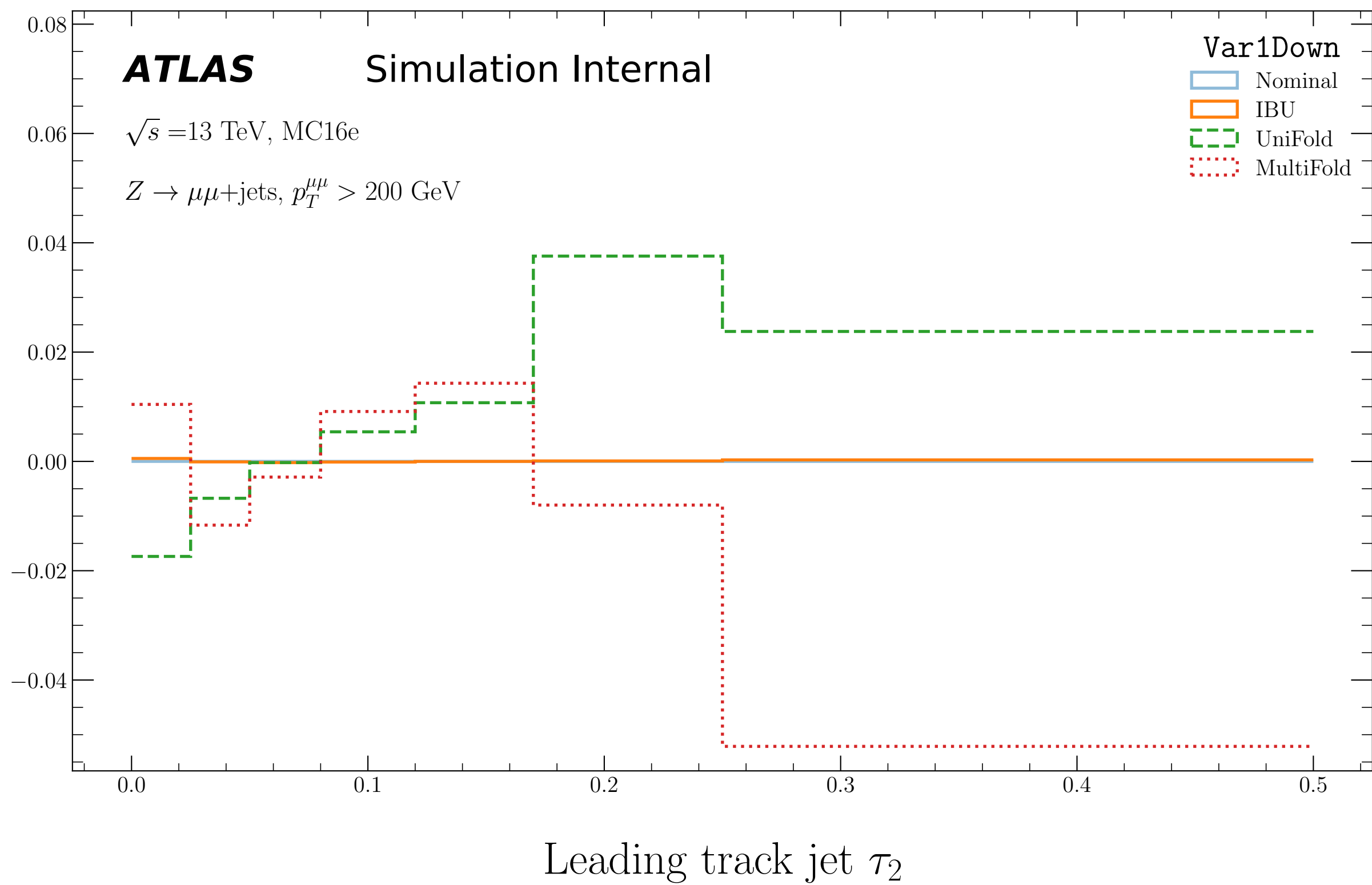
Simulation Internal

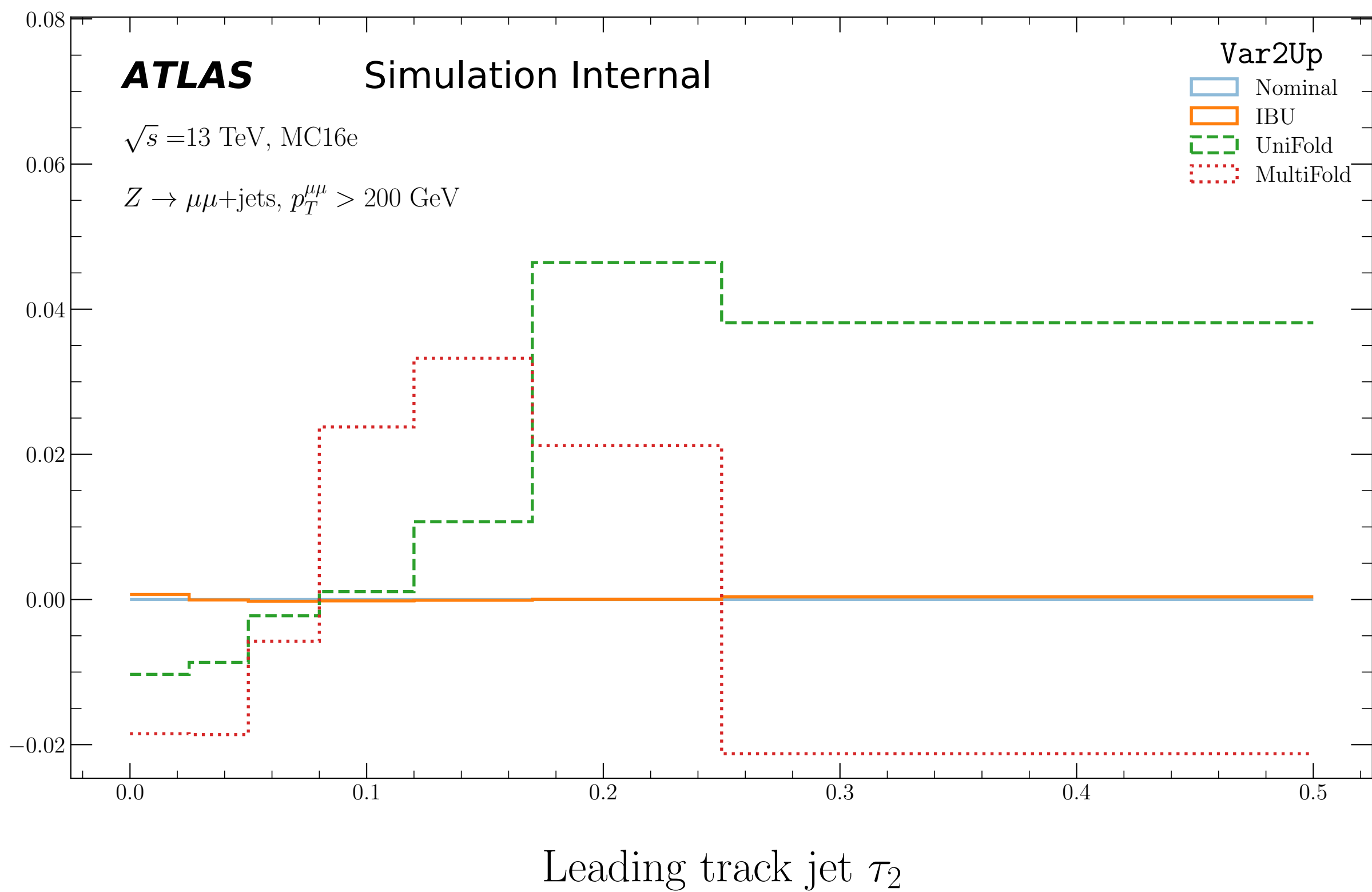
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_2





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

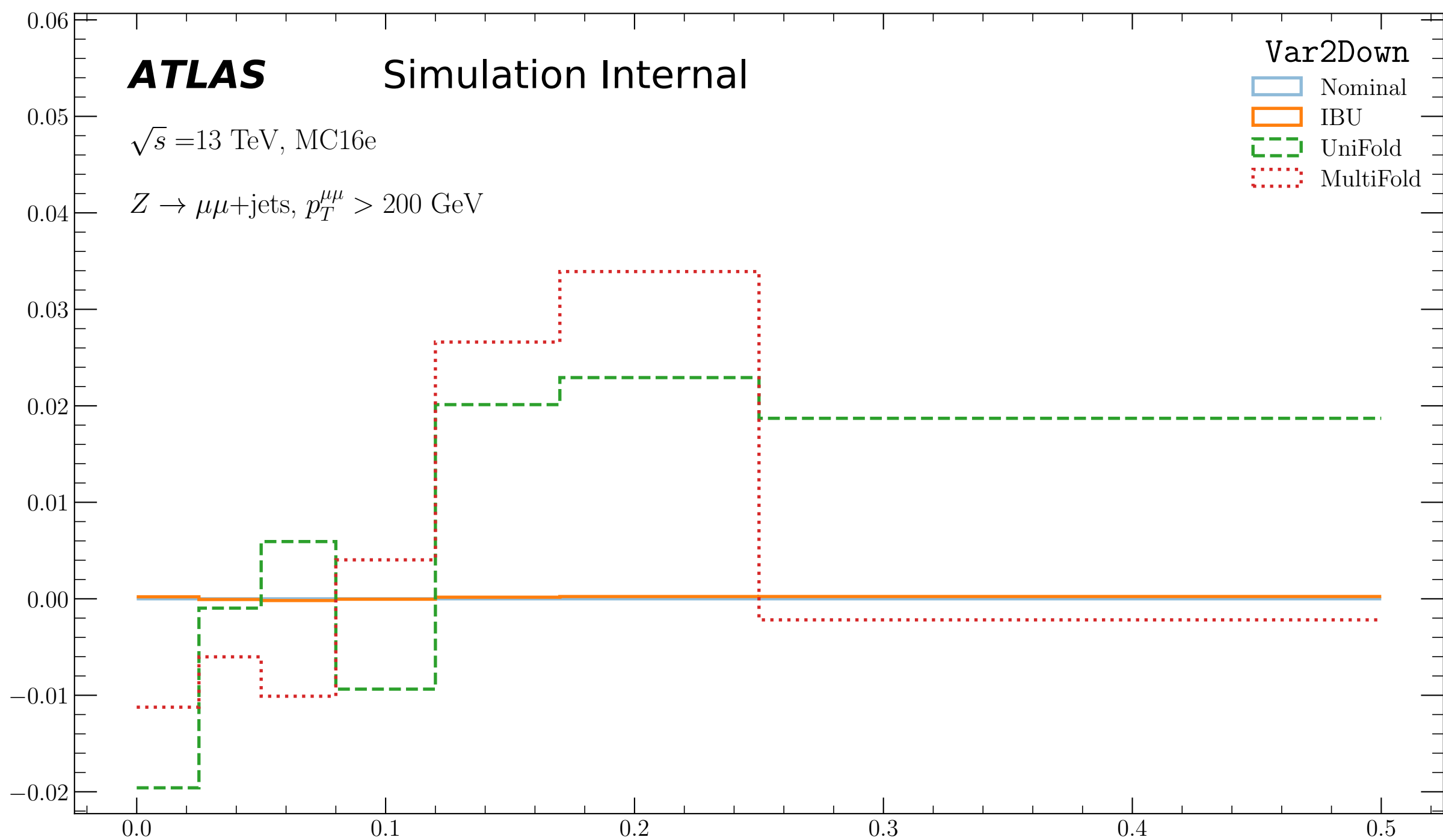
Var2Down

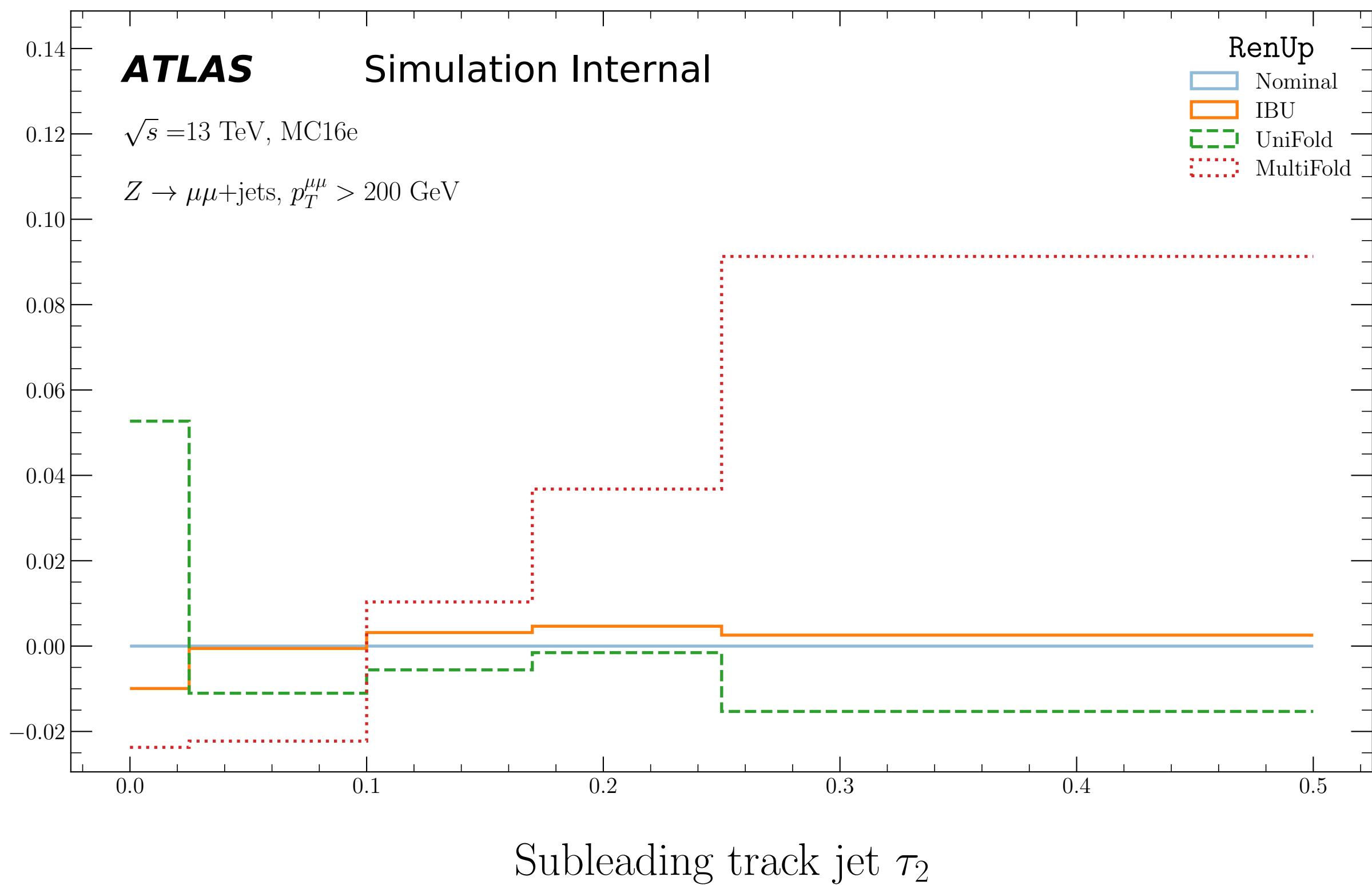
Nominal

IBU

UniFold

MultiFold

Leading track jet τ_2



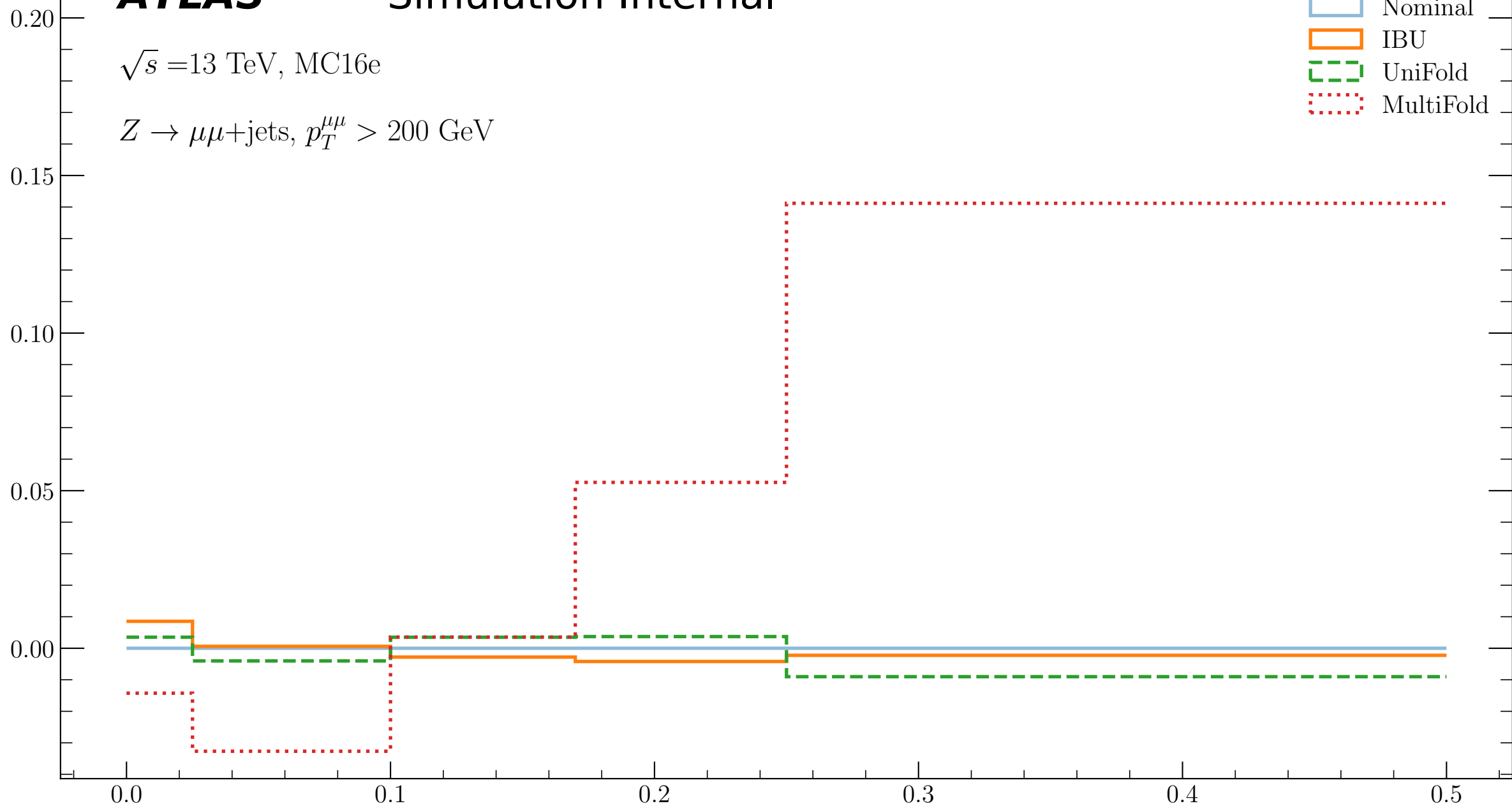
ATLAS

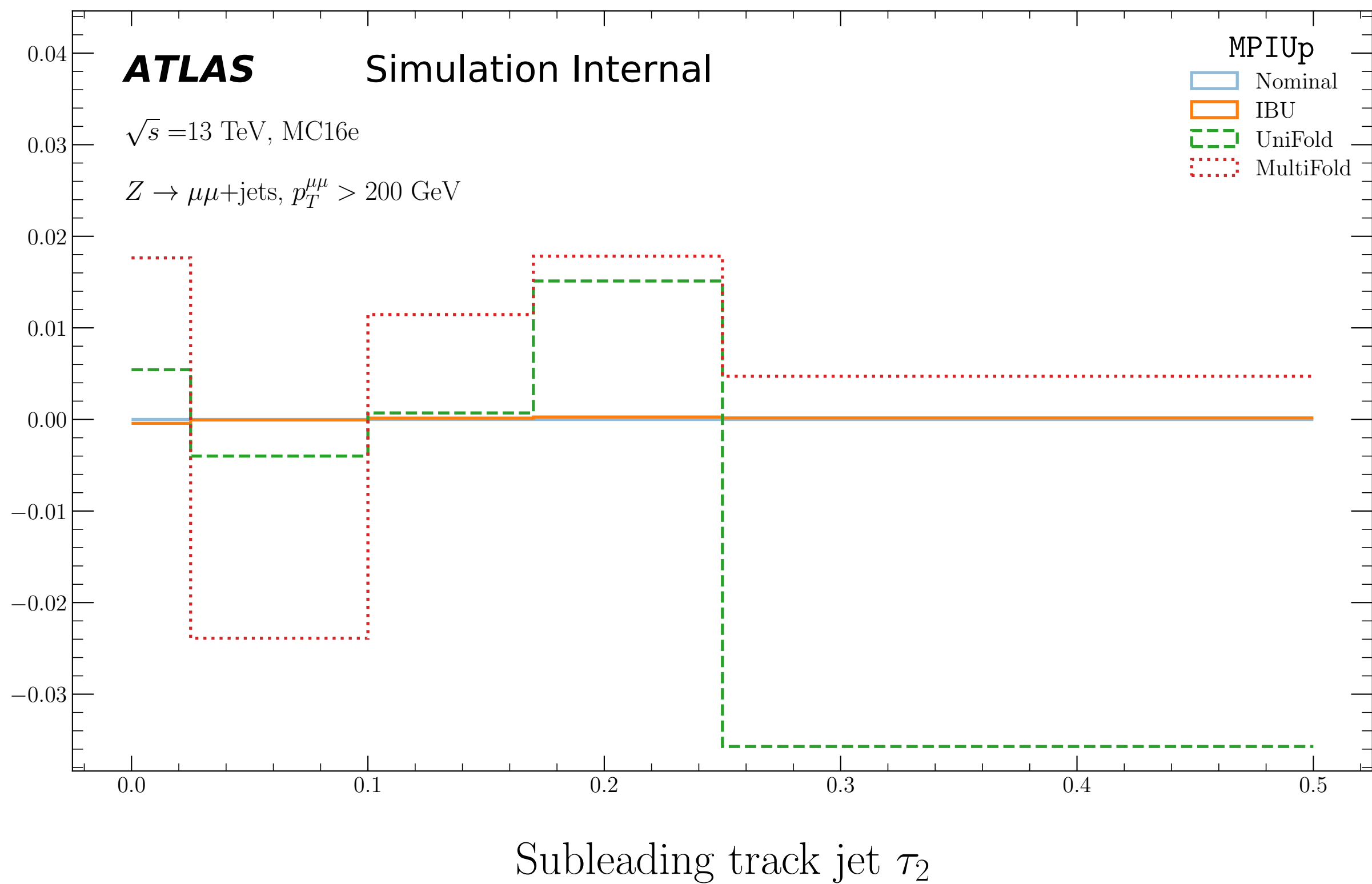
Simulation Internal

 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold





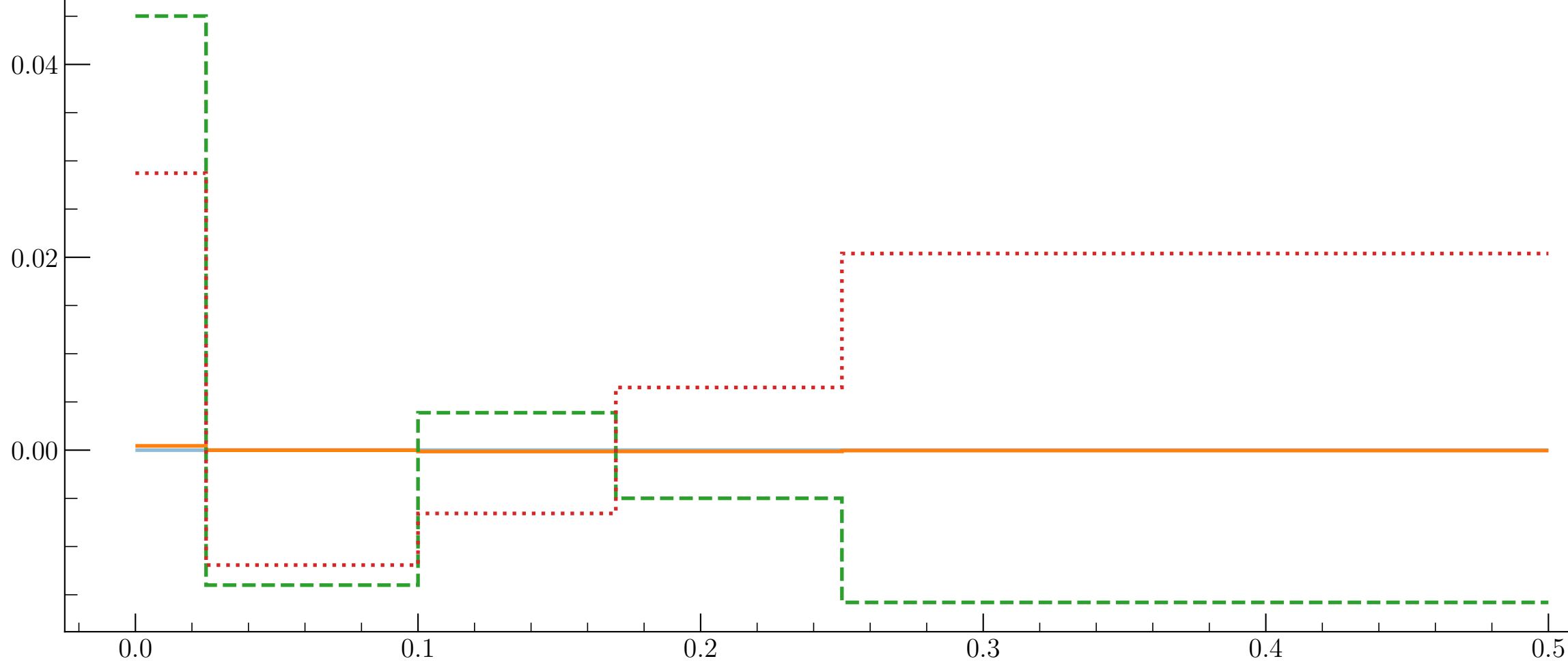
ATLAS

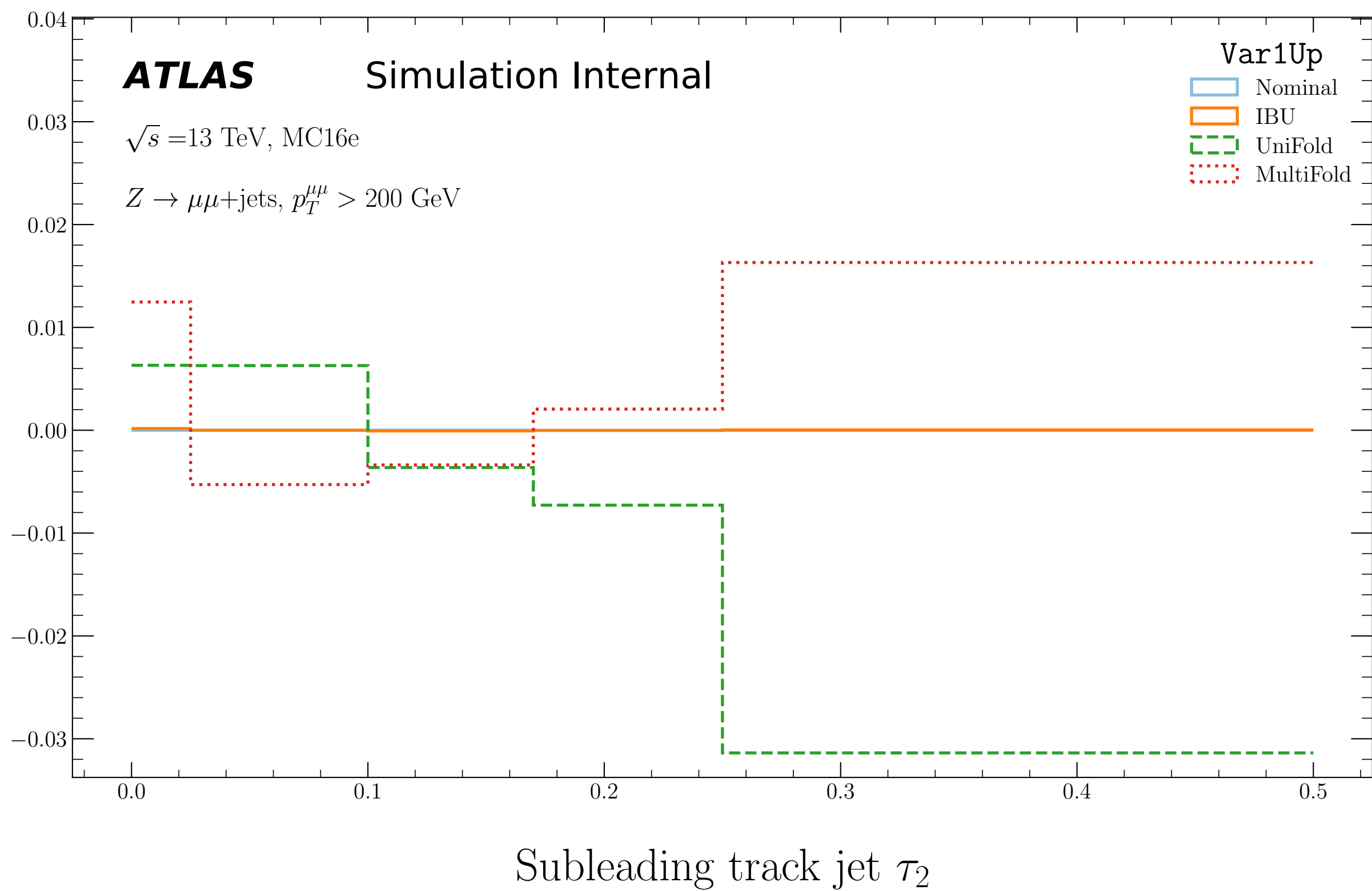
Simulation Internal

 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_2



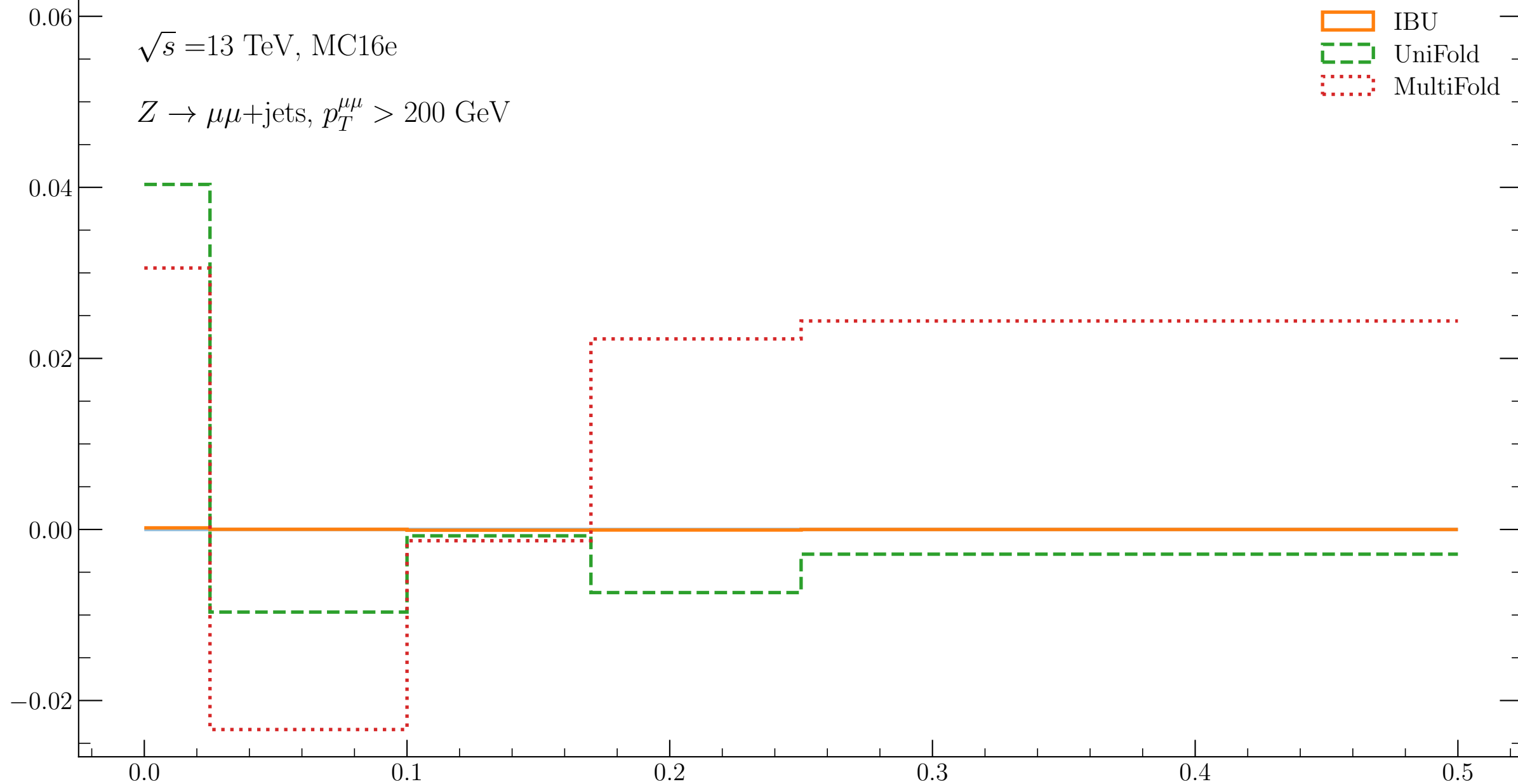
ATLAS

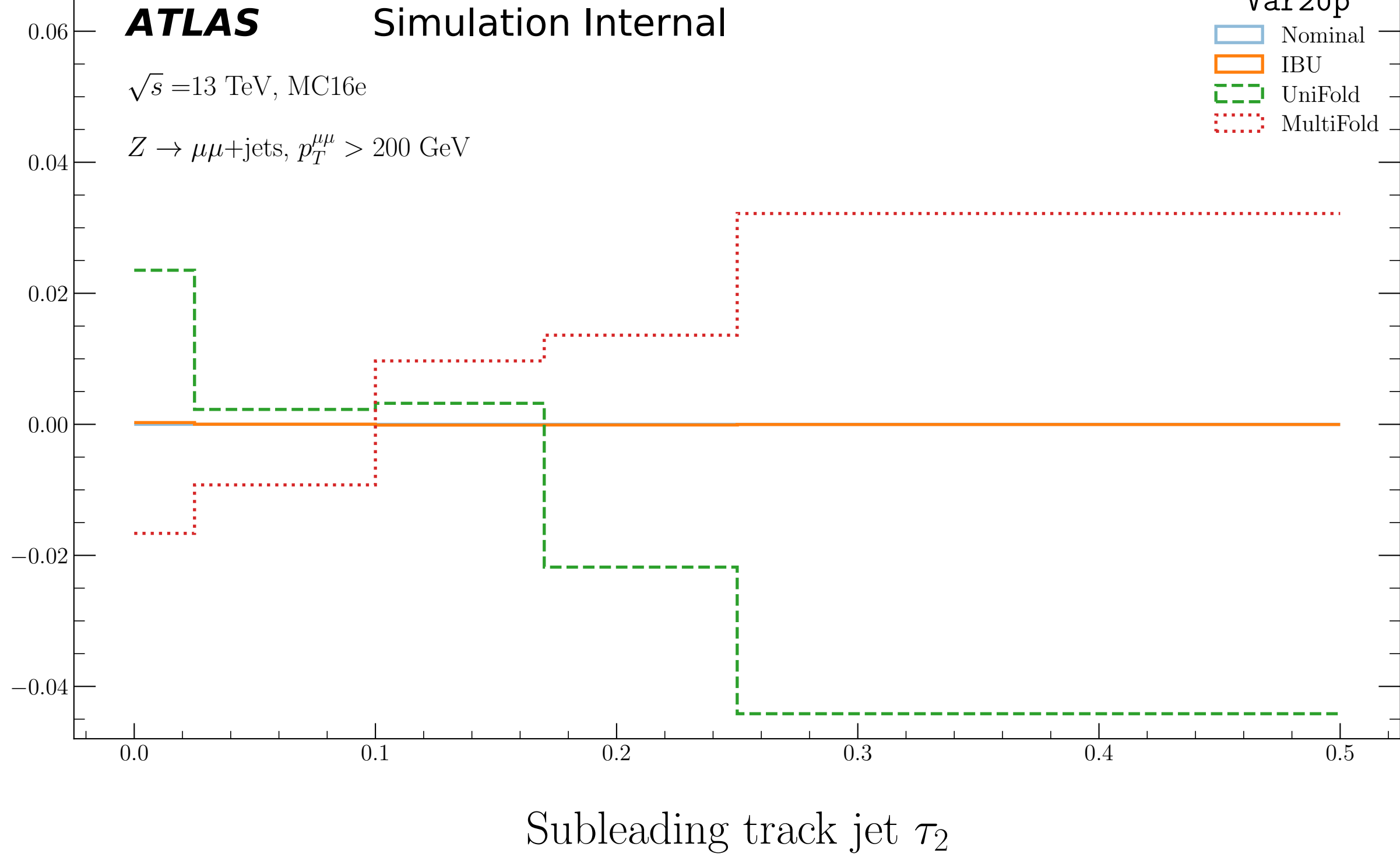
Simulation Internal

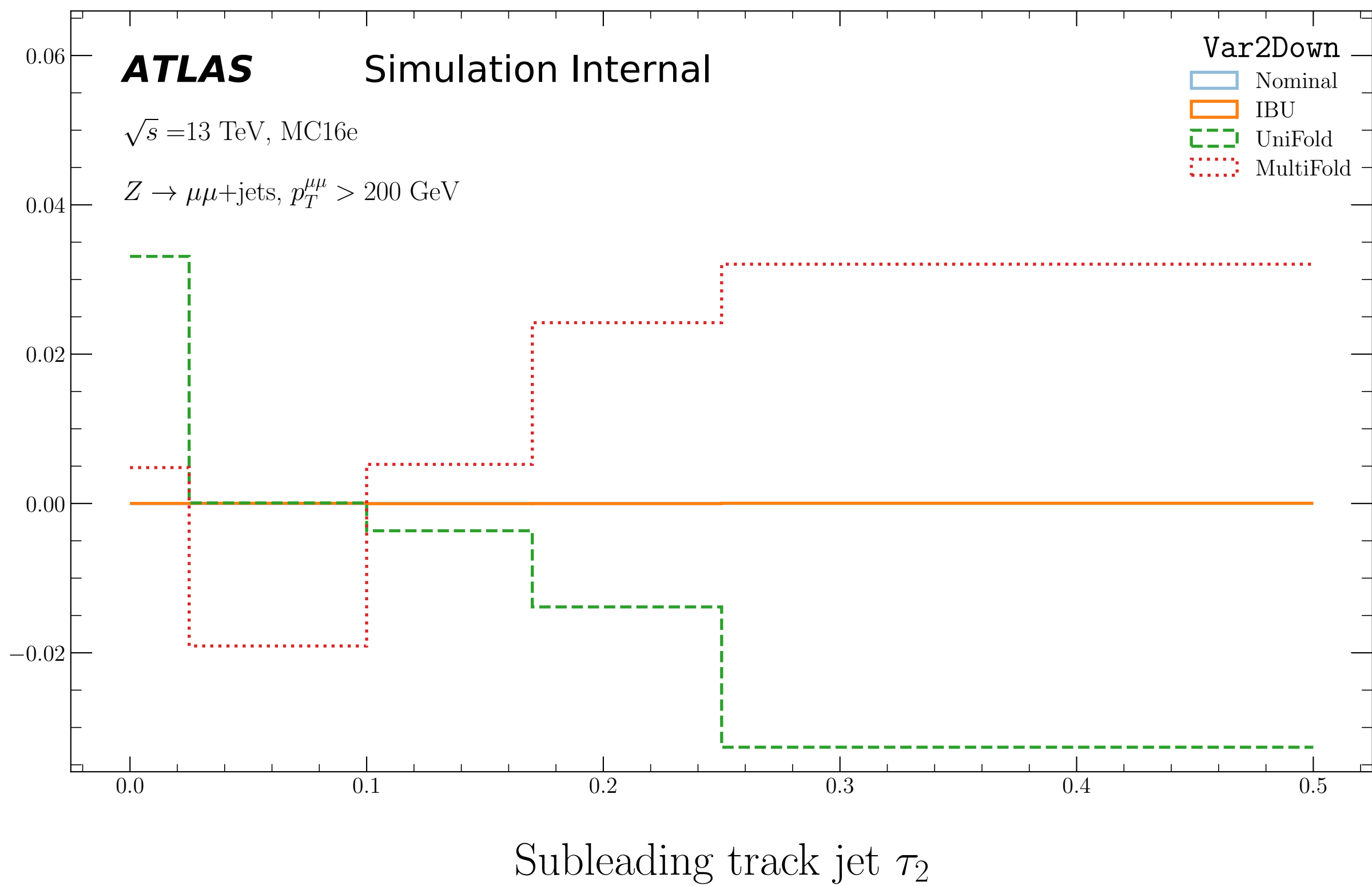
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

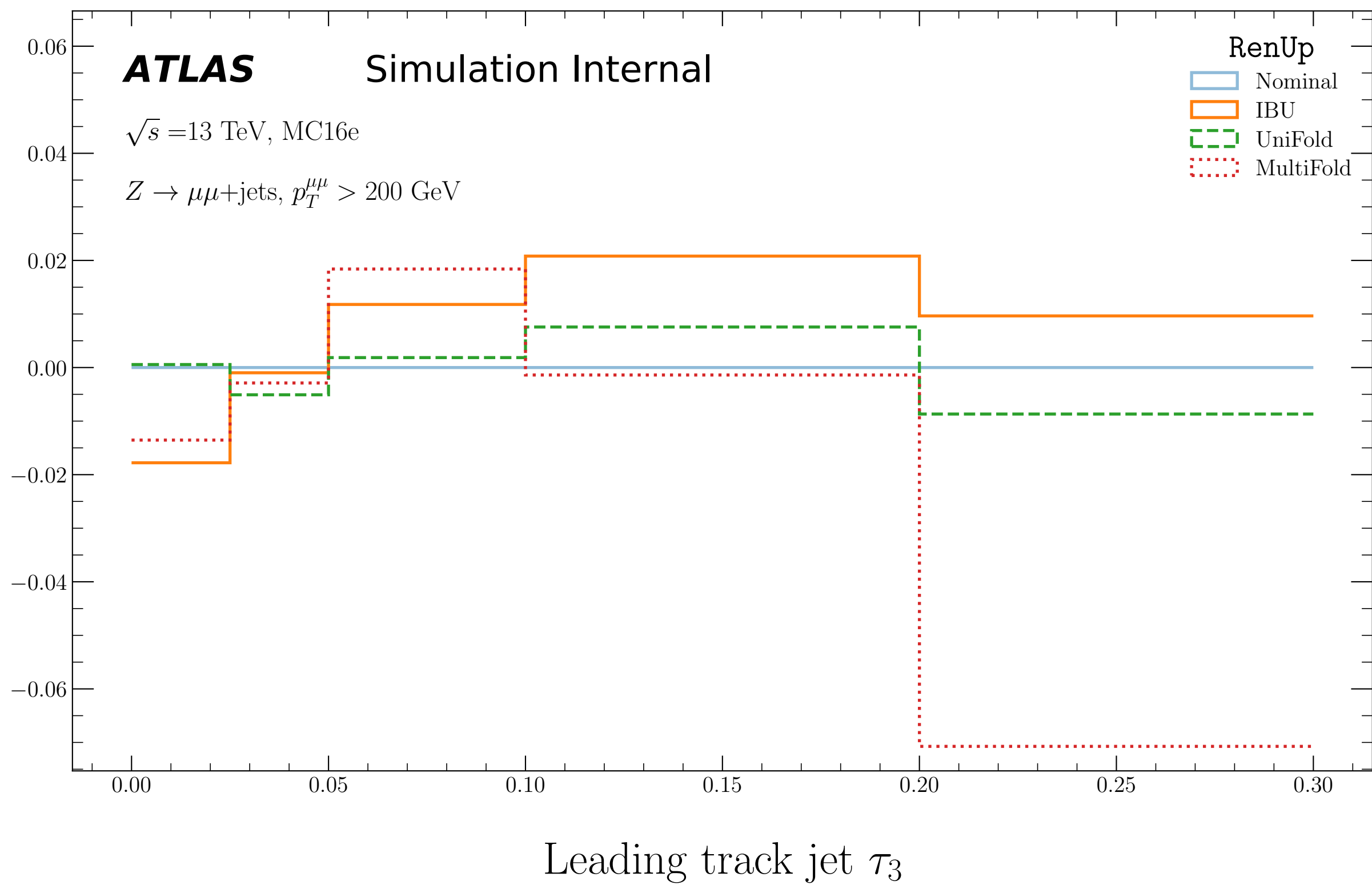
Var1Down

- Nominal
- IBU
- UniFold
- MultiFold









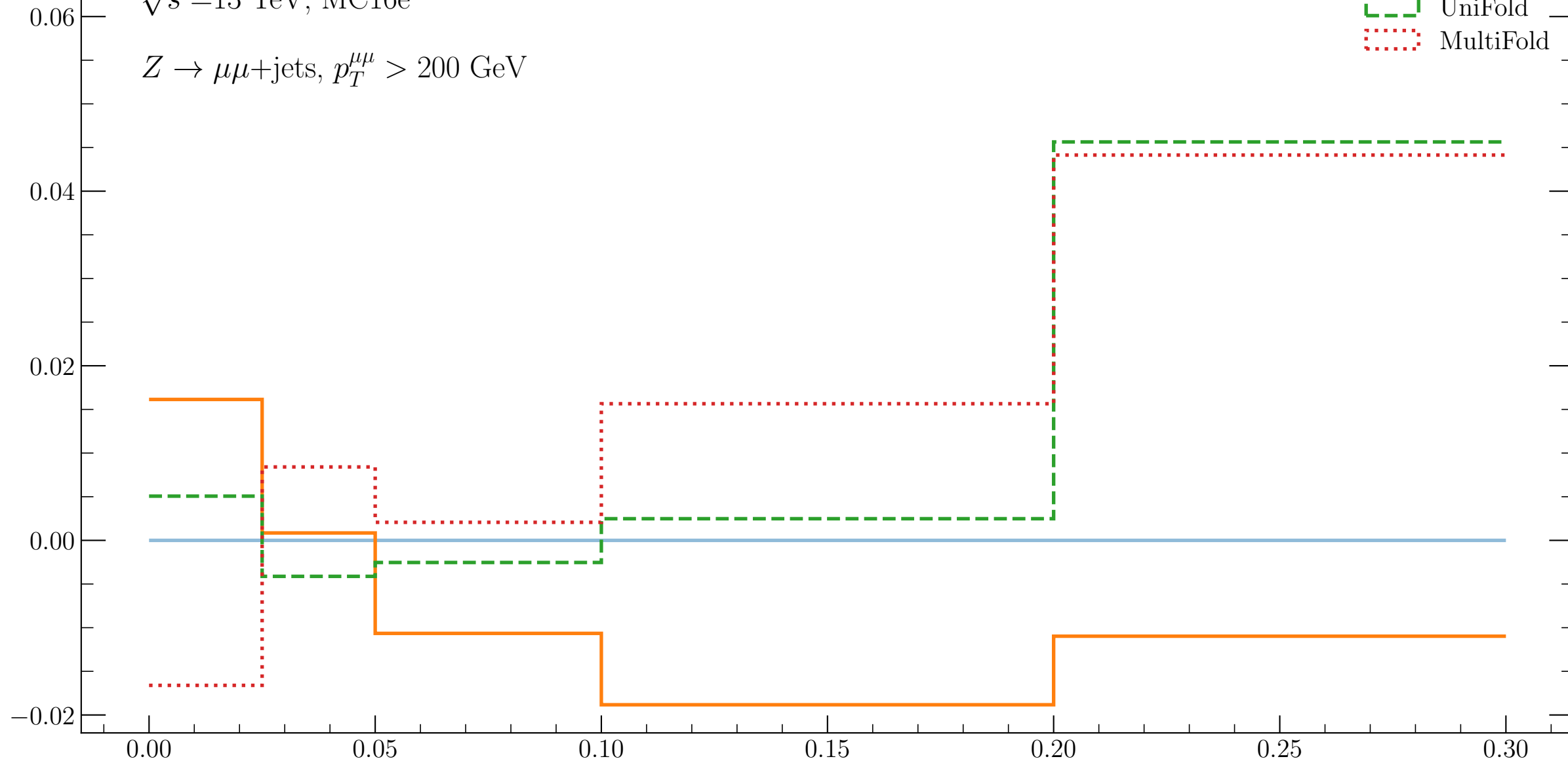
ATLAS

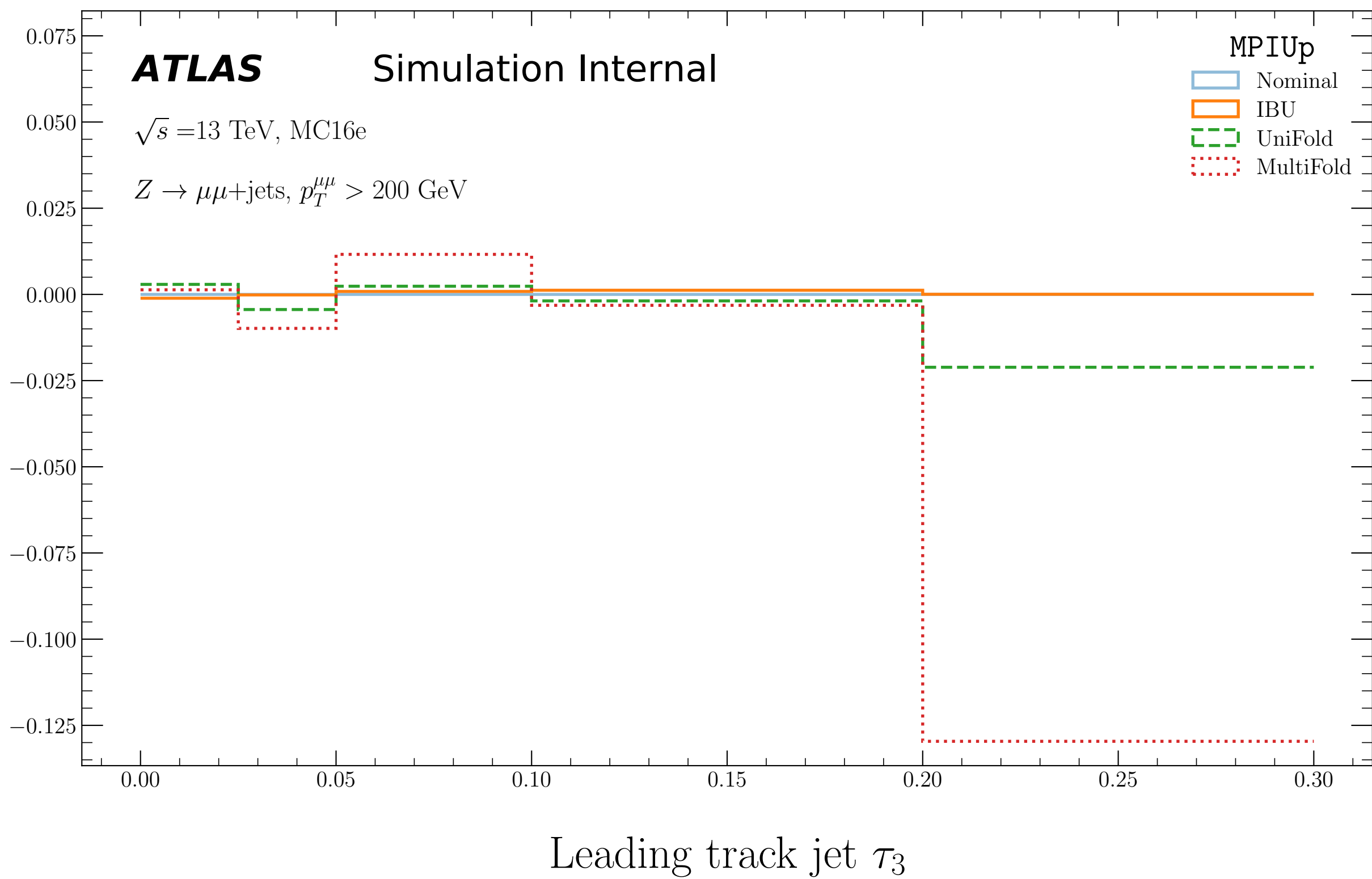
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3



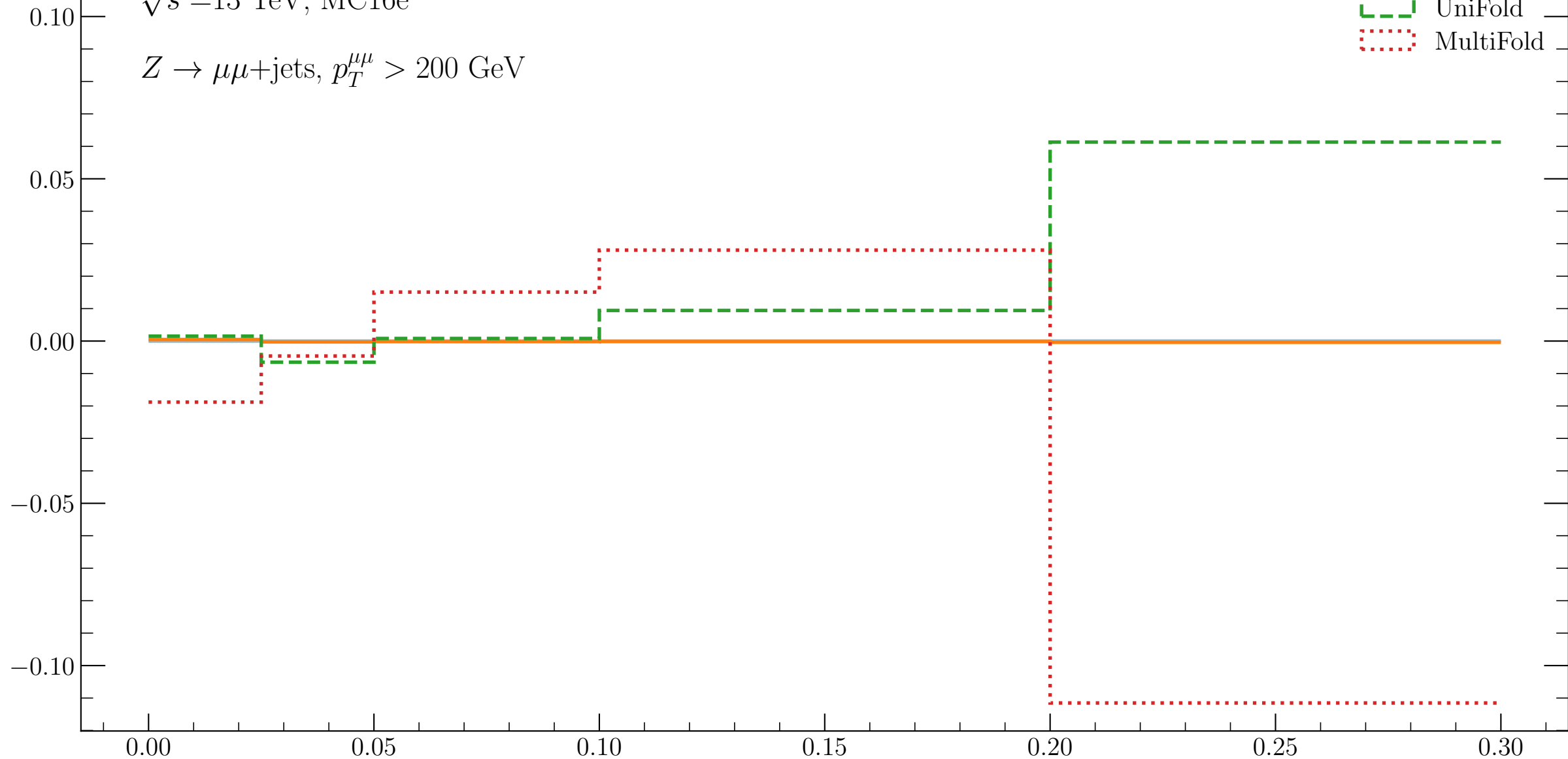
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3

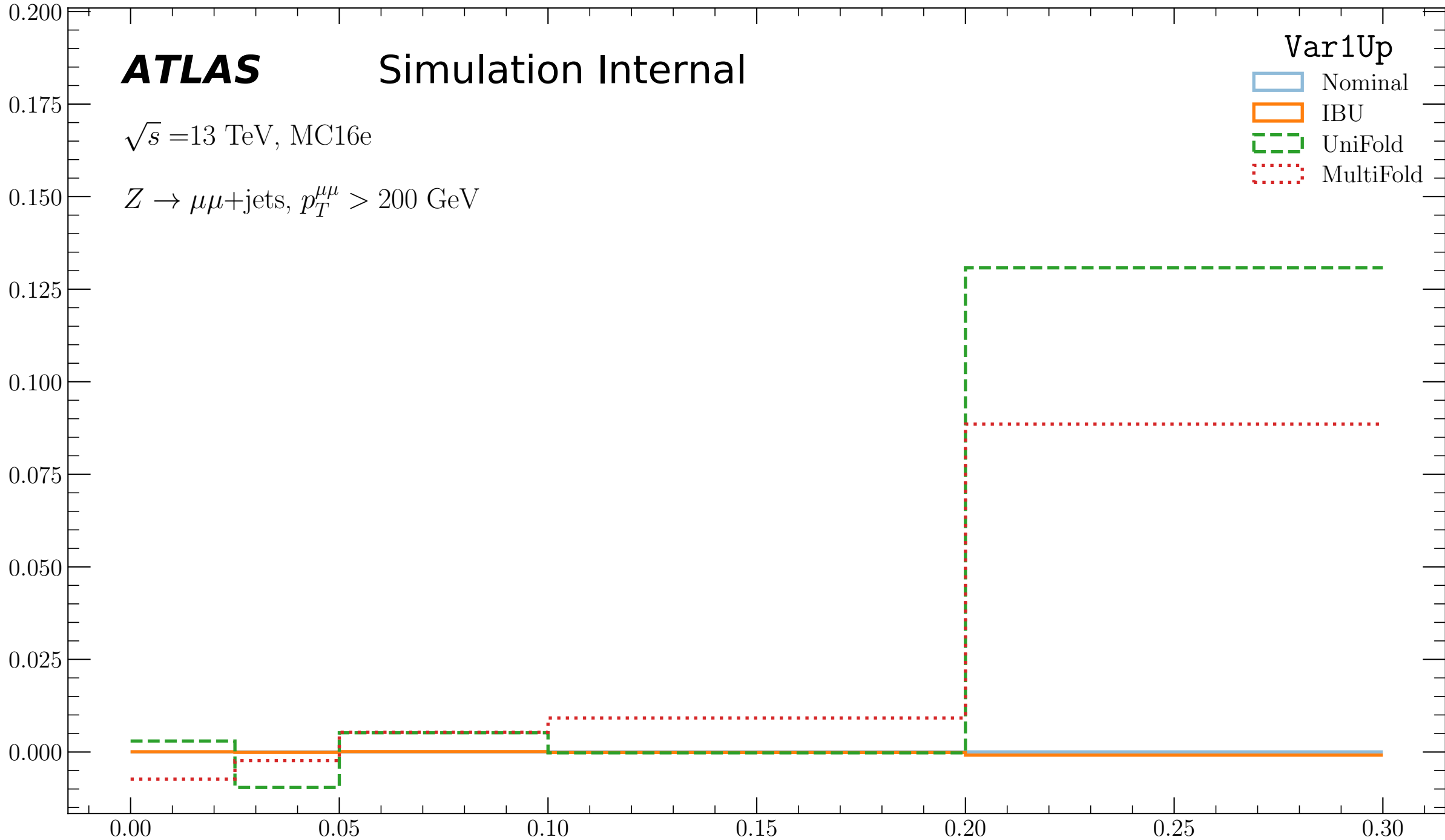
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3

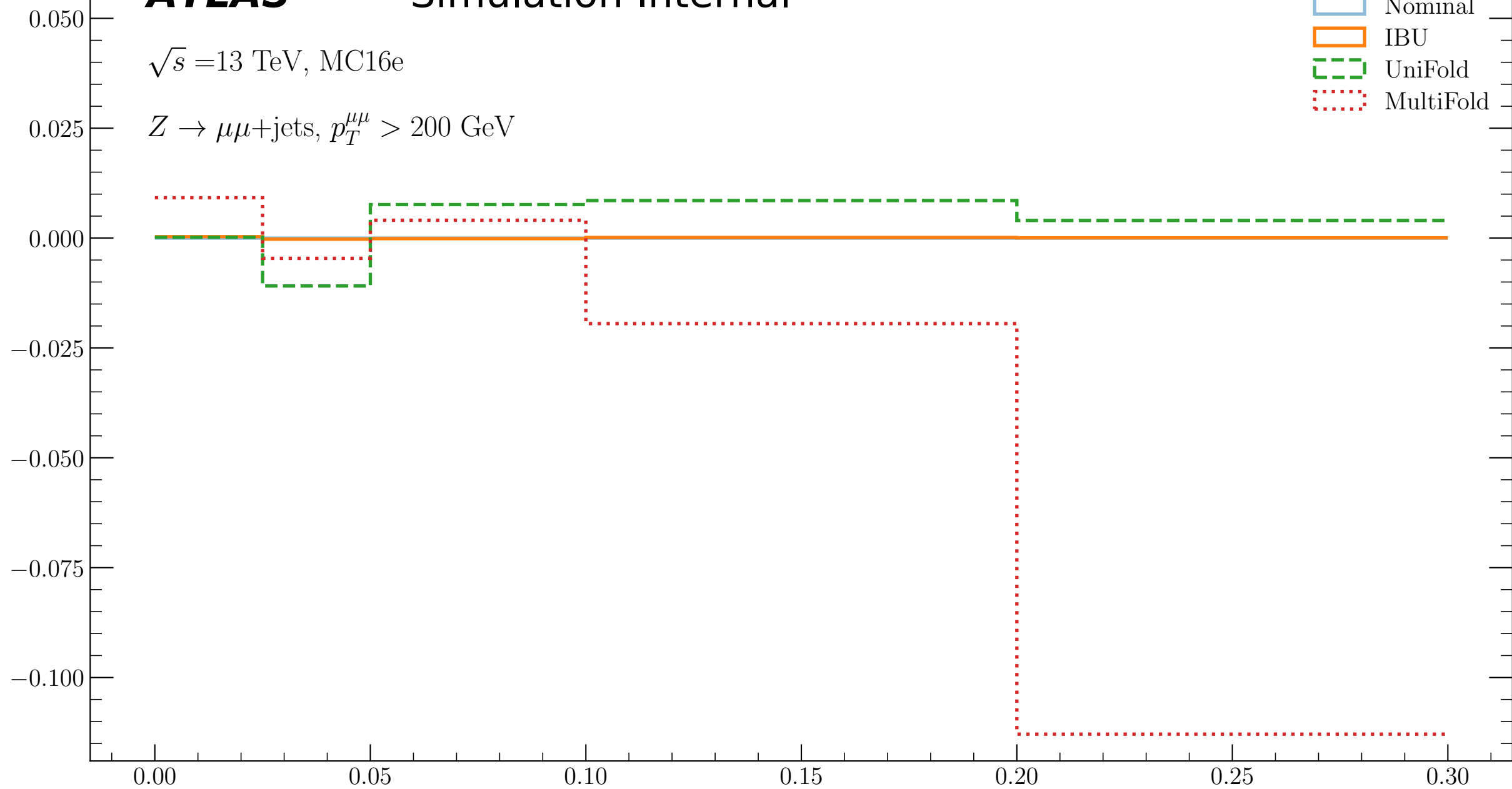
ATLAS

Simulation Internal

 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3

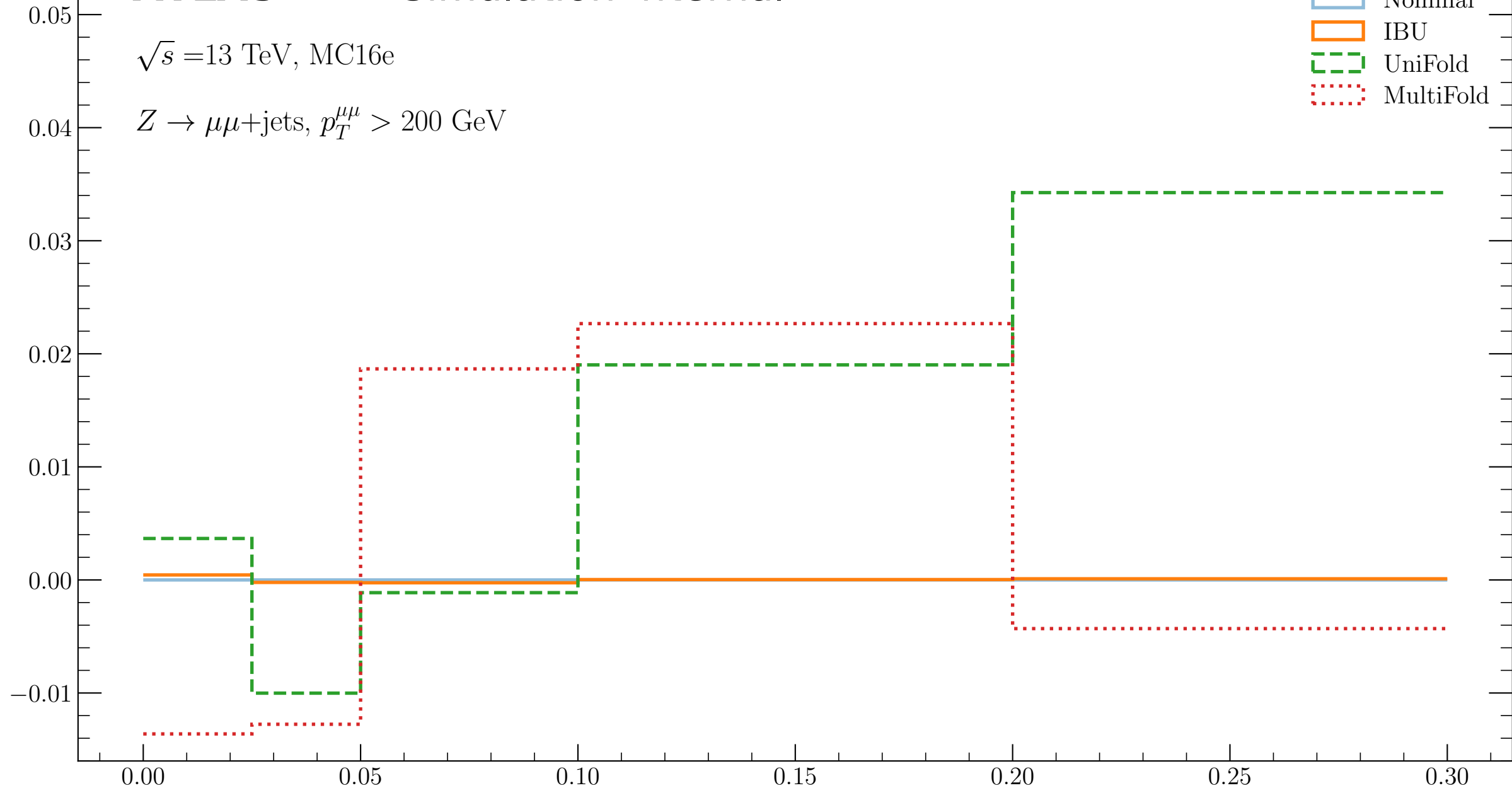
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3

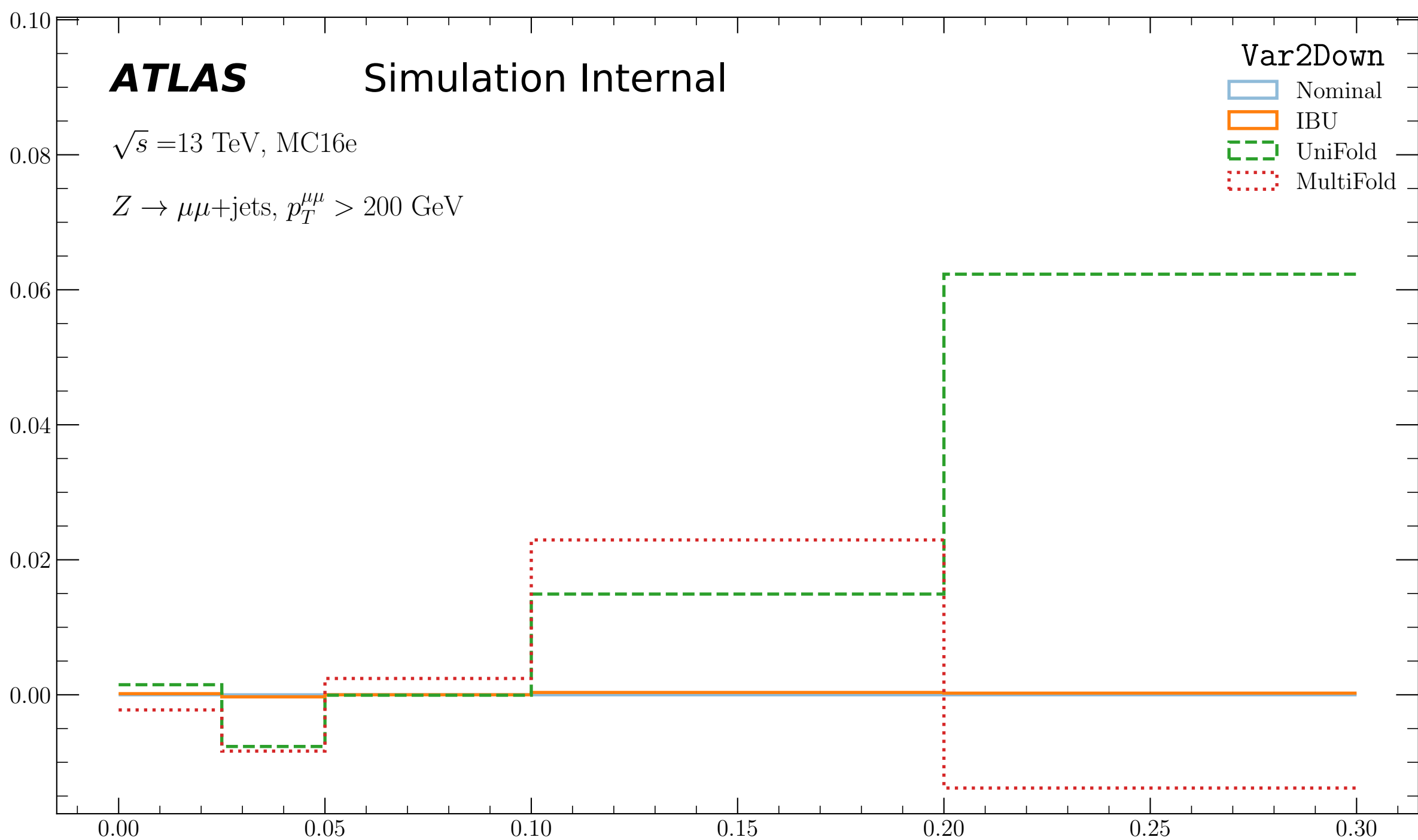
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold

Leading track jet τ_3

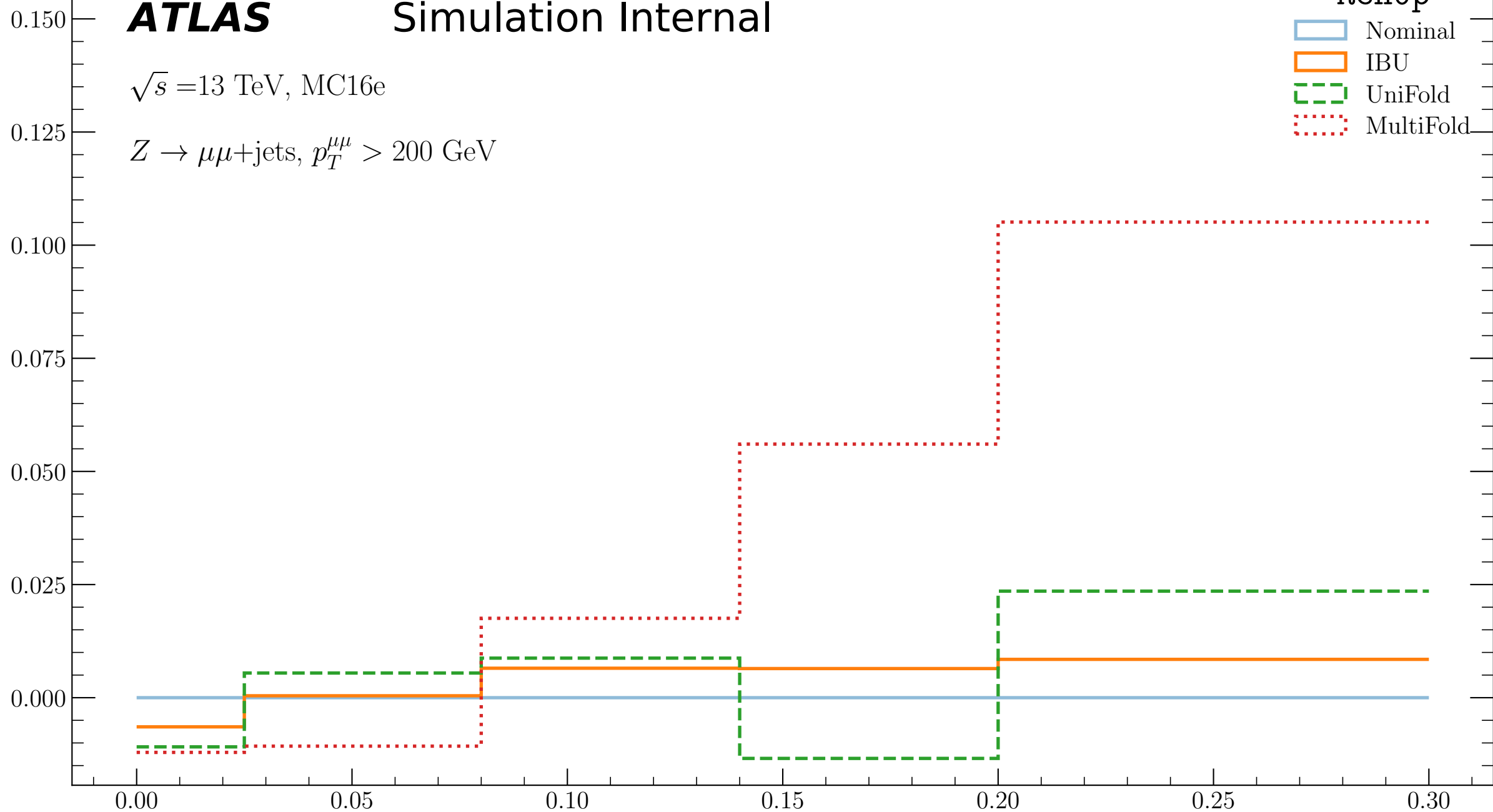
ATLAS

Simulation Internal

 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_3

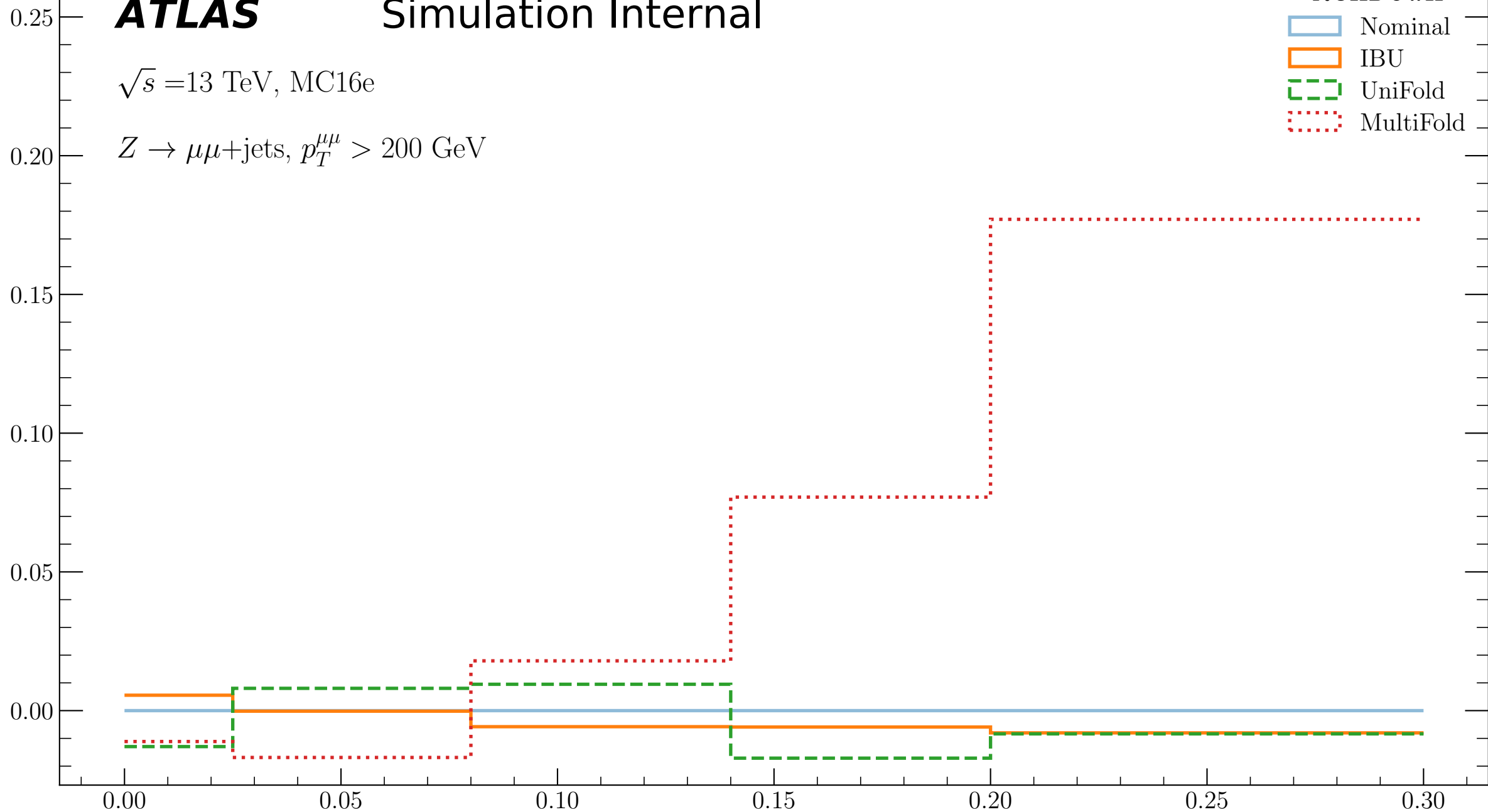
ATLAS

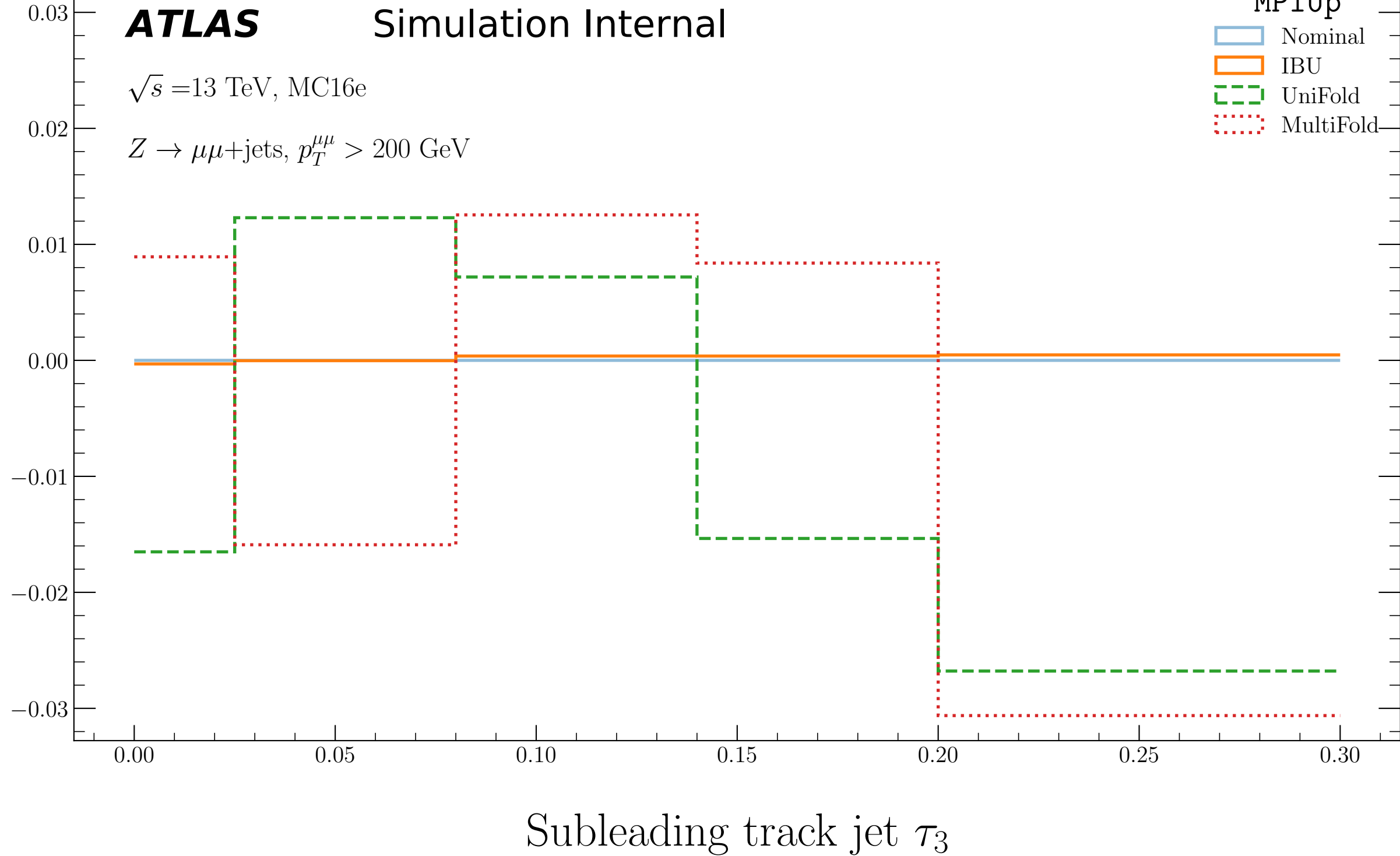
Simulation Internal

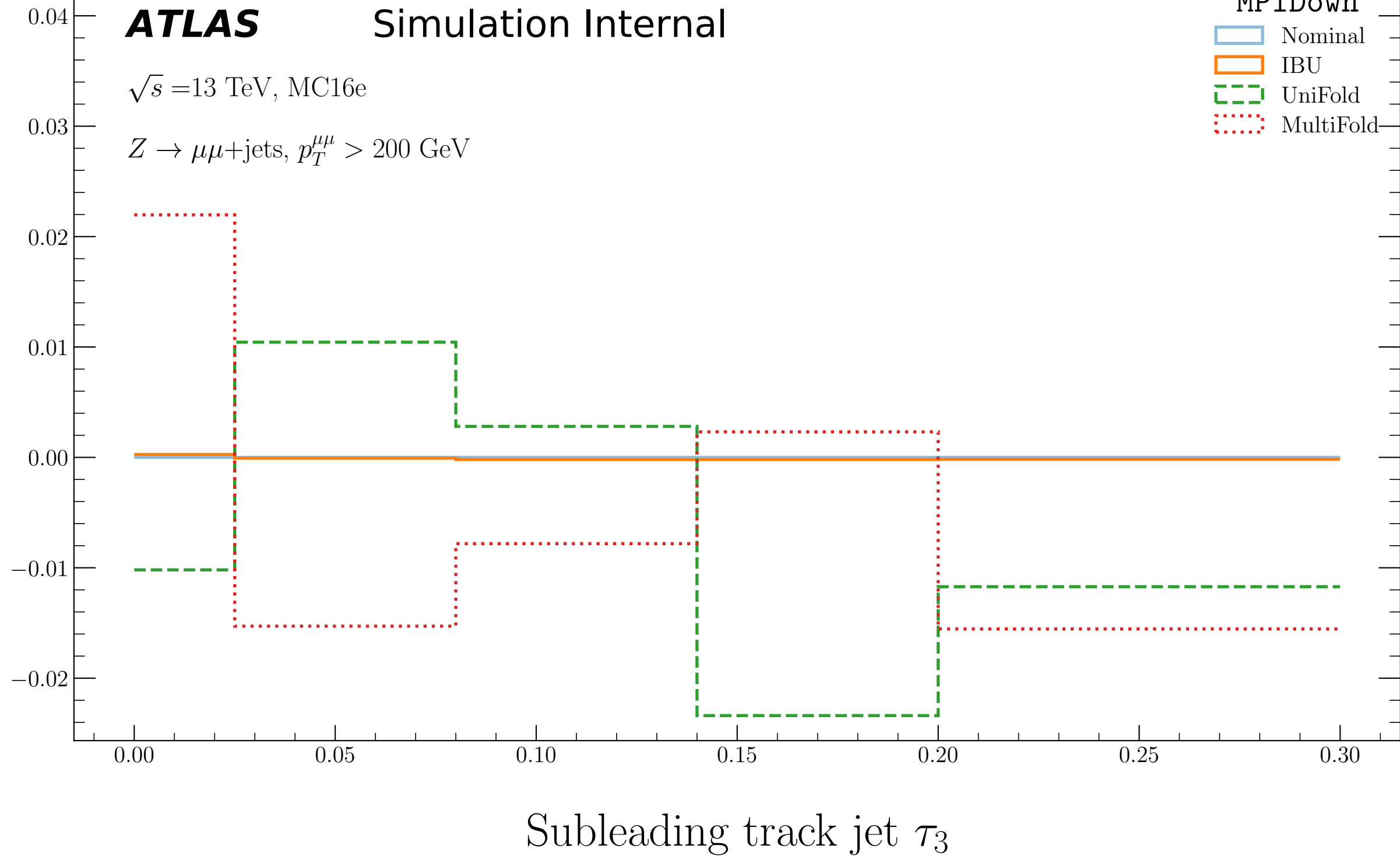
 $\sqrt{s}=13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_3





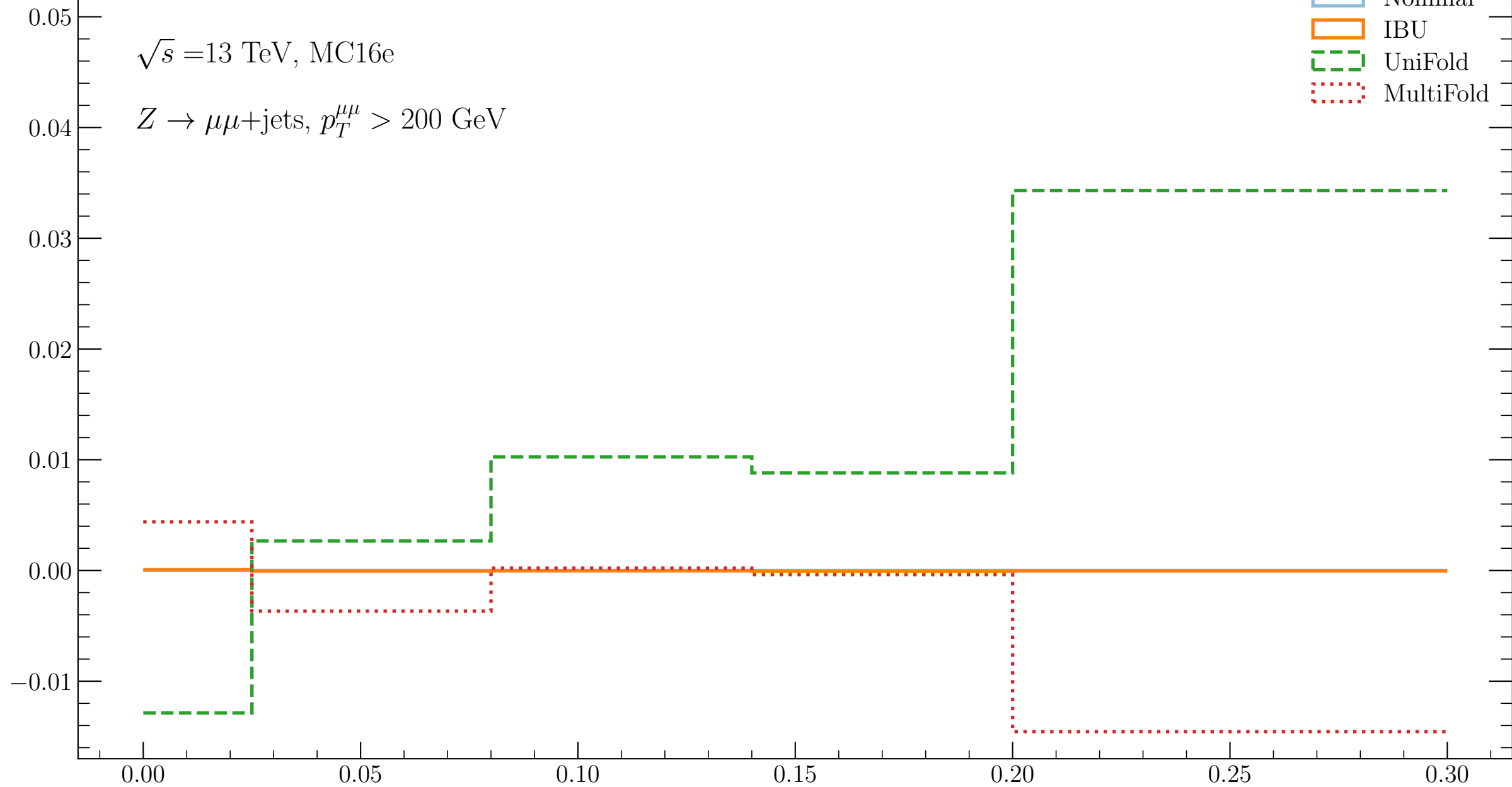
ATLAS

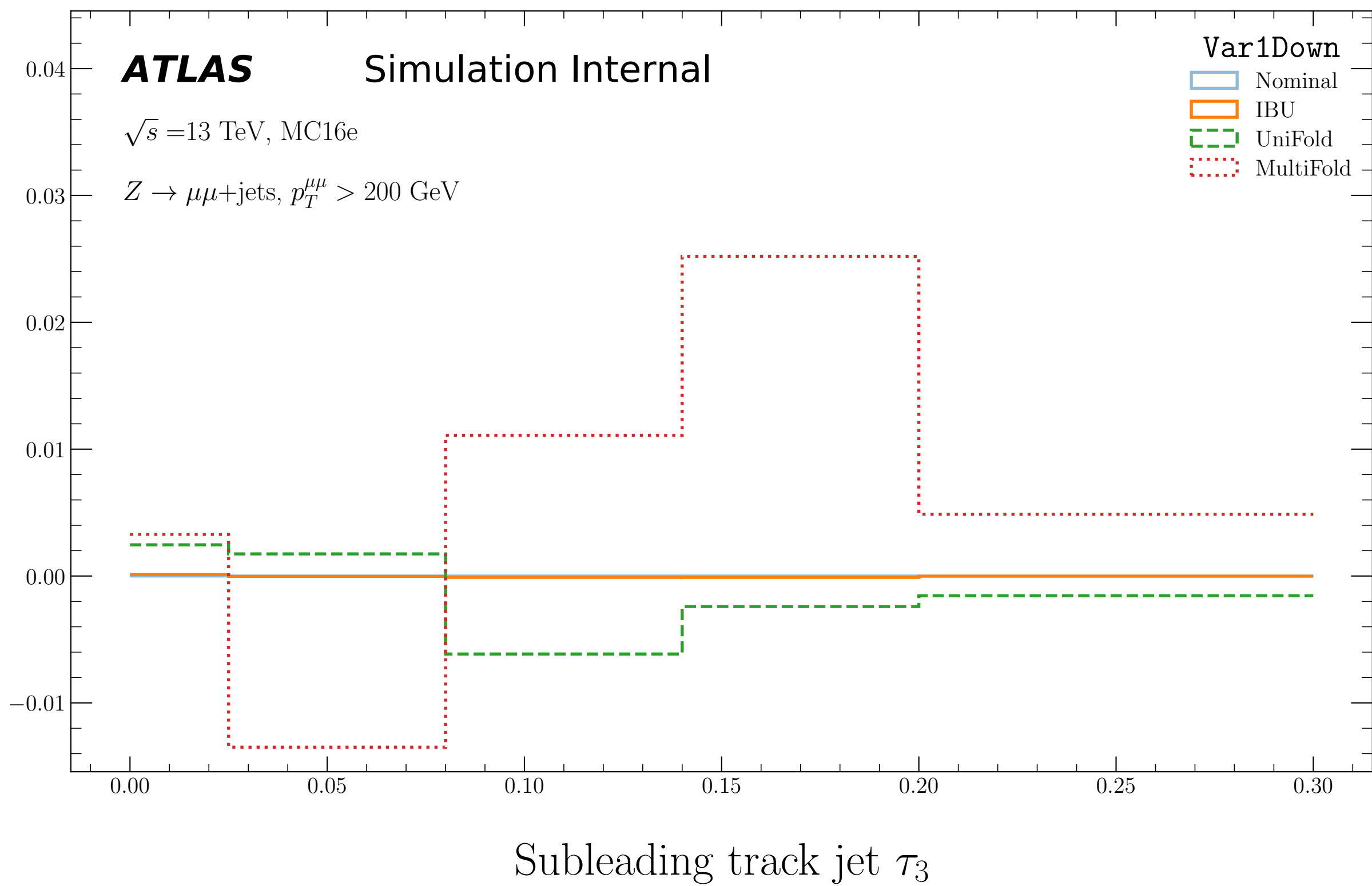
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_3



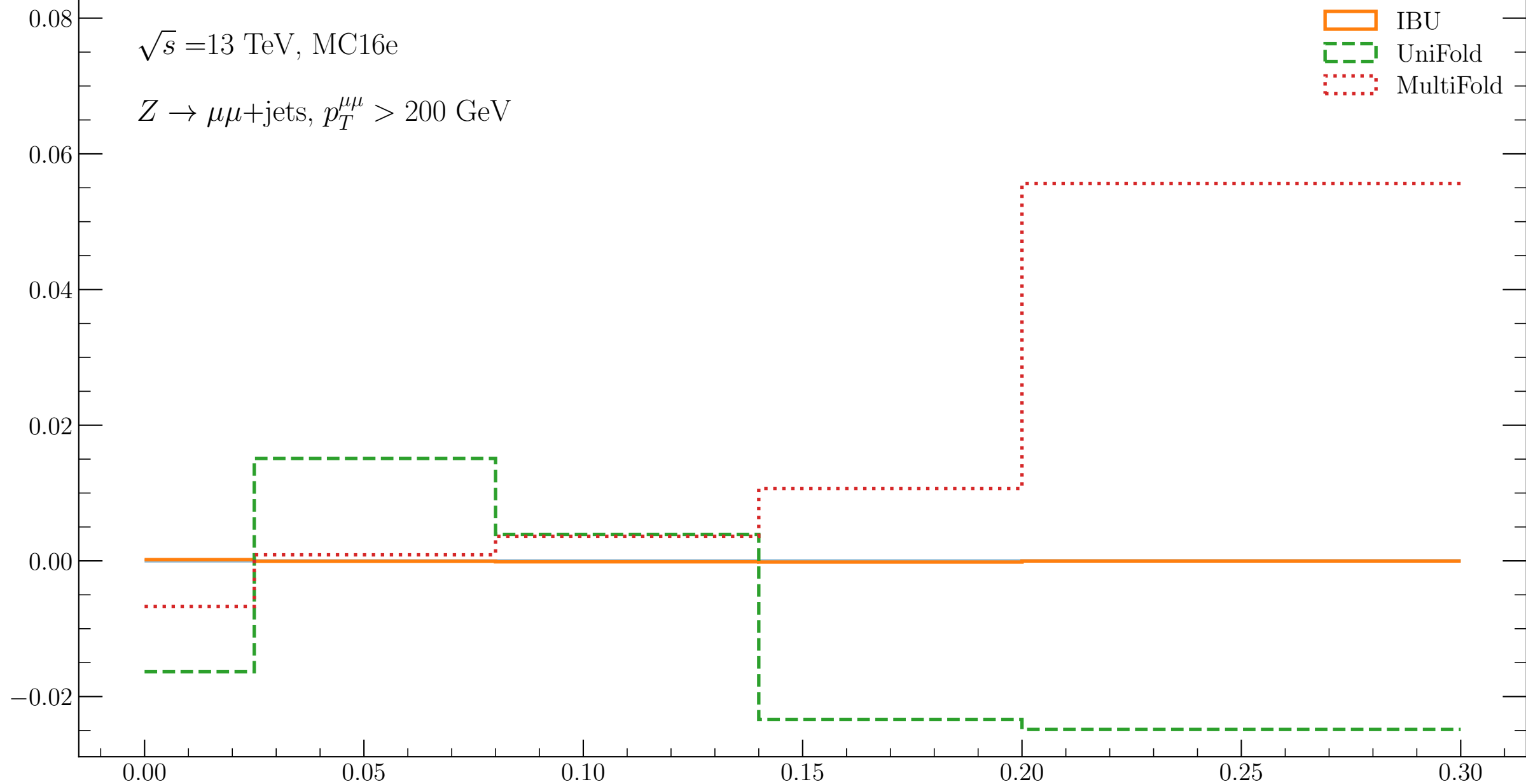
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

Subleading track jet τ_3

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

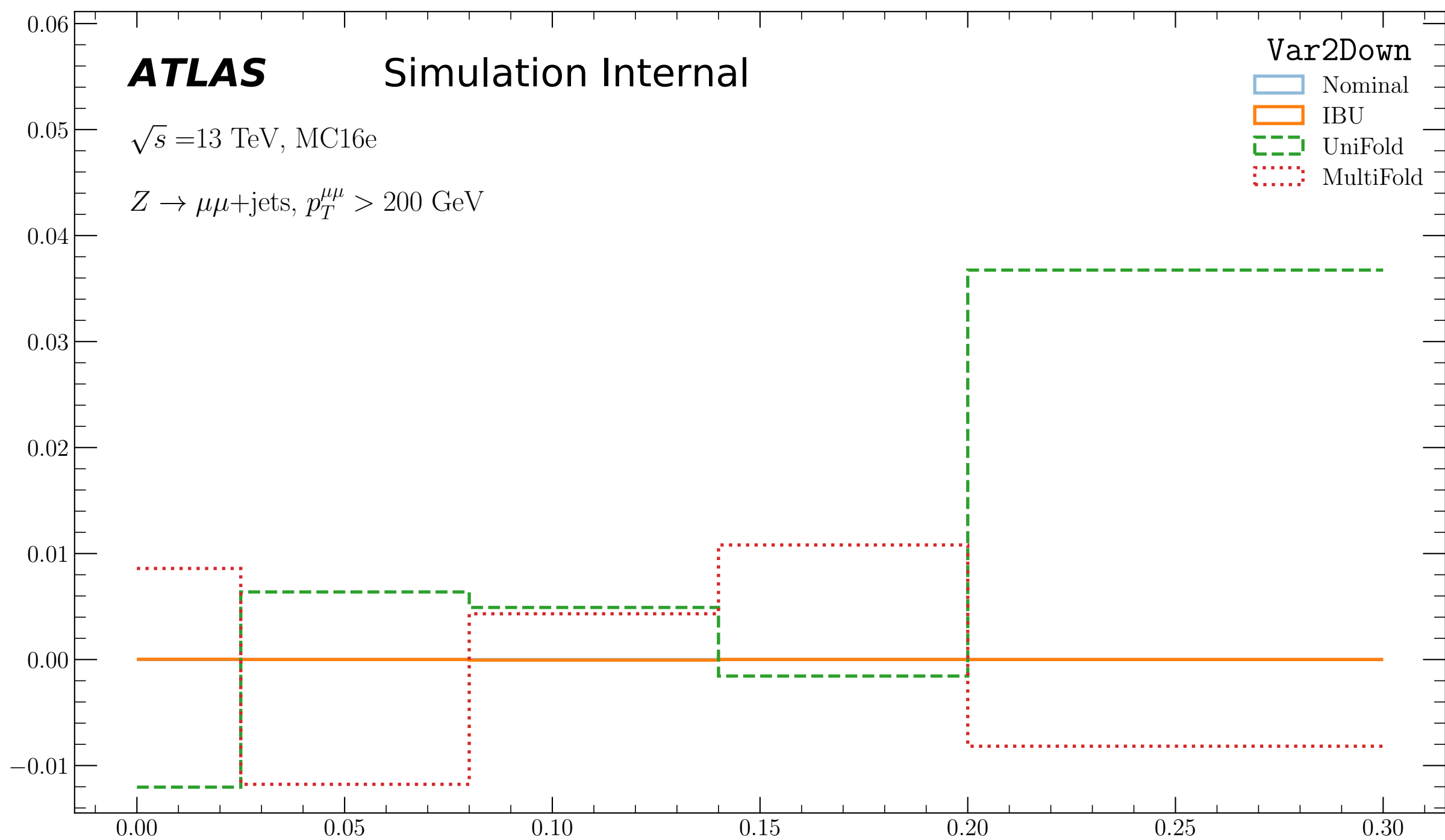
Var2Down

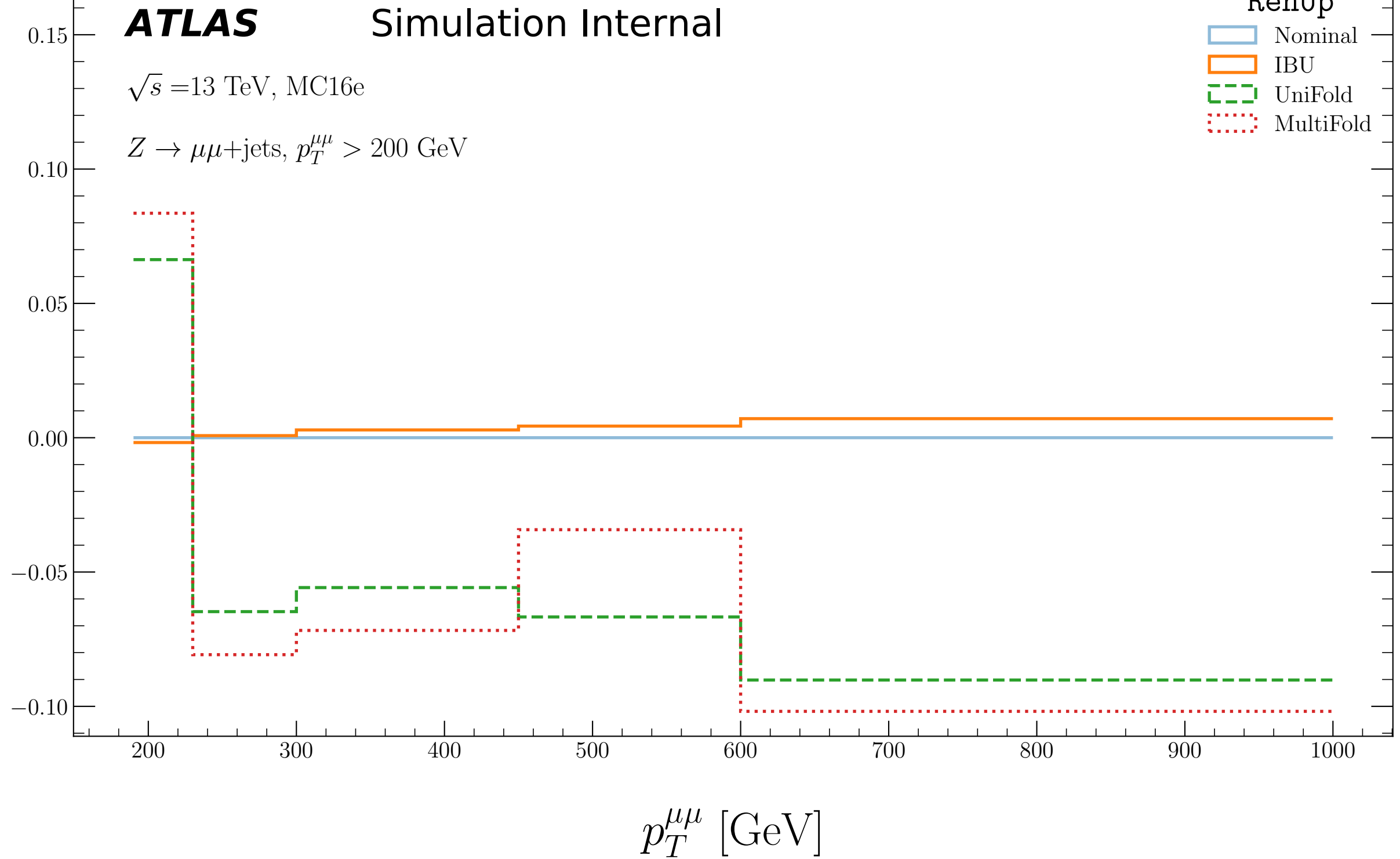
Nominal

IBU

UniFold

MultiFold

Subleading track jet τ_3



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

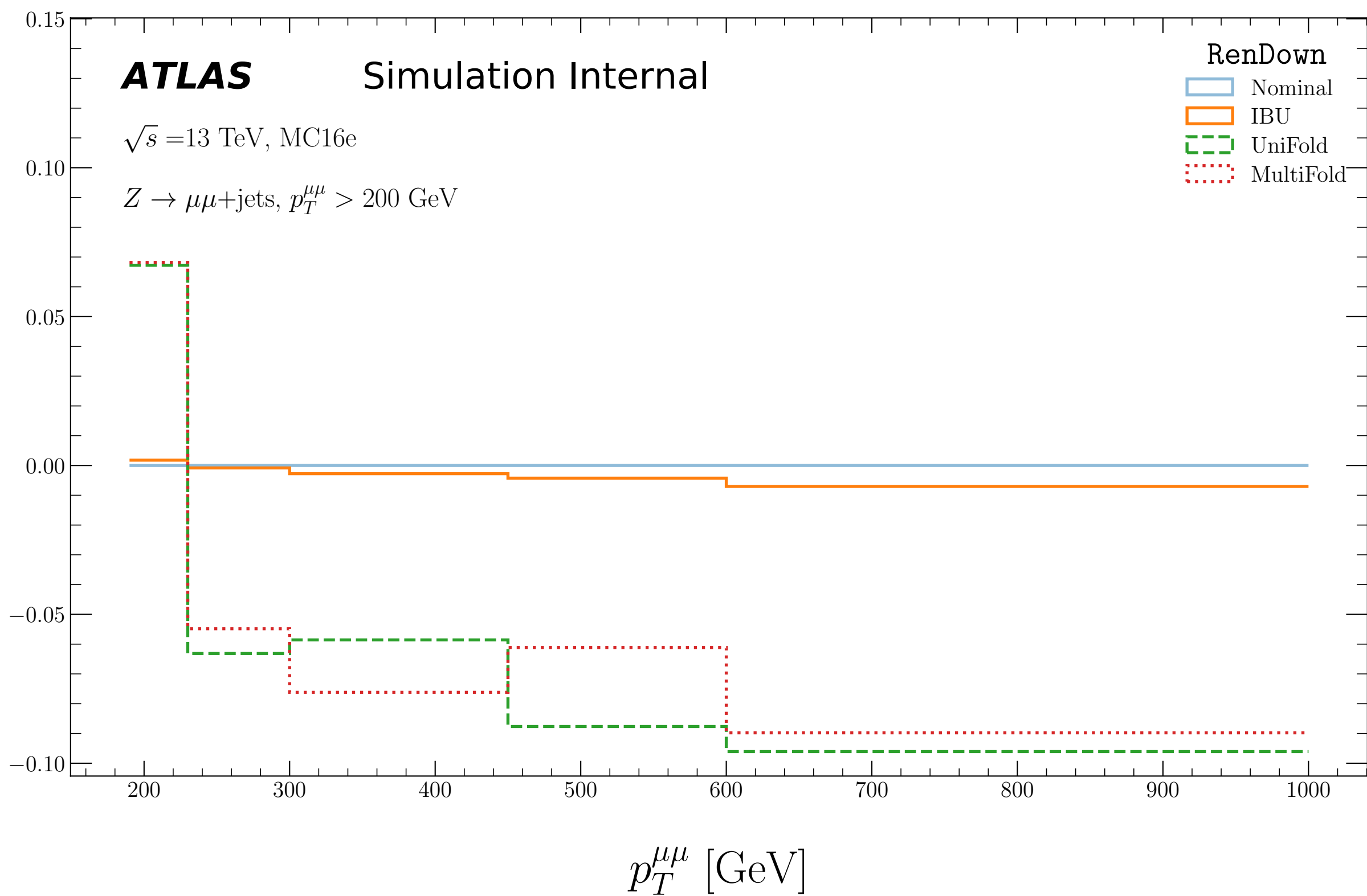
RenDown

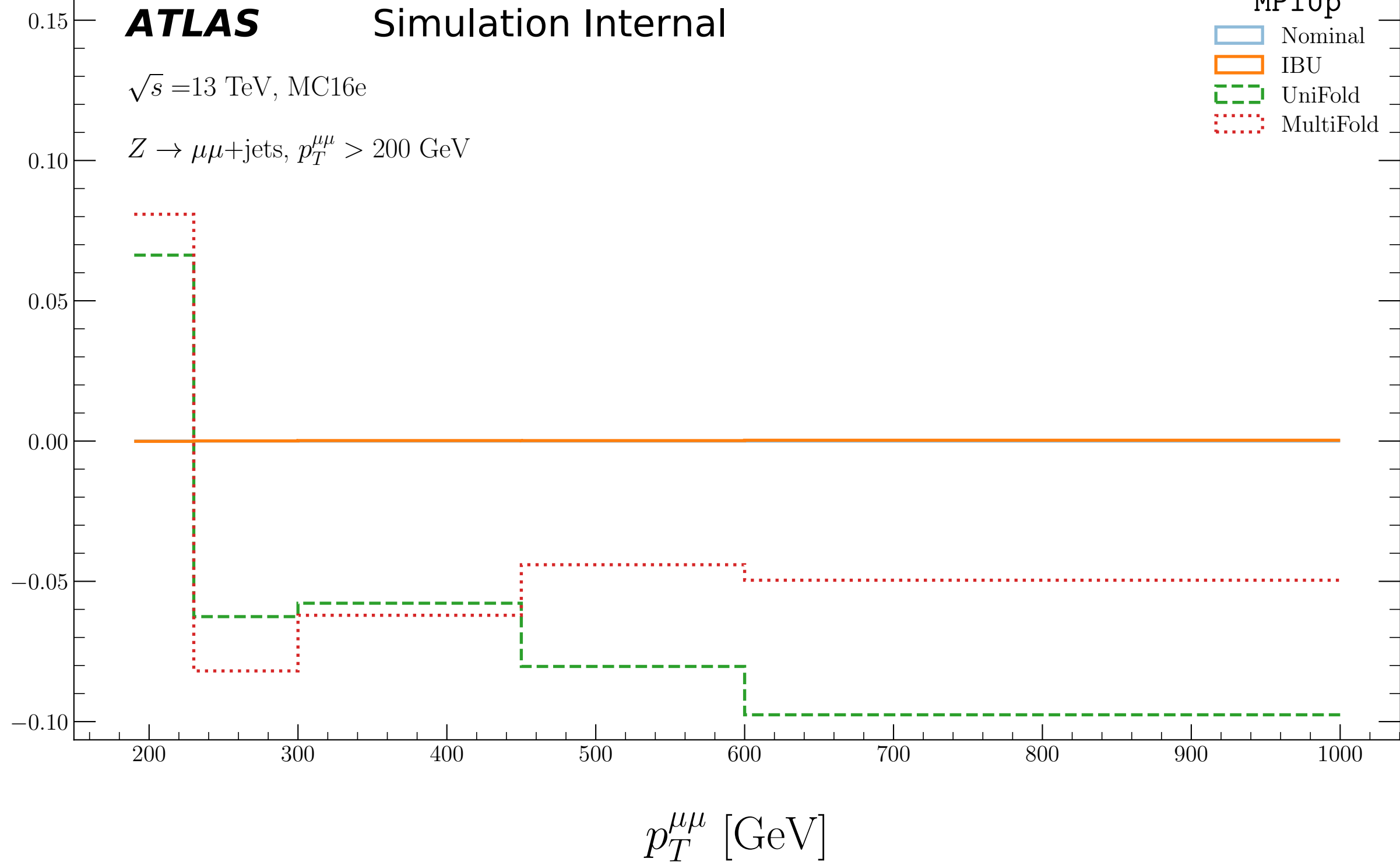
Nominal

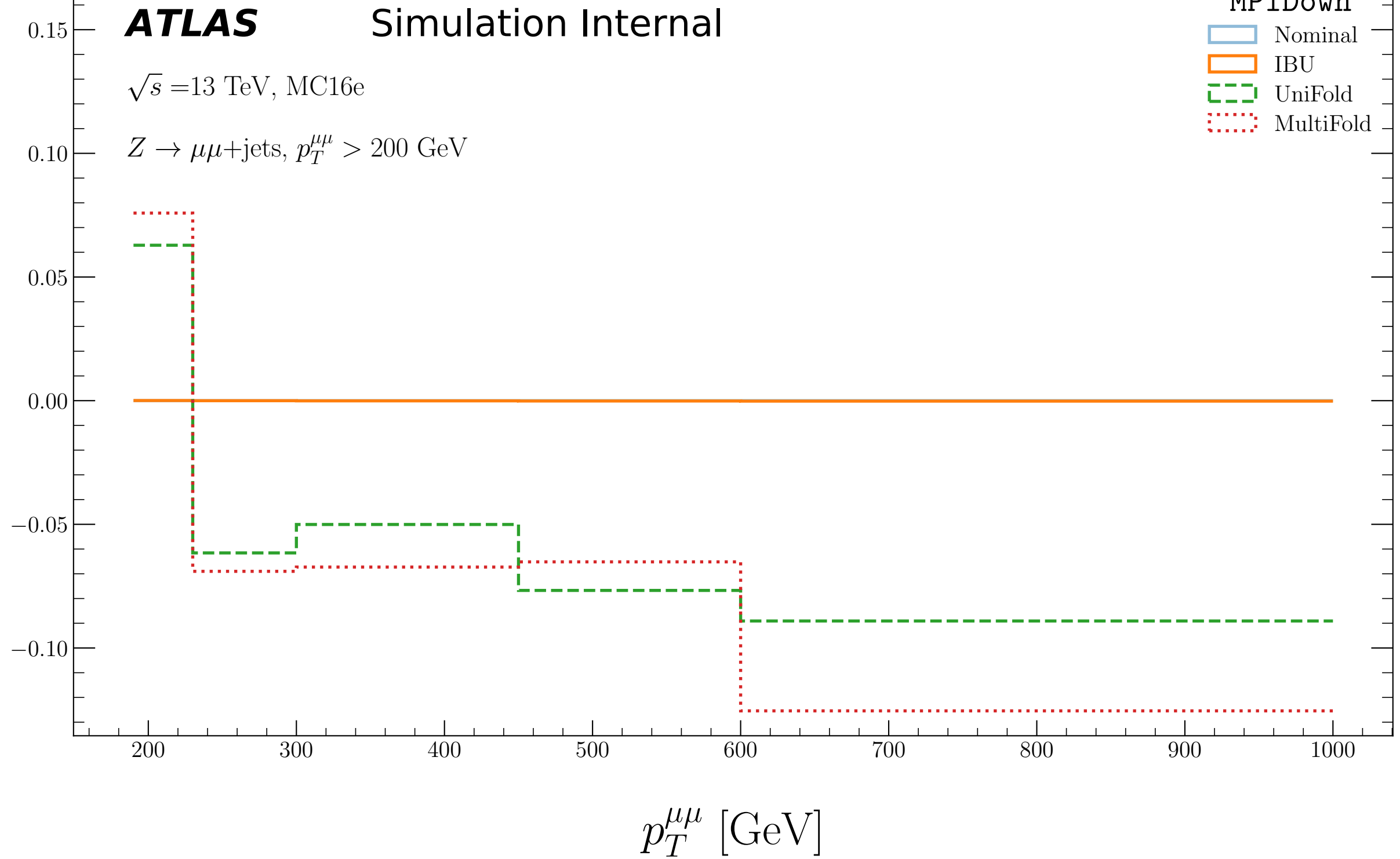
IBU

UniFold

MultiFold







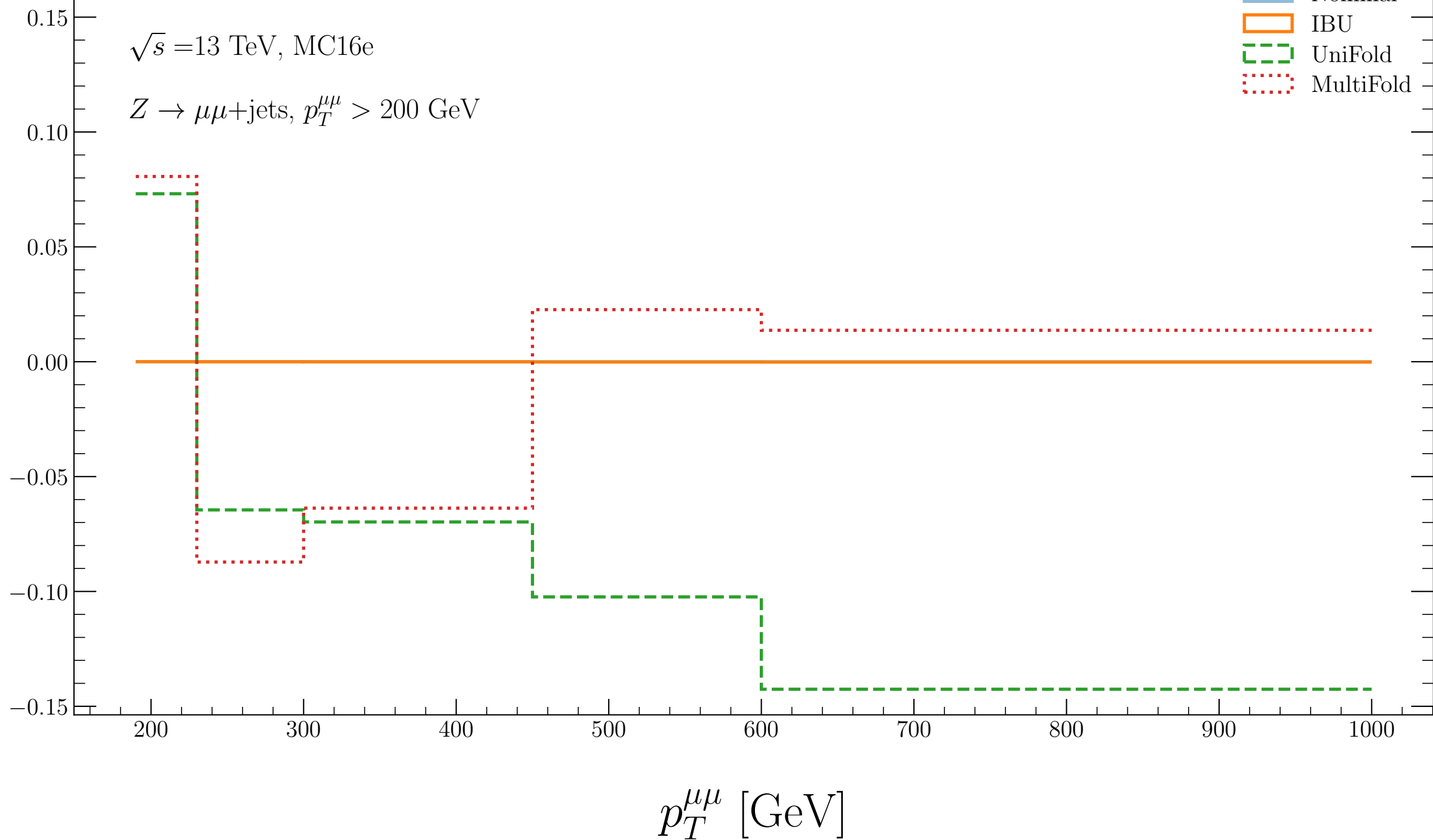
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold



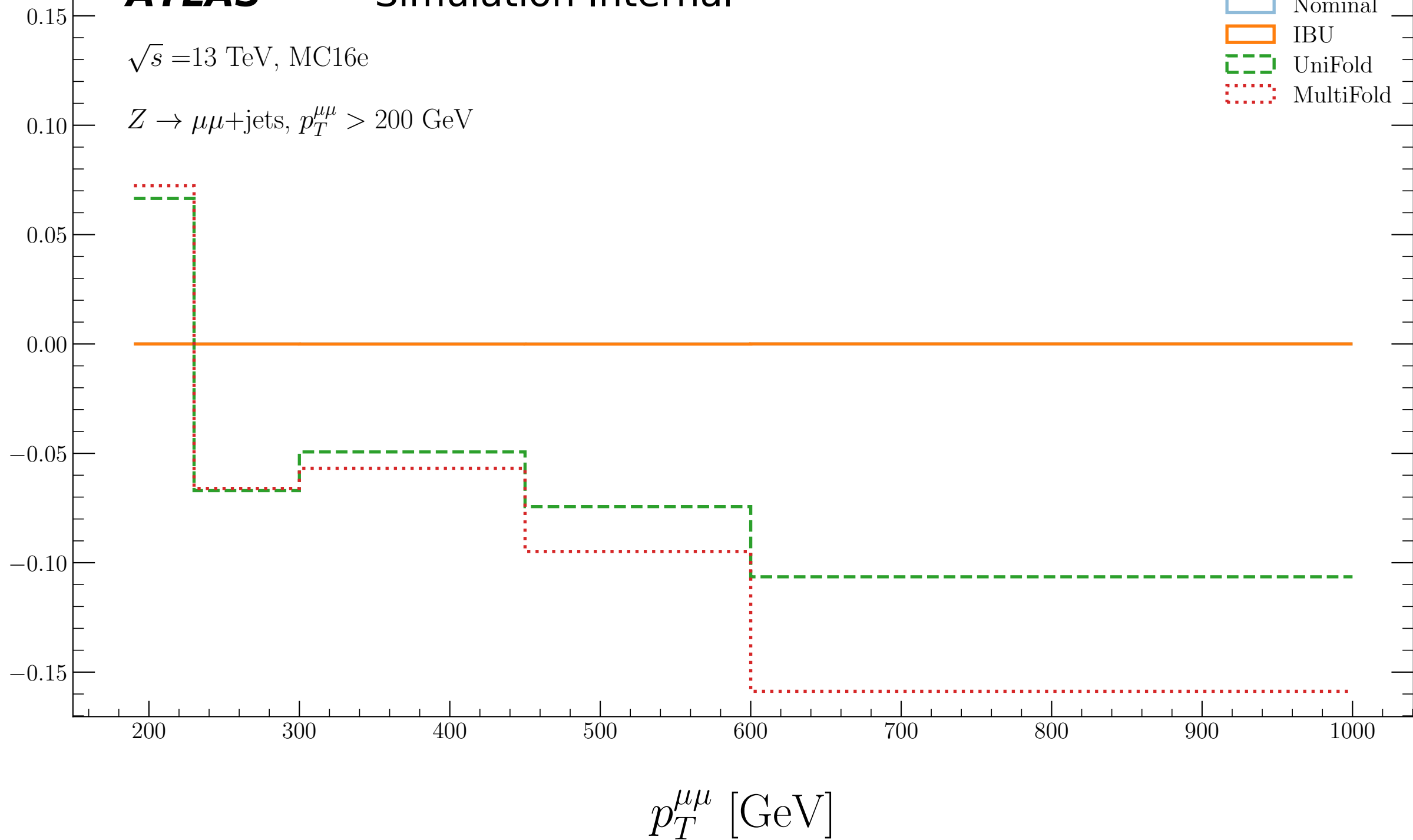
ATLAS

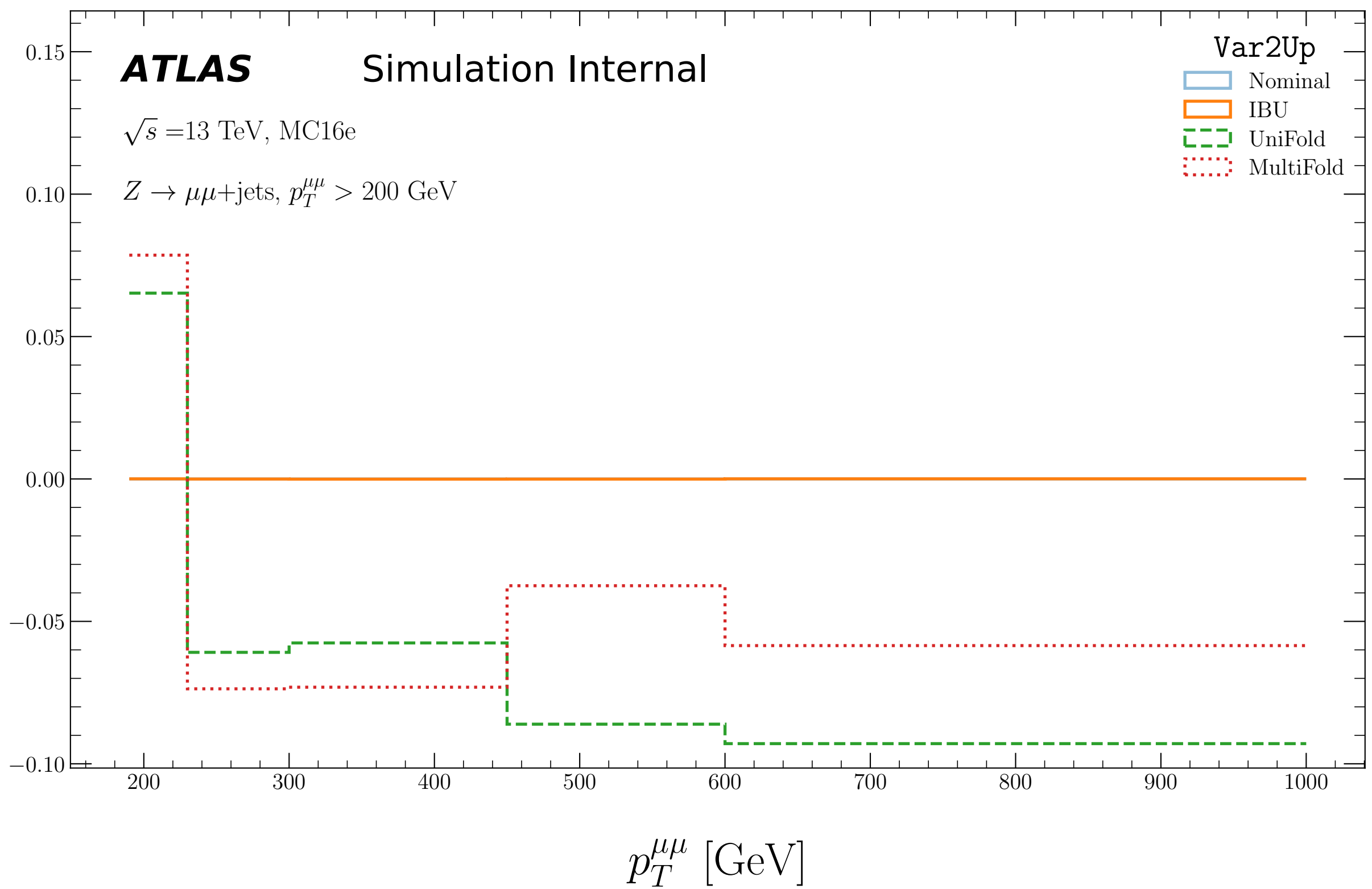
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold





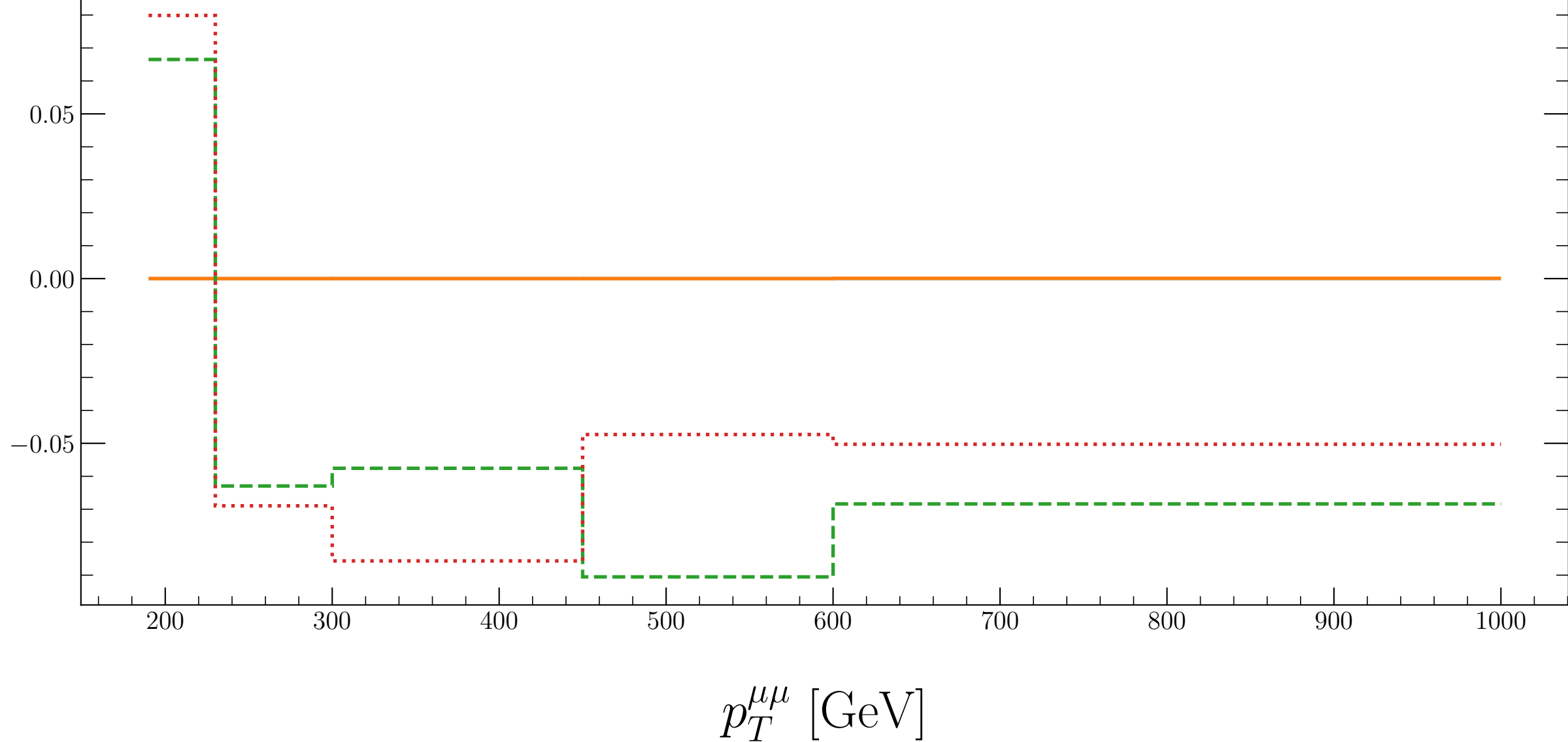
ATLAS

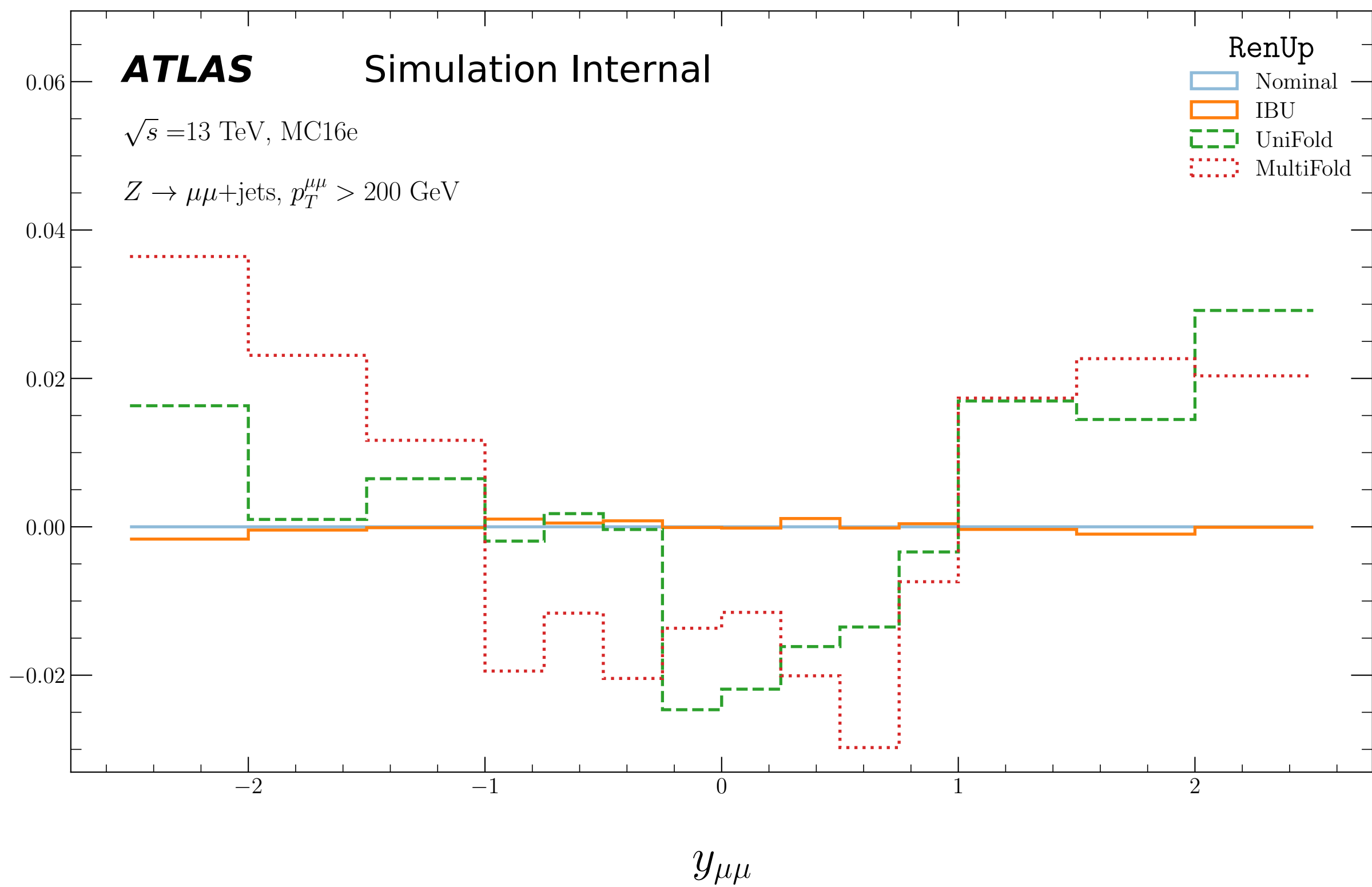
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

0.08
0.06
0.04
0.02
0.00
-0.02
-0.04

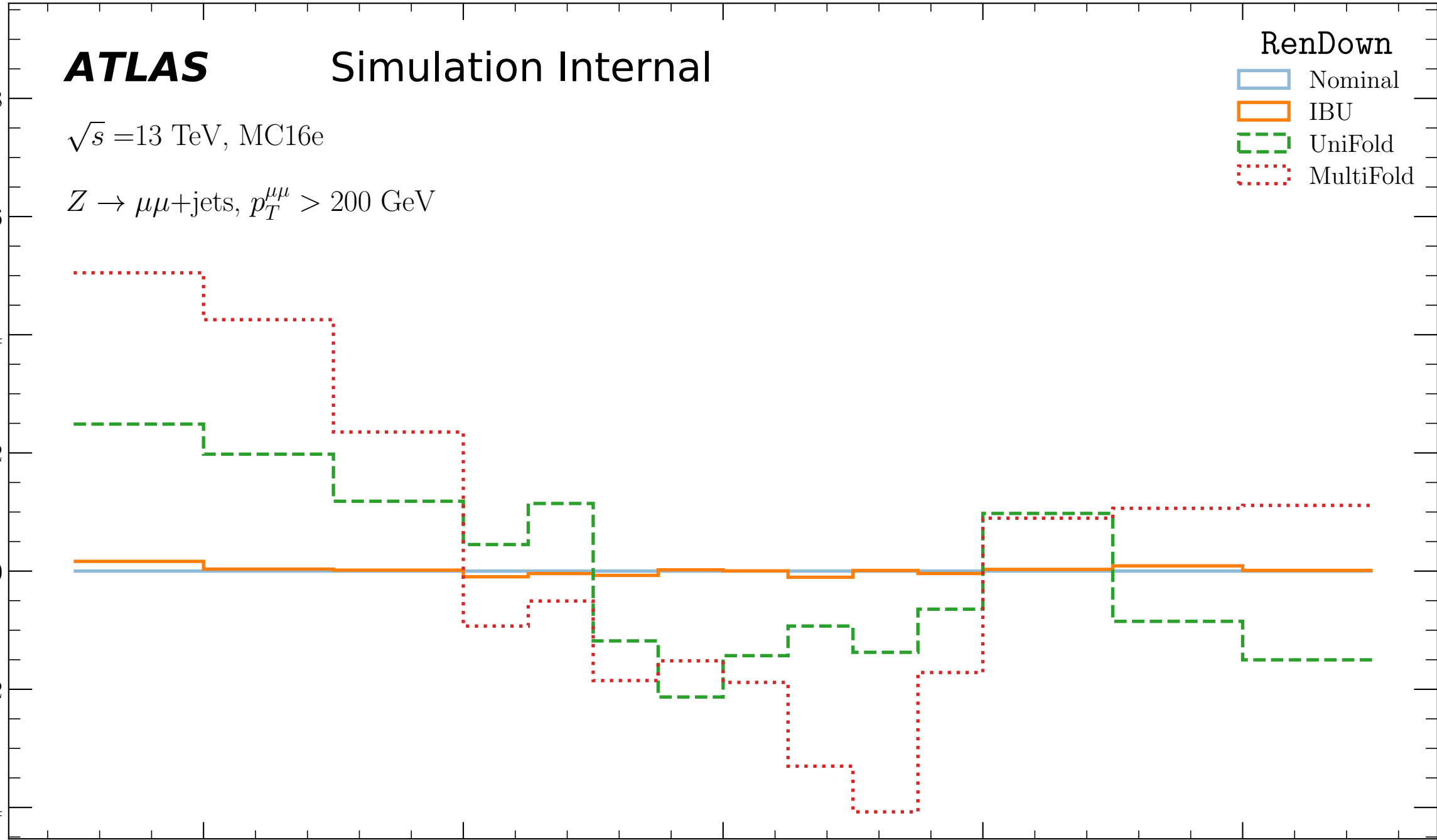
-2

-1

0

1

2

 $y_{\mu\mu}$ 

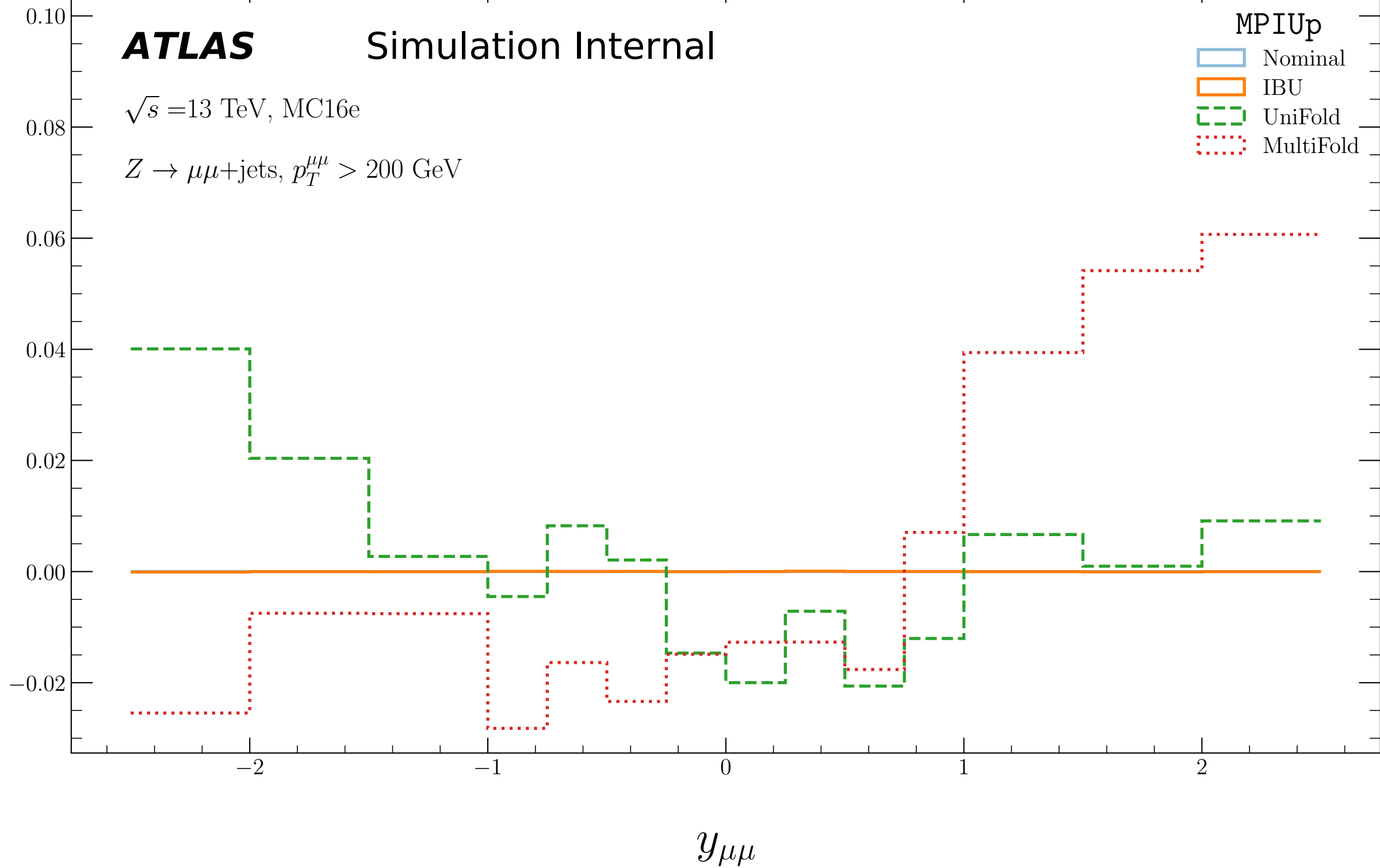
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold

0.125
0.100
0.075
0.050
0.025
0.000
-0.025

 $y_{\mu\mu}$

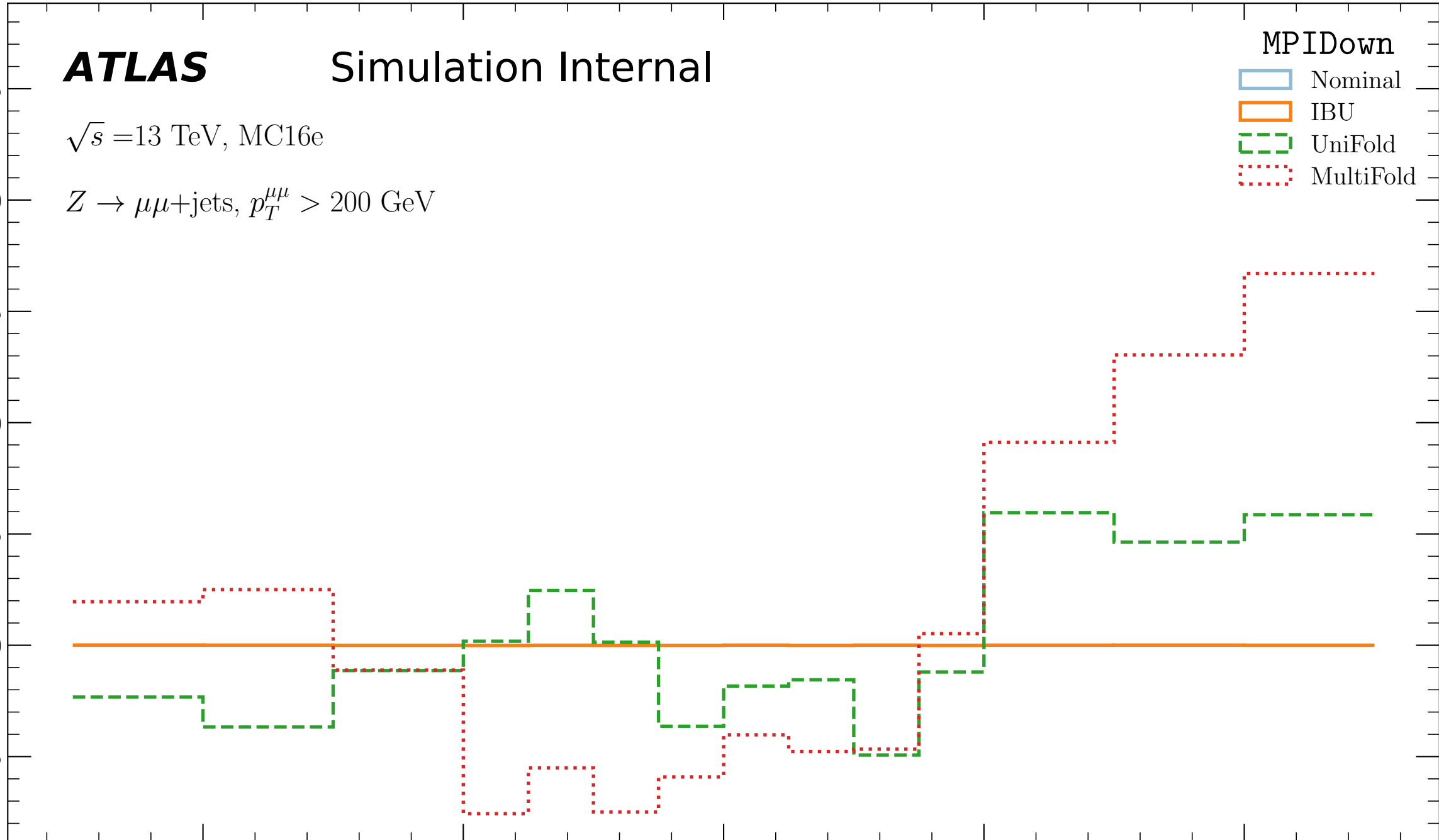
-2

-1

0

1

2



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

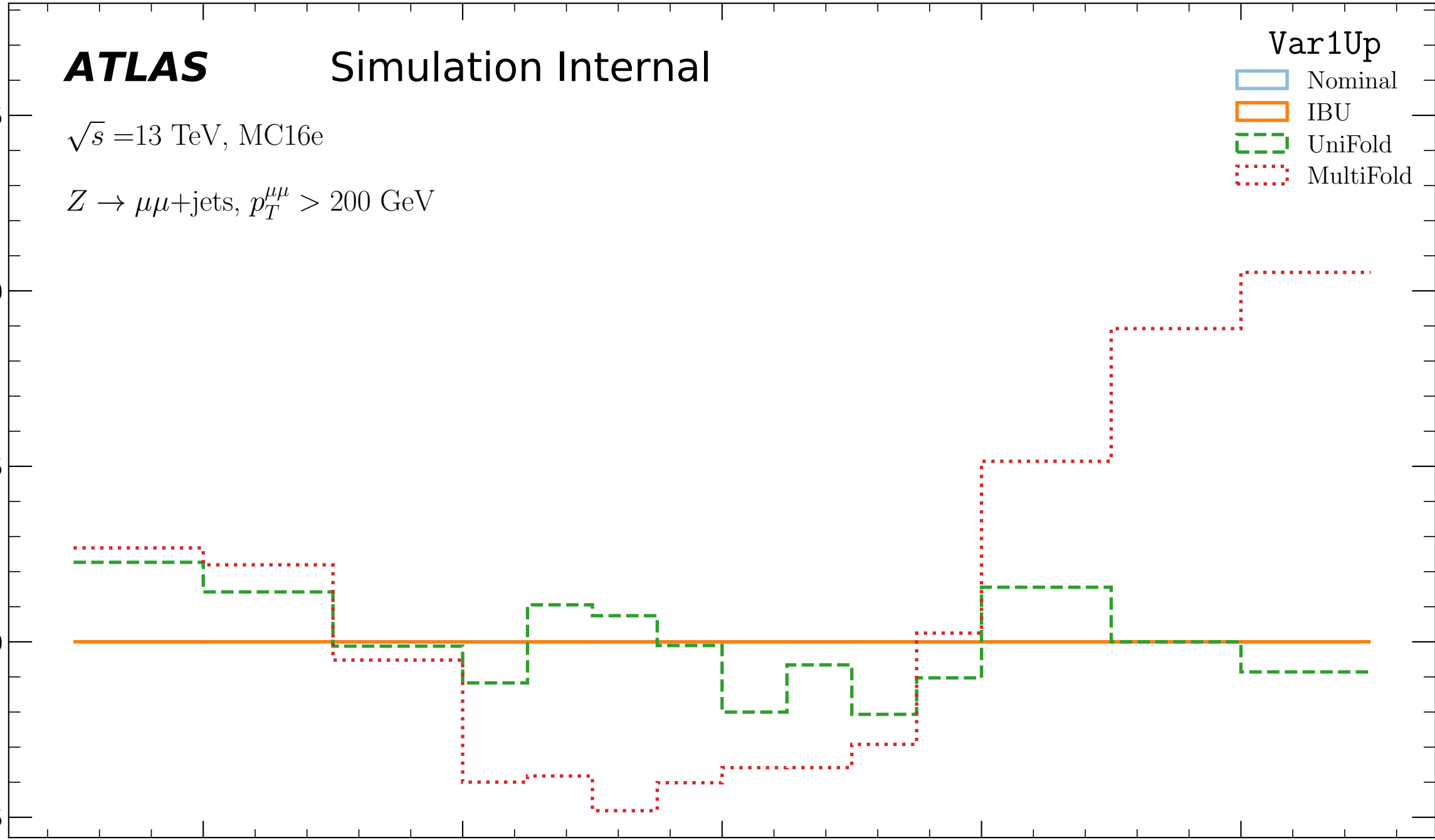
Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

0.15
0.10
0.05
0.00
-0.05

 $y_{\mu\mu}$

-2 -1 0 1 2



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

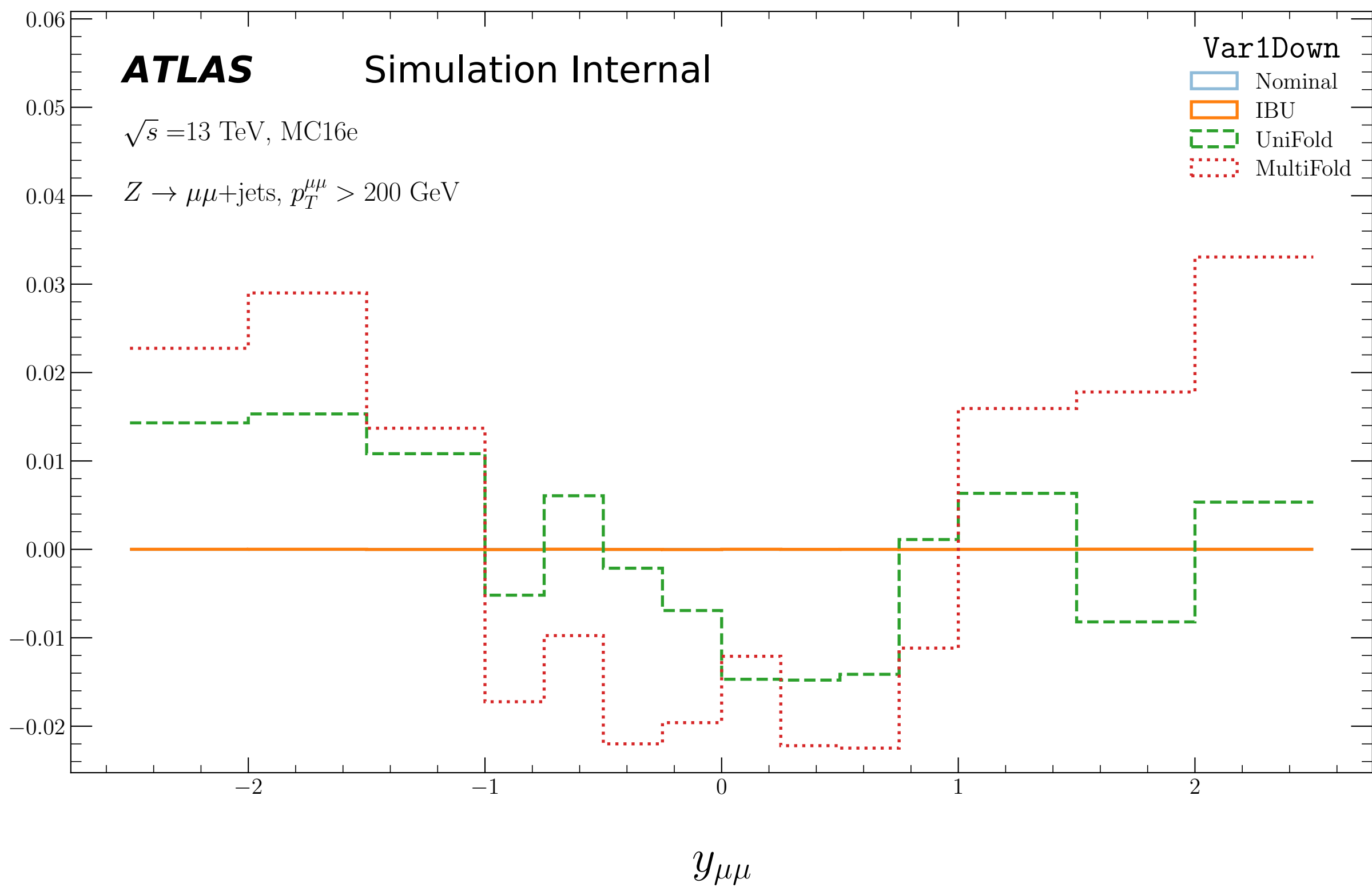
Var1Down

Nominal

IBU

UniFold

MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

0.08
0.06
0.04
0.02
0.00
-0.02

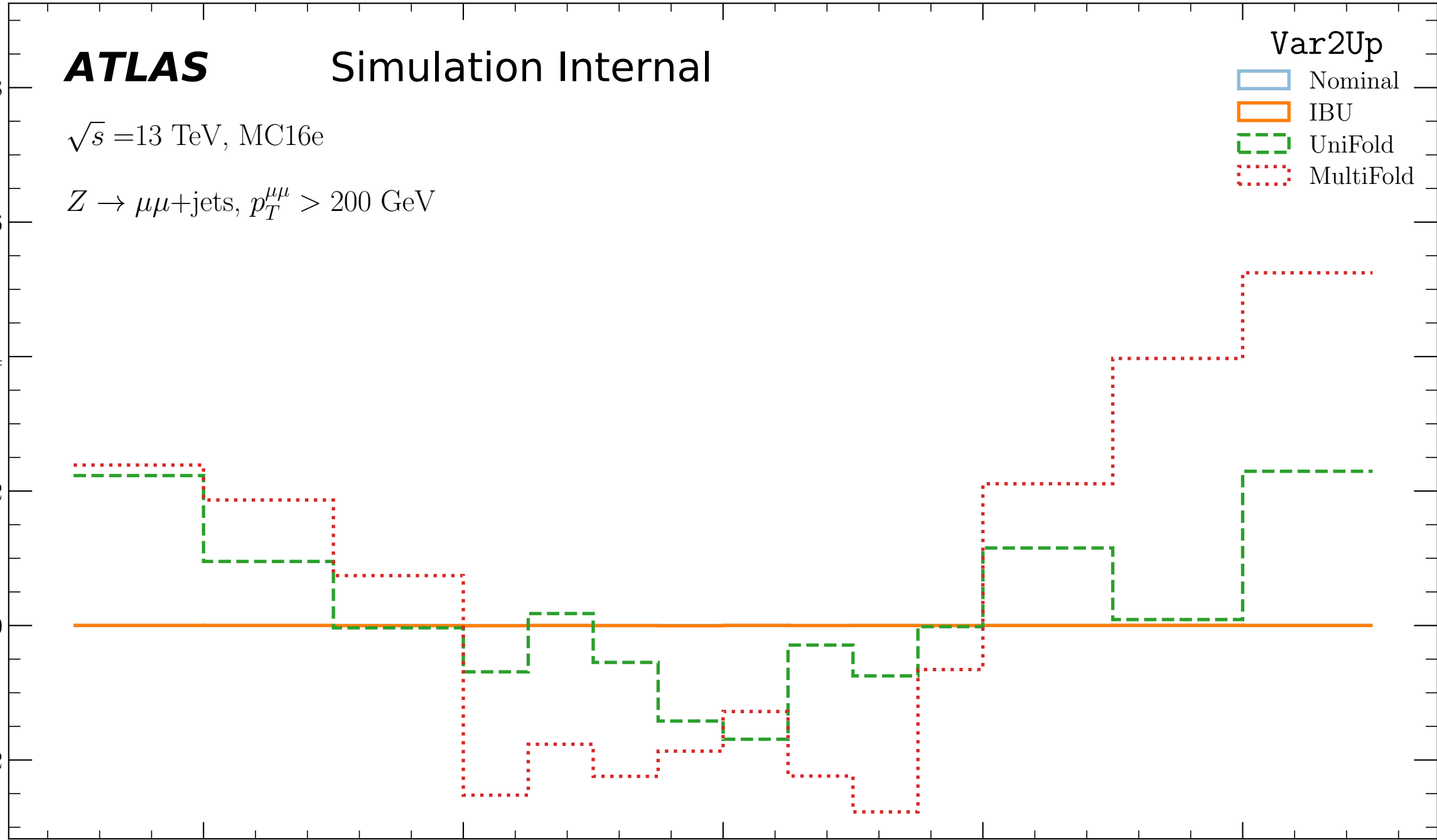
-2

-1

0

1

2

 $y_{\mu\mu}$ 

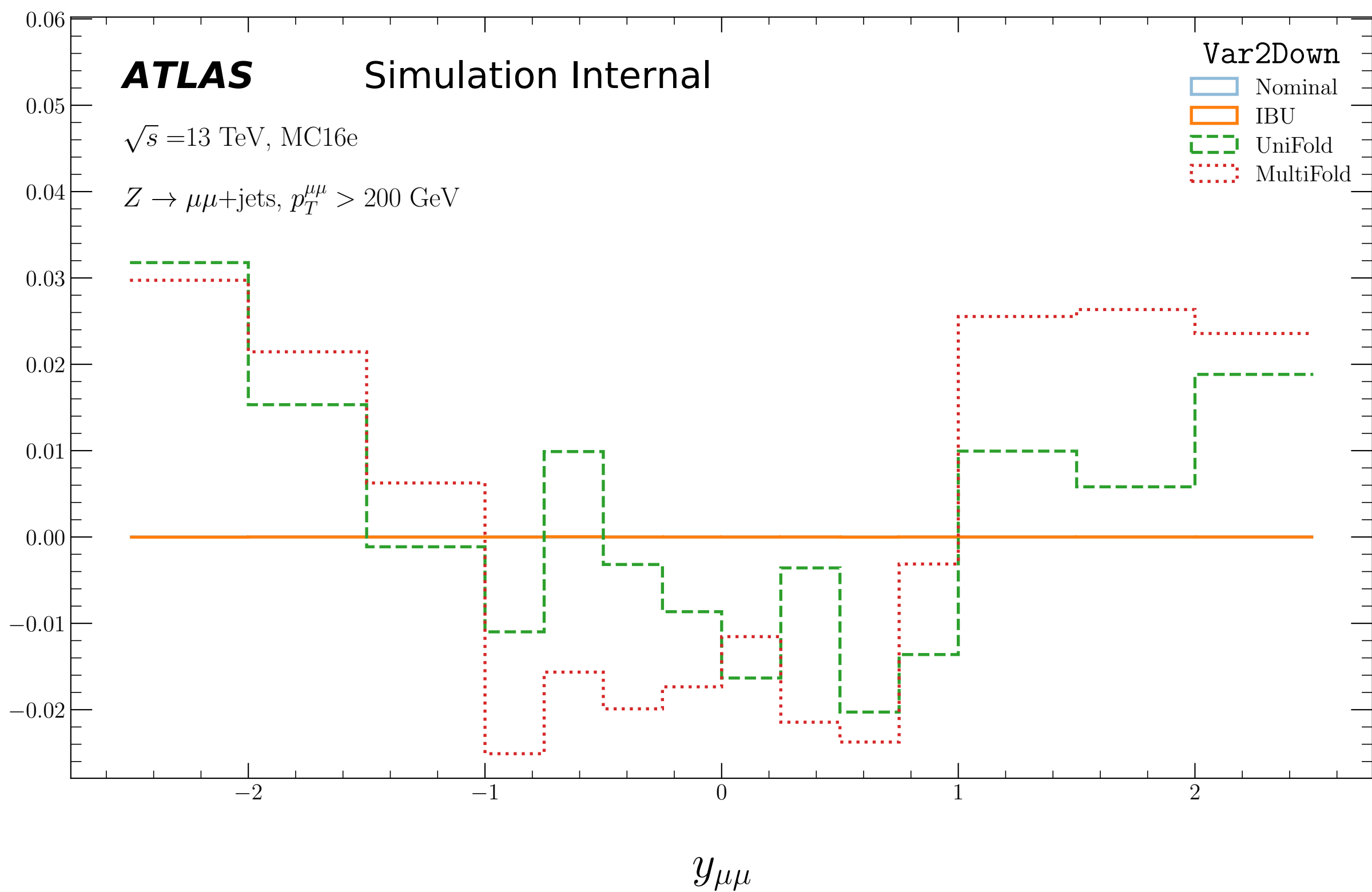
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold



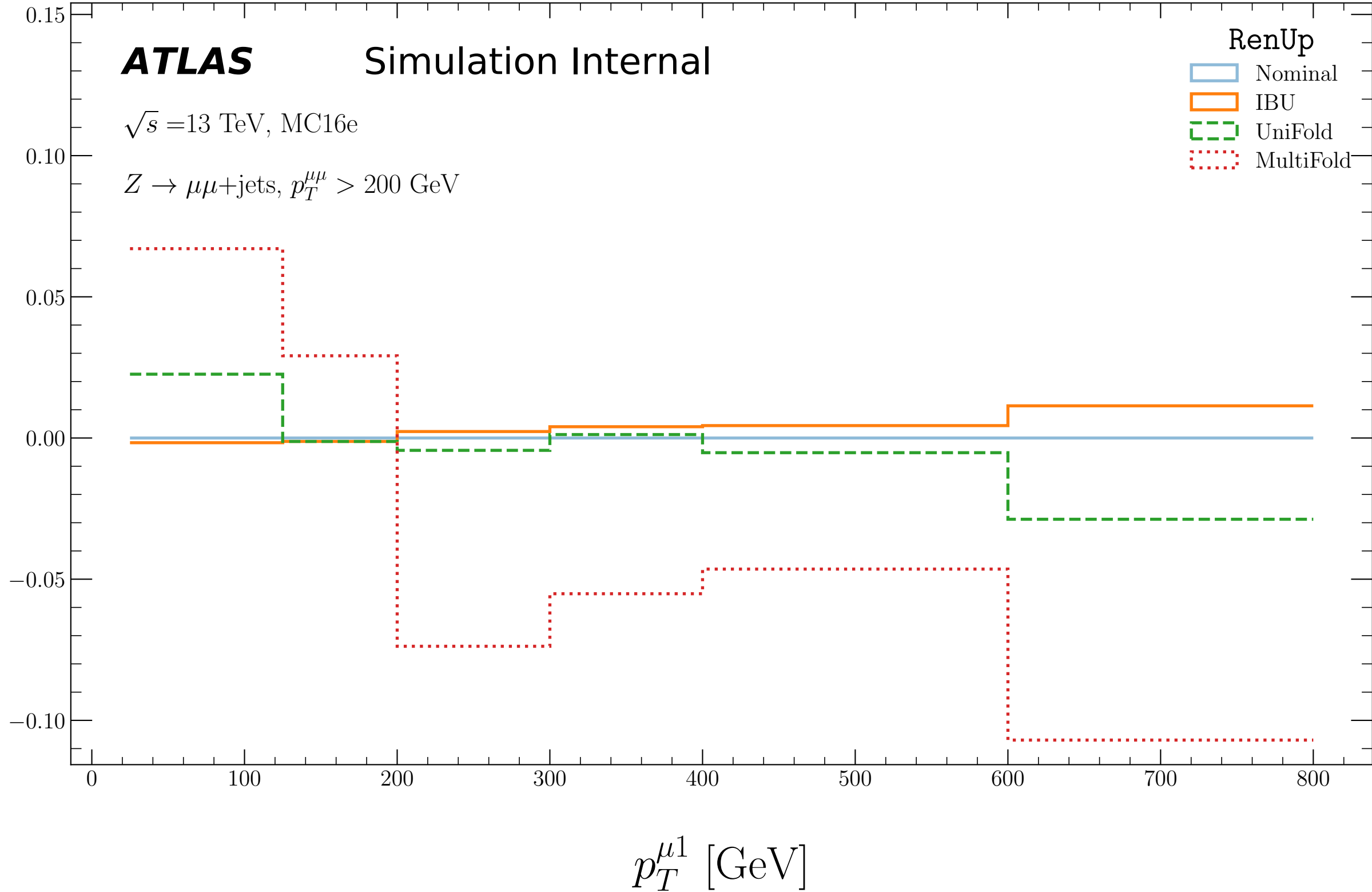
ATLAS

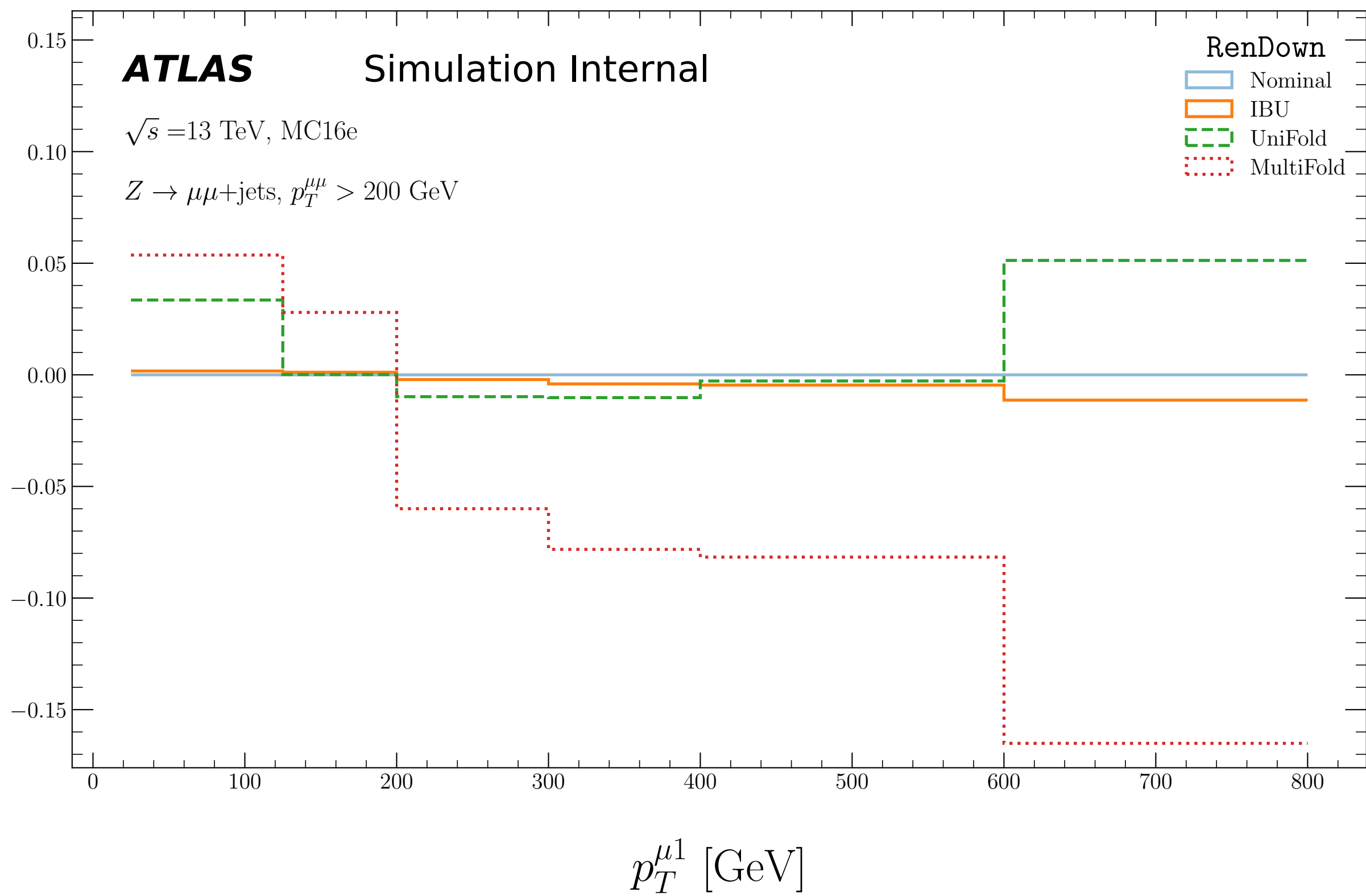
Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold





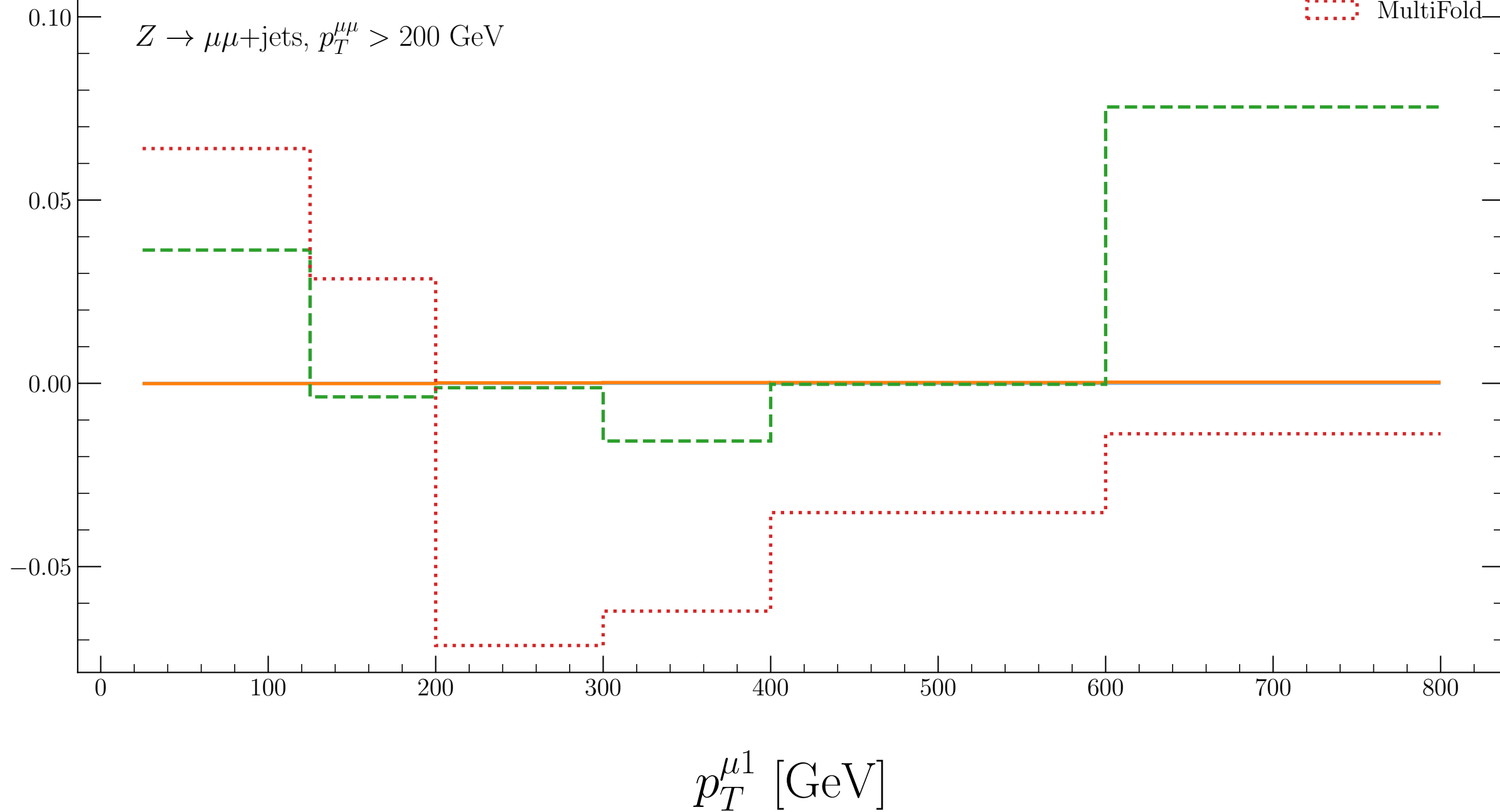
ATLAS

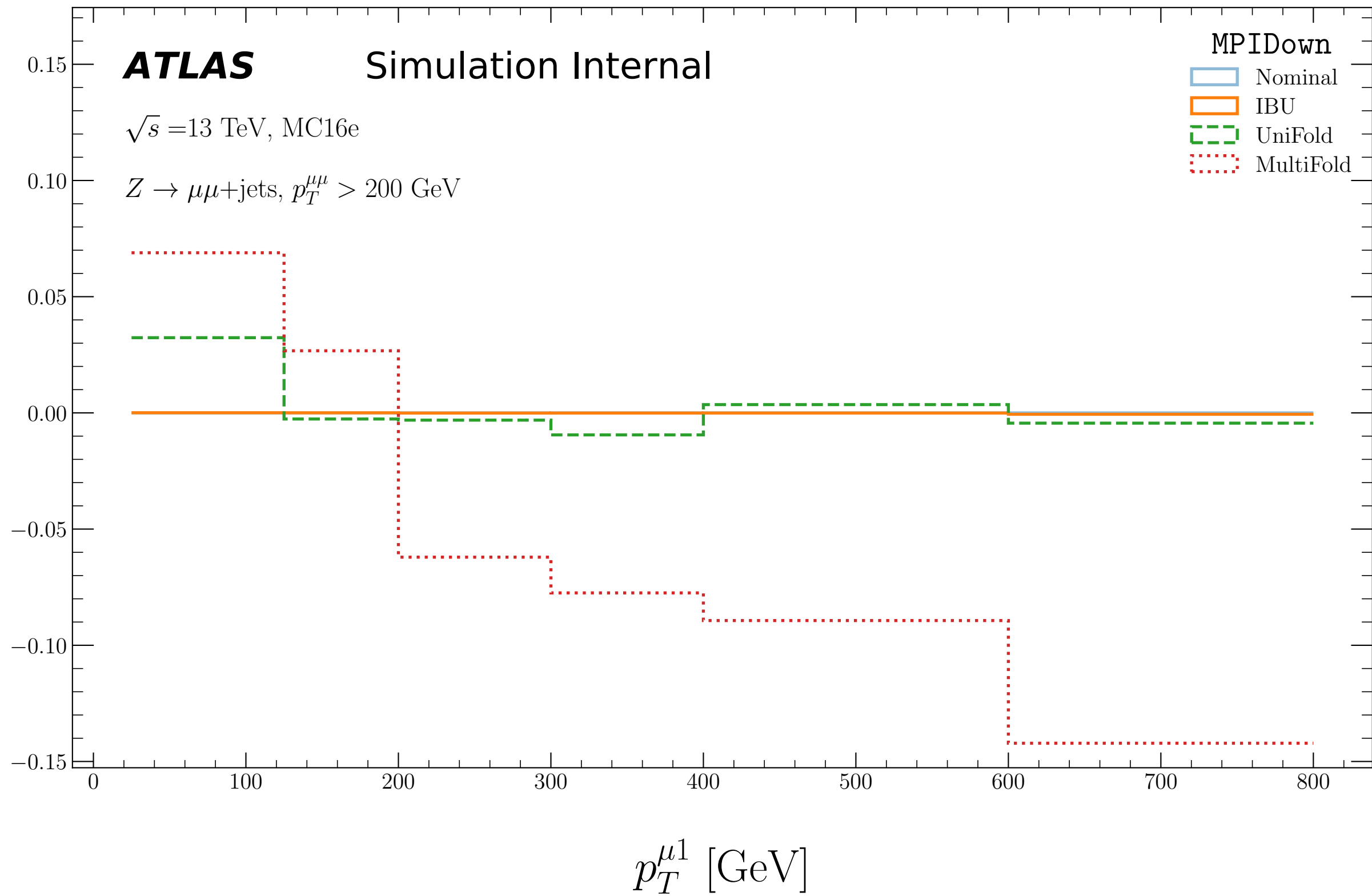
Simulation Internal

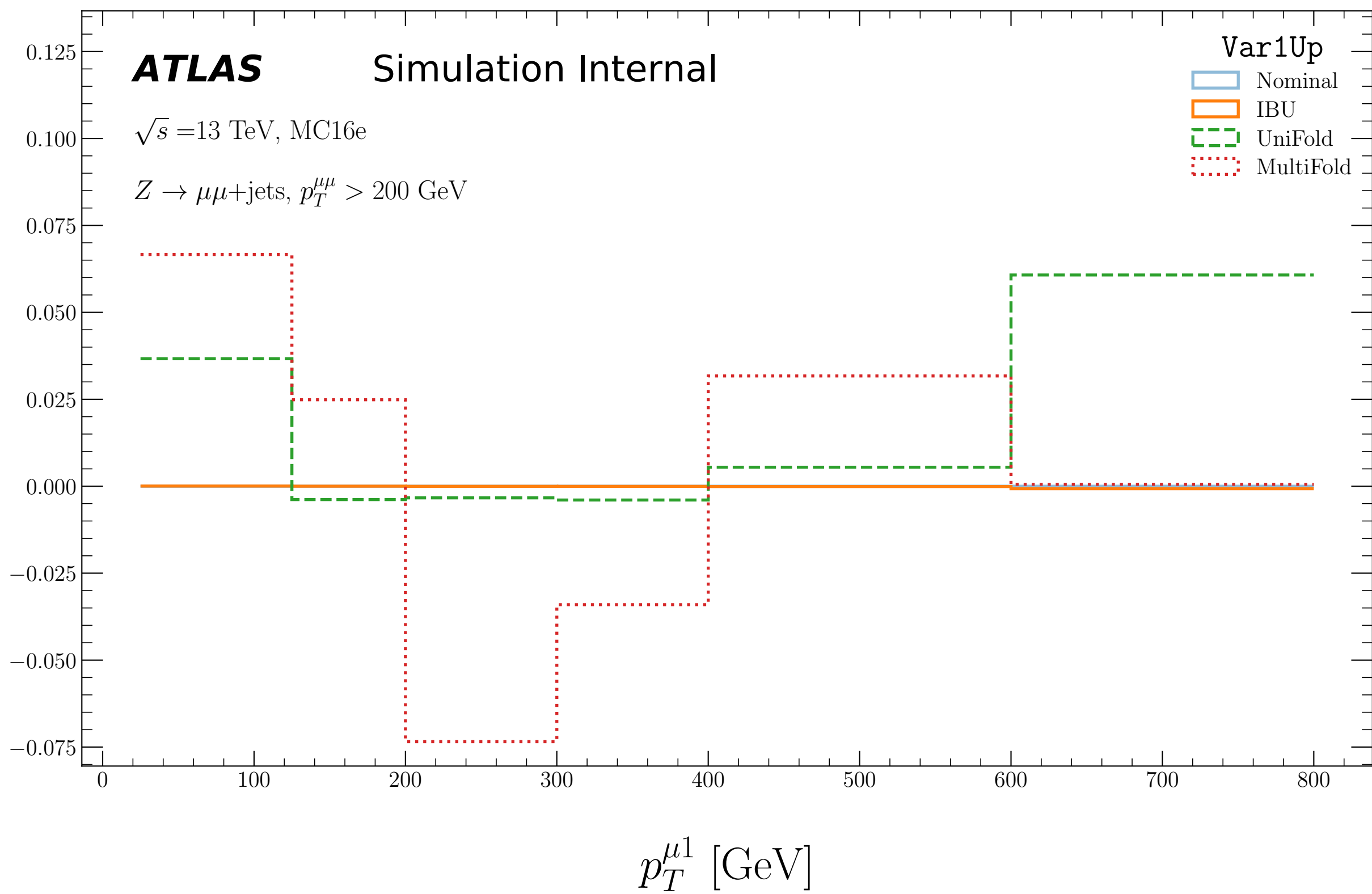
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold







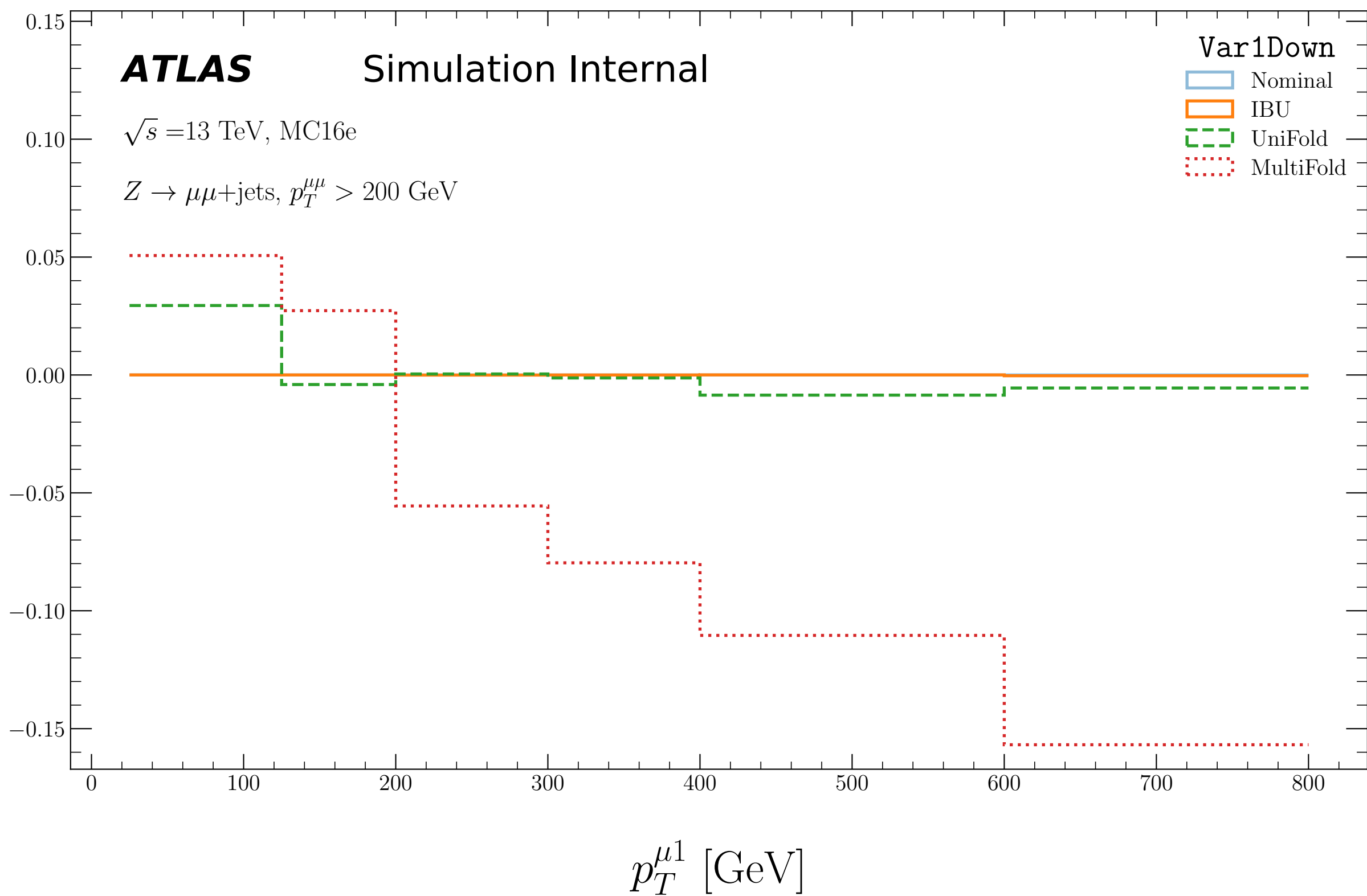
ATLAS

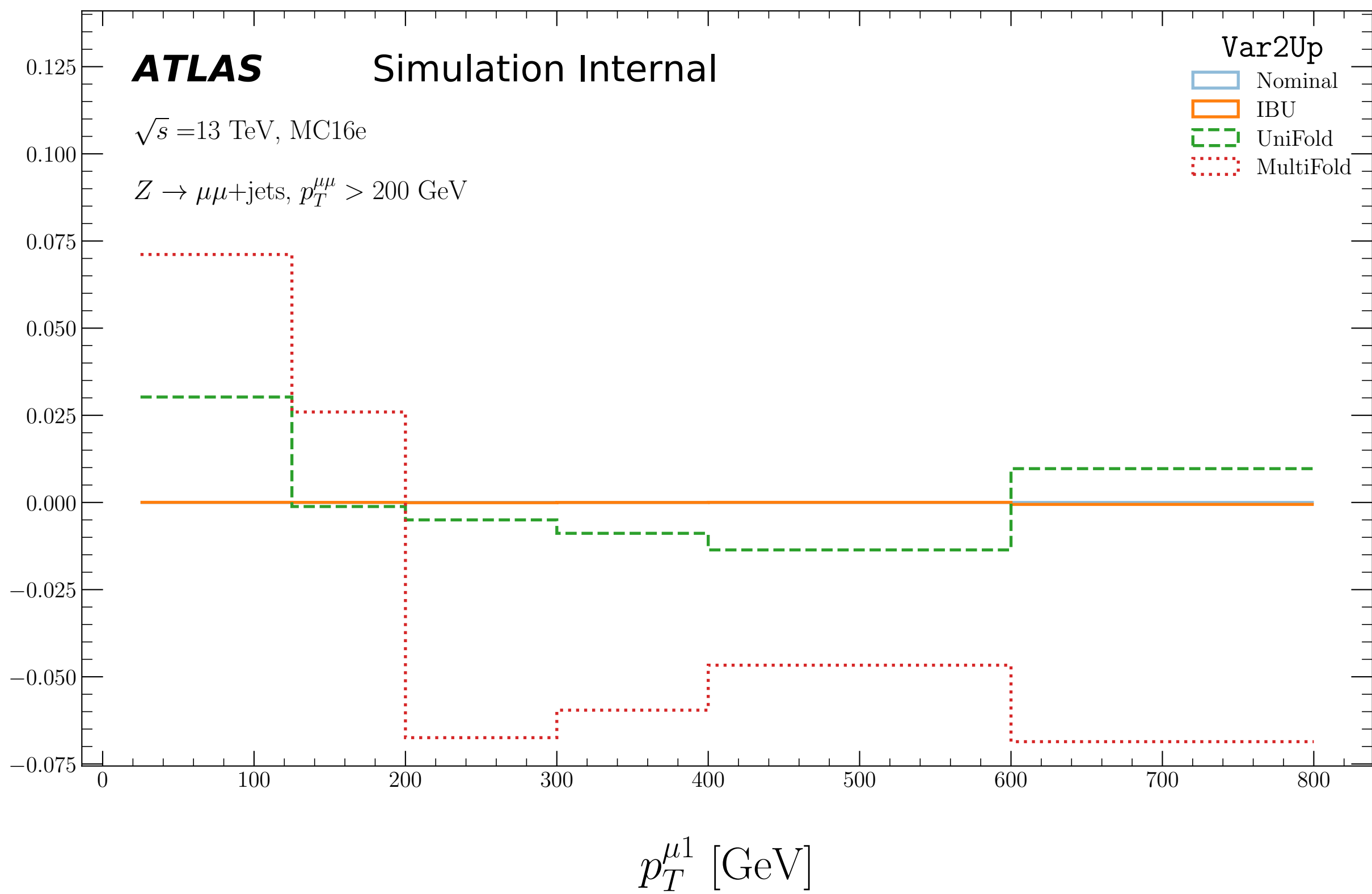
Simulation Internal

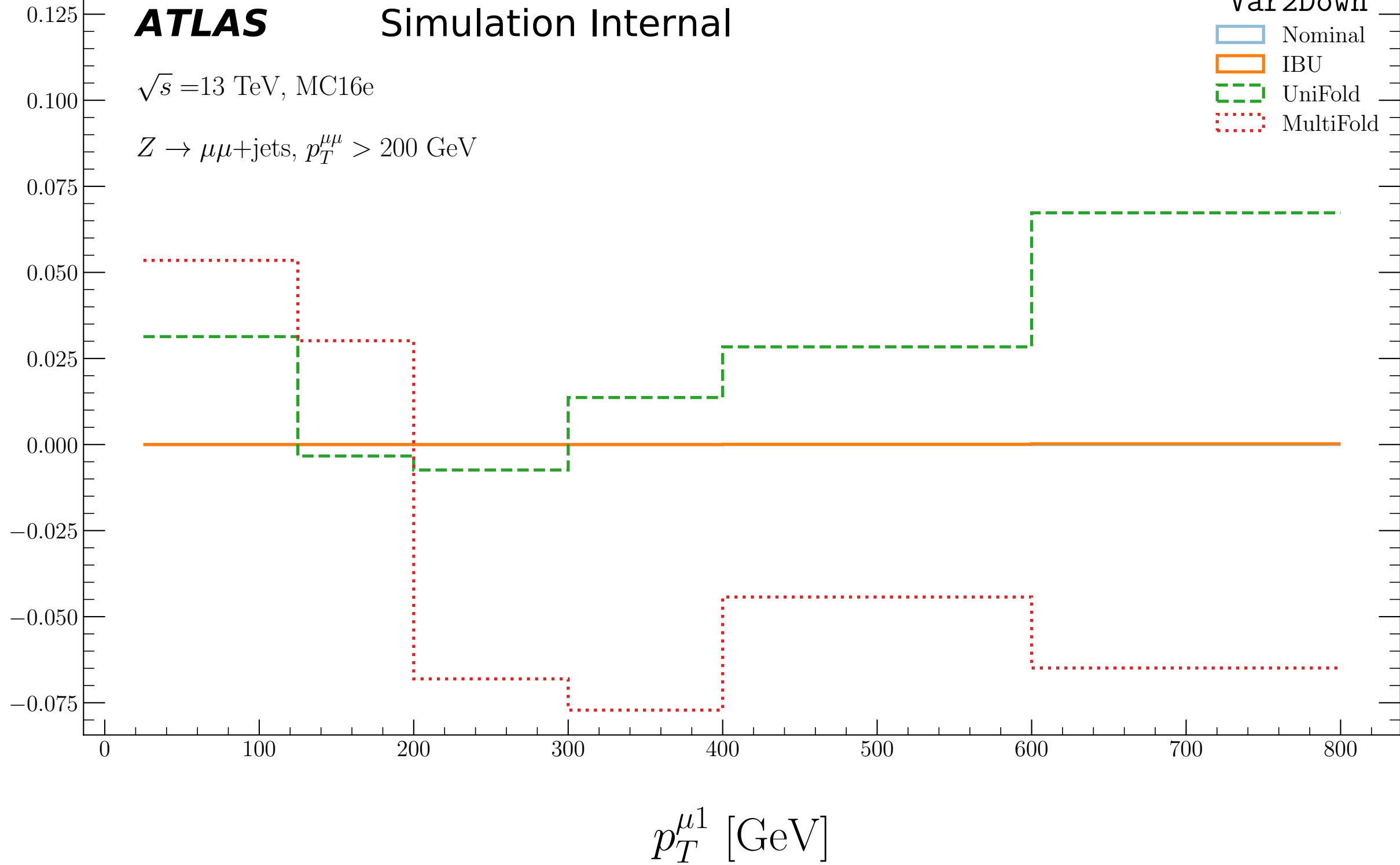
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

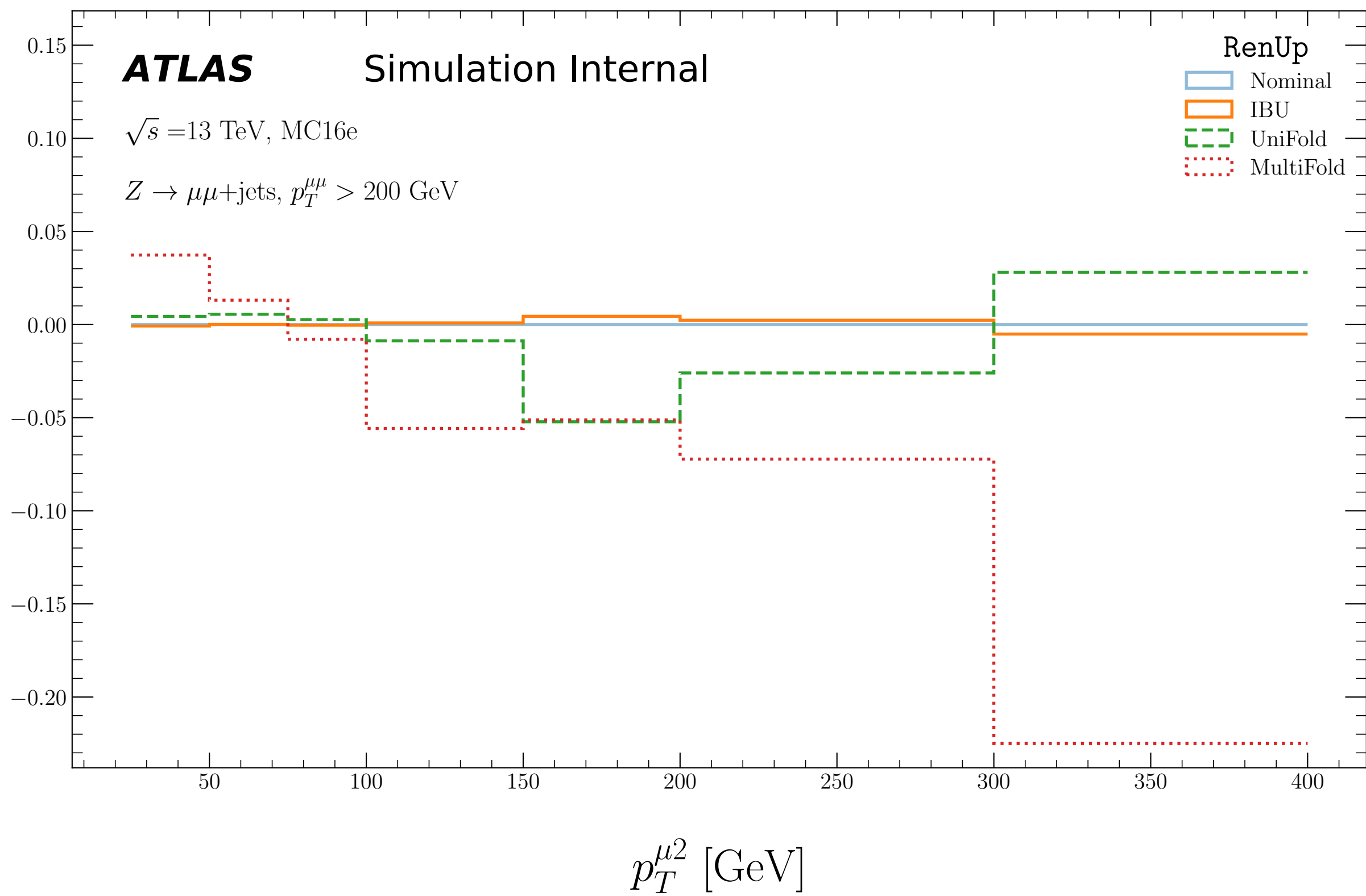
Var1Down

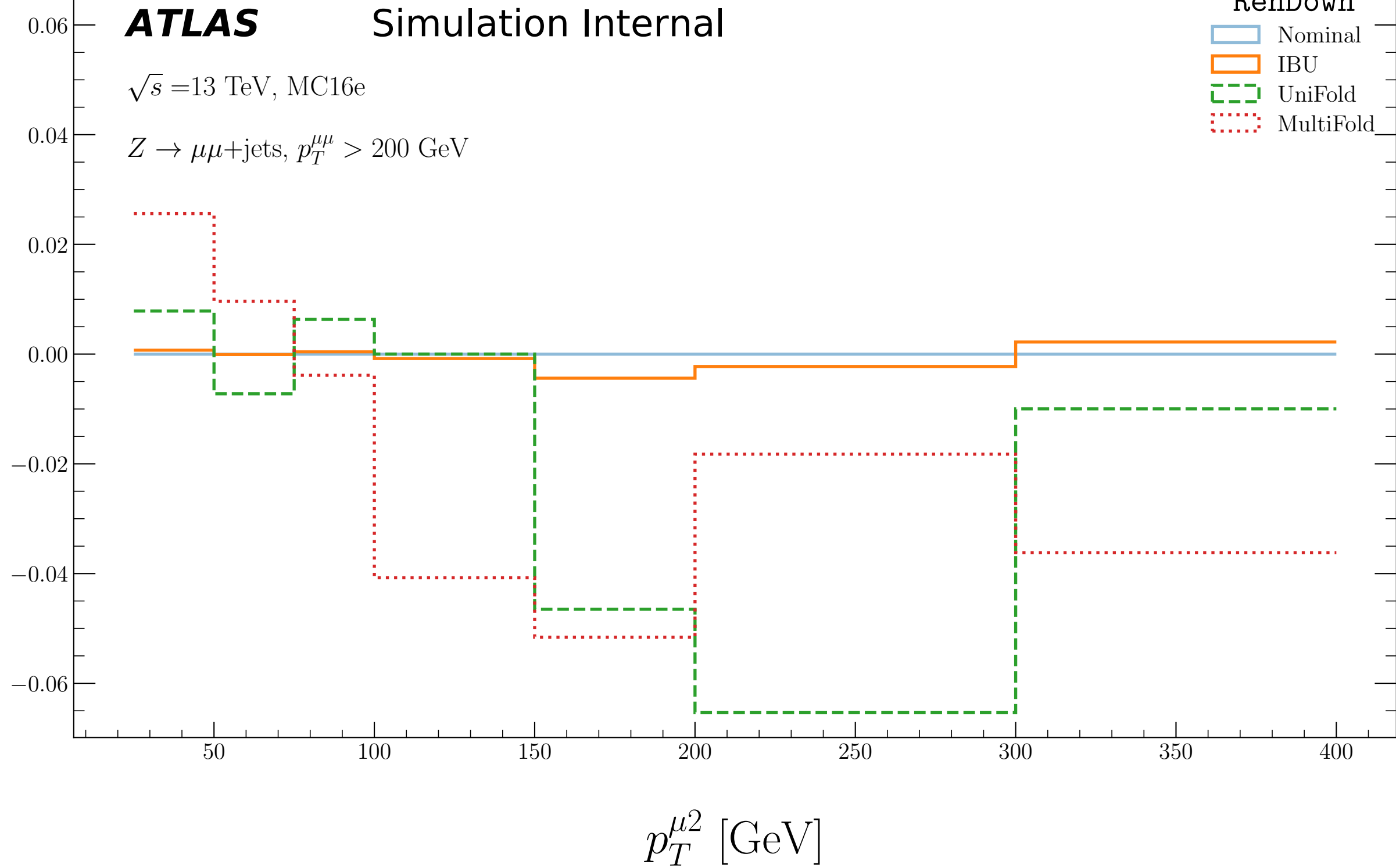
- Nominal
- IBU
- UniFold
- MultiFold











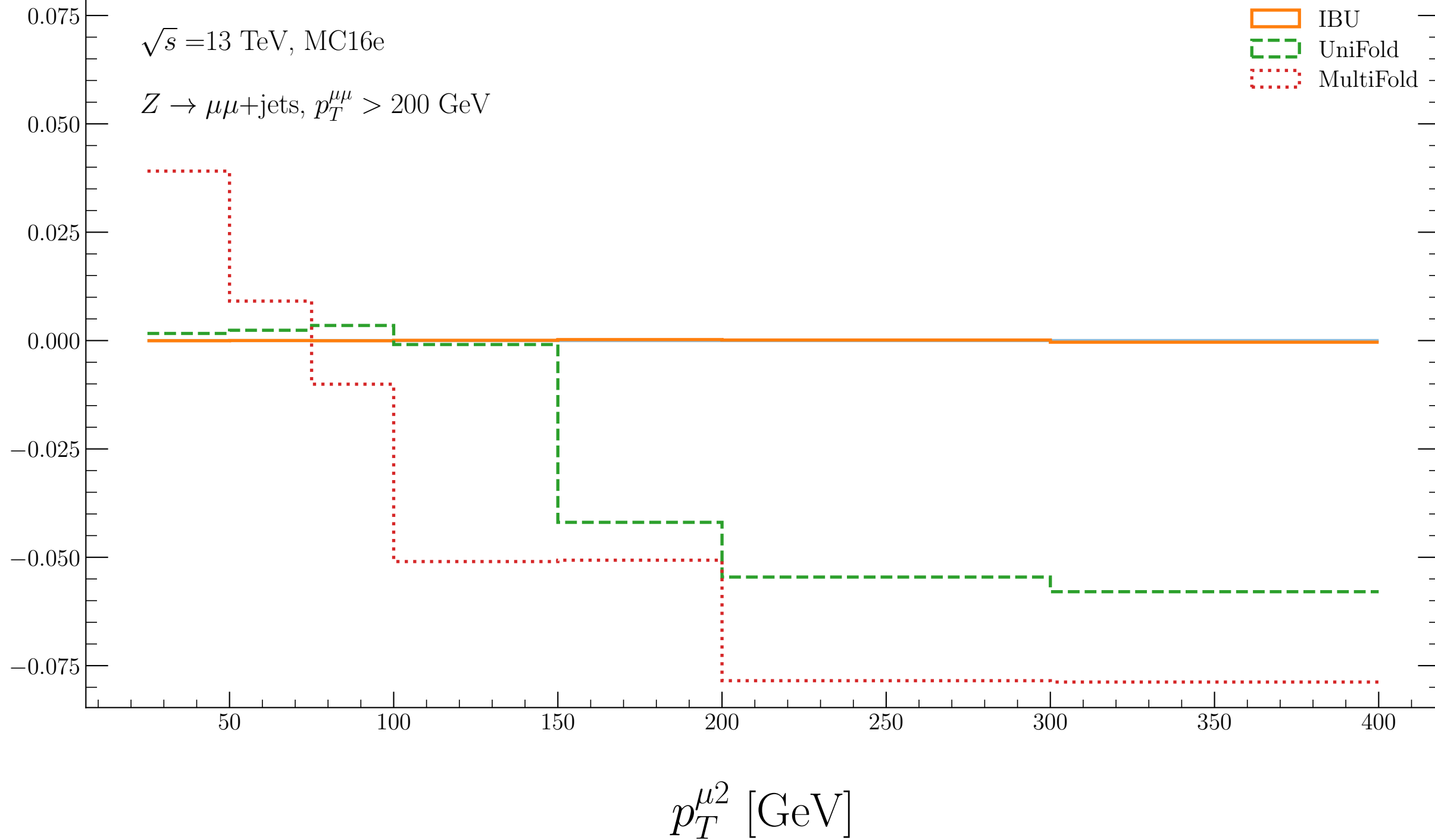
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIUp

- Nominal
- IBU
- UniFold
- MultiFold



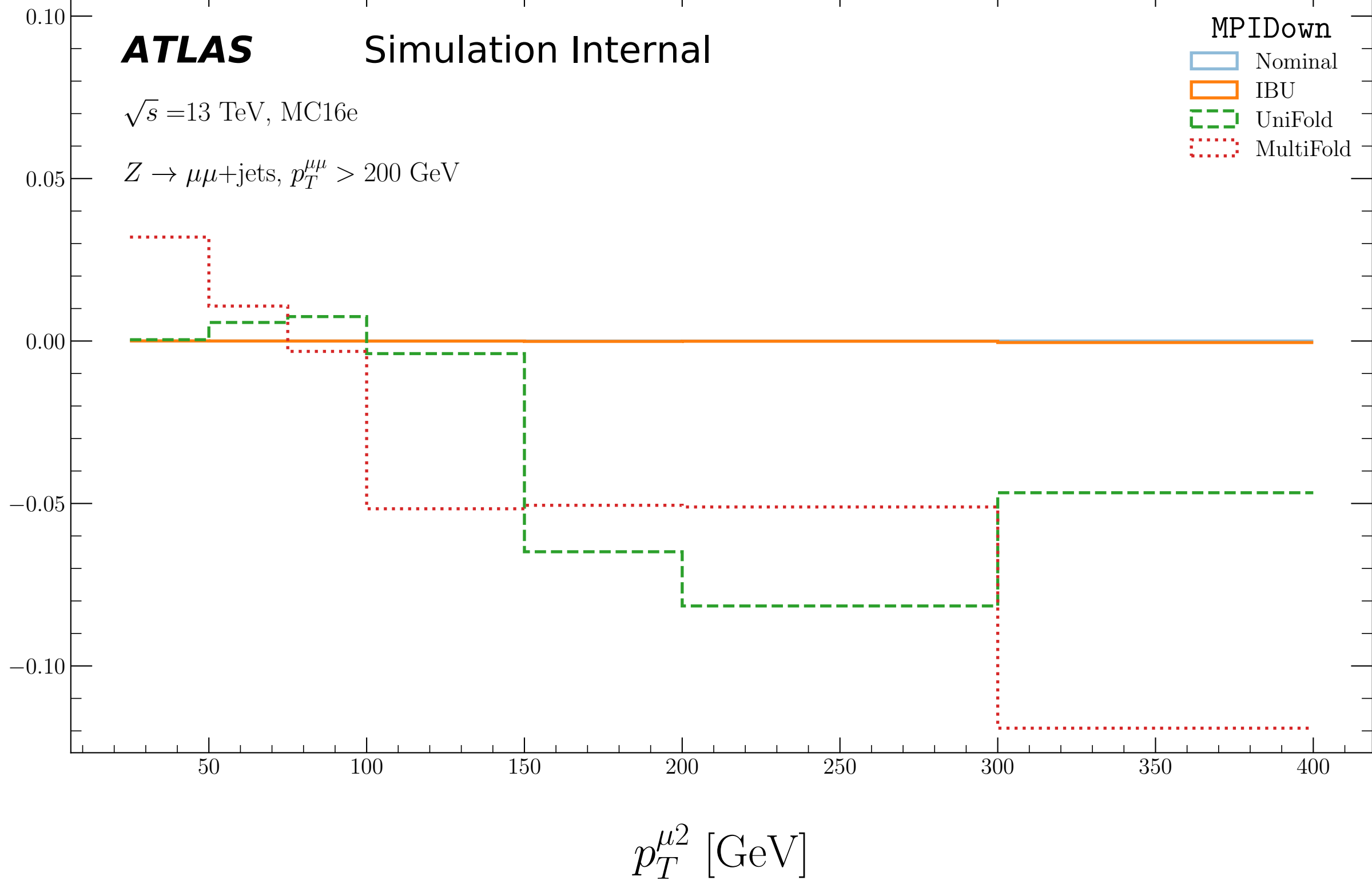
ATLAS

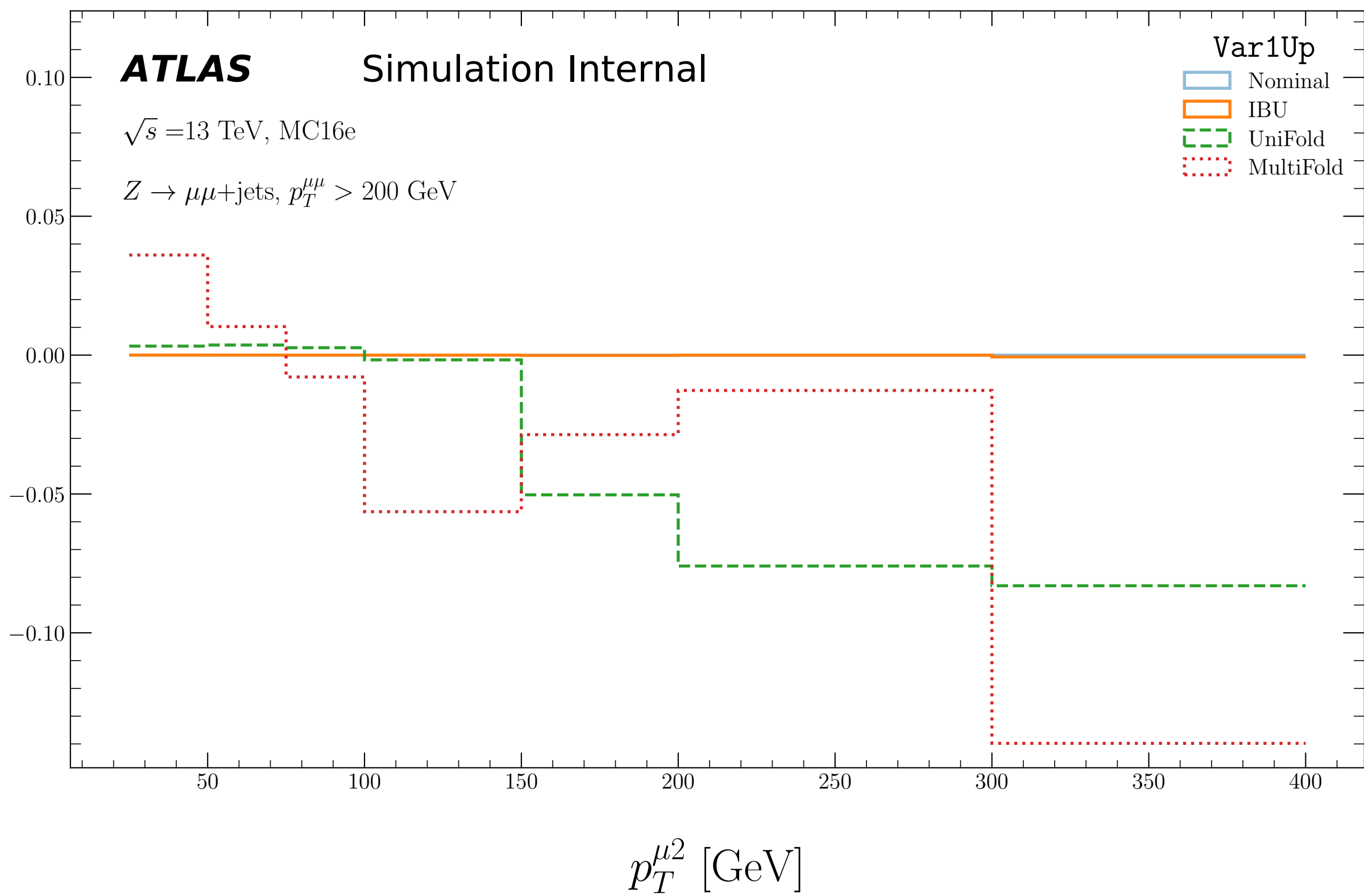
Simulation Internal

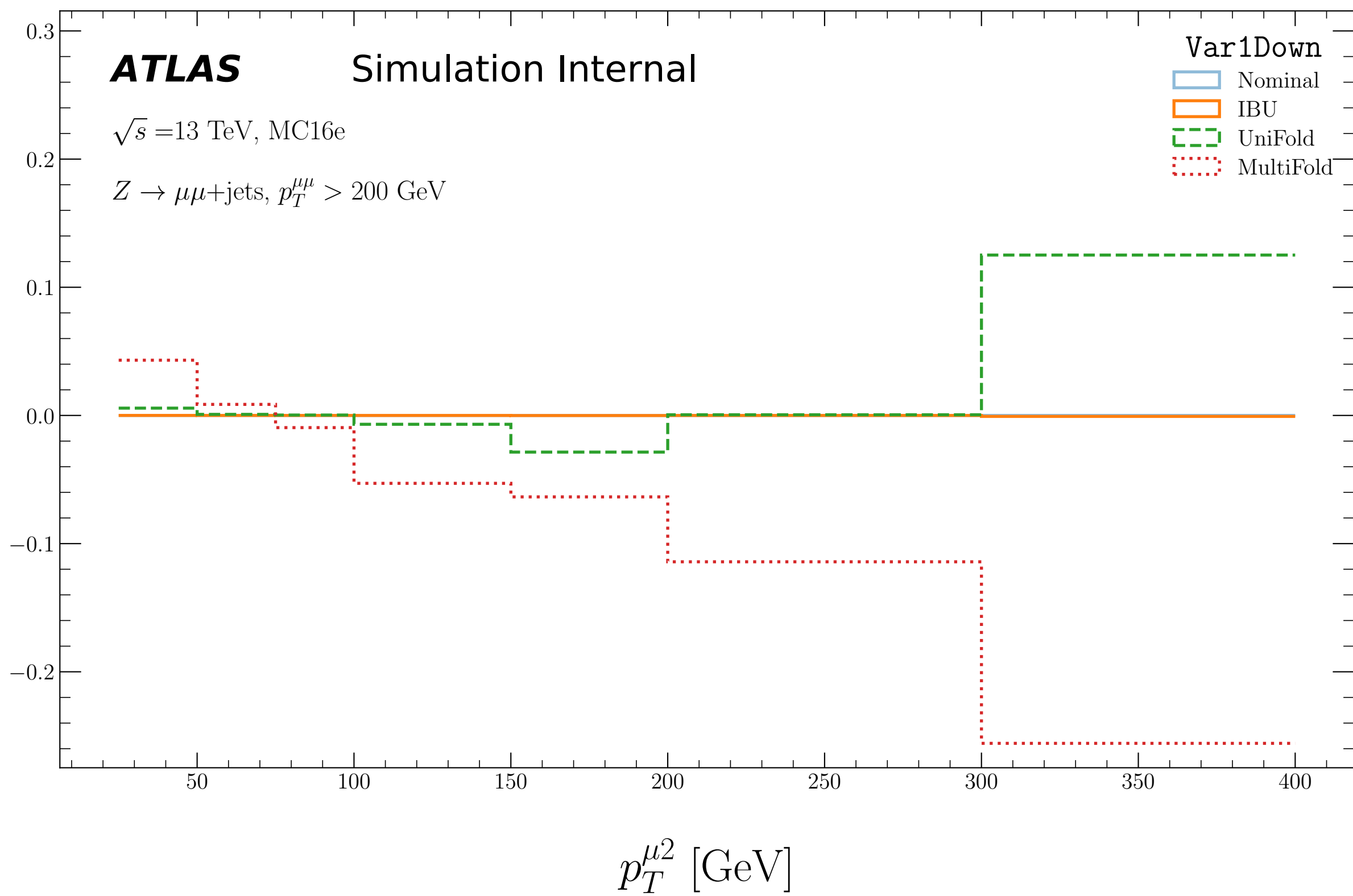
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

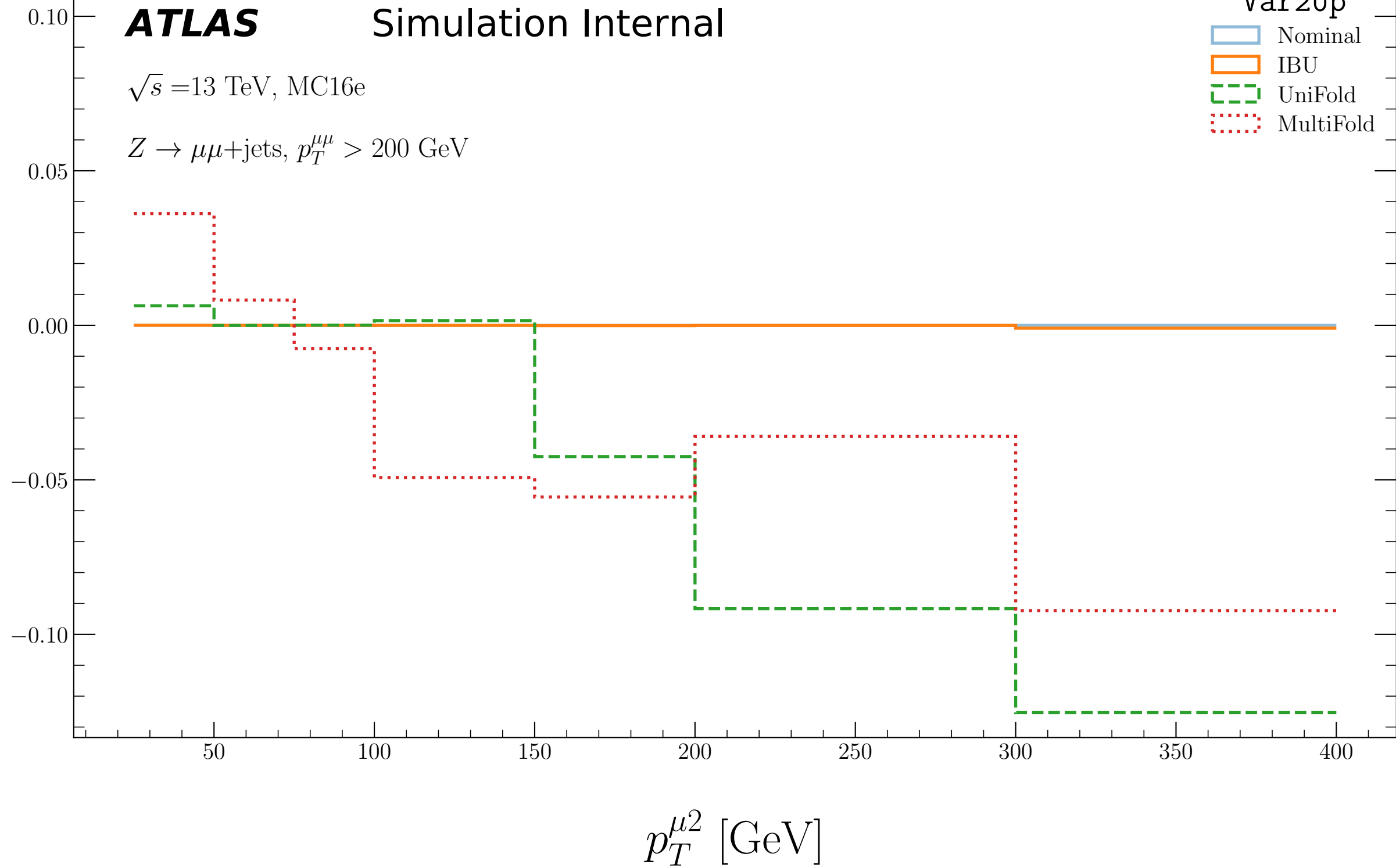
MPIDown

- Nominal
- IBU
- UniFold
- MultiFold









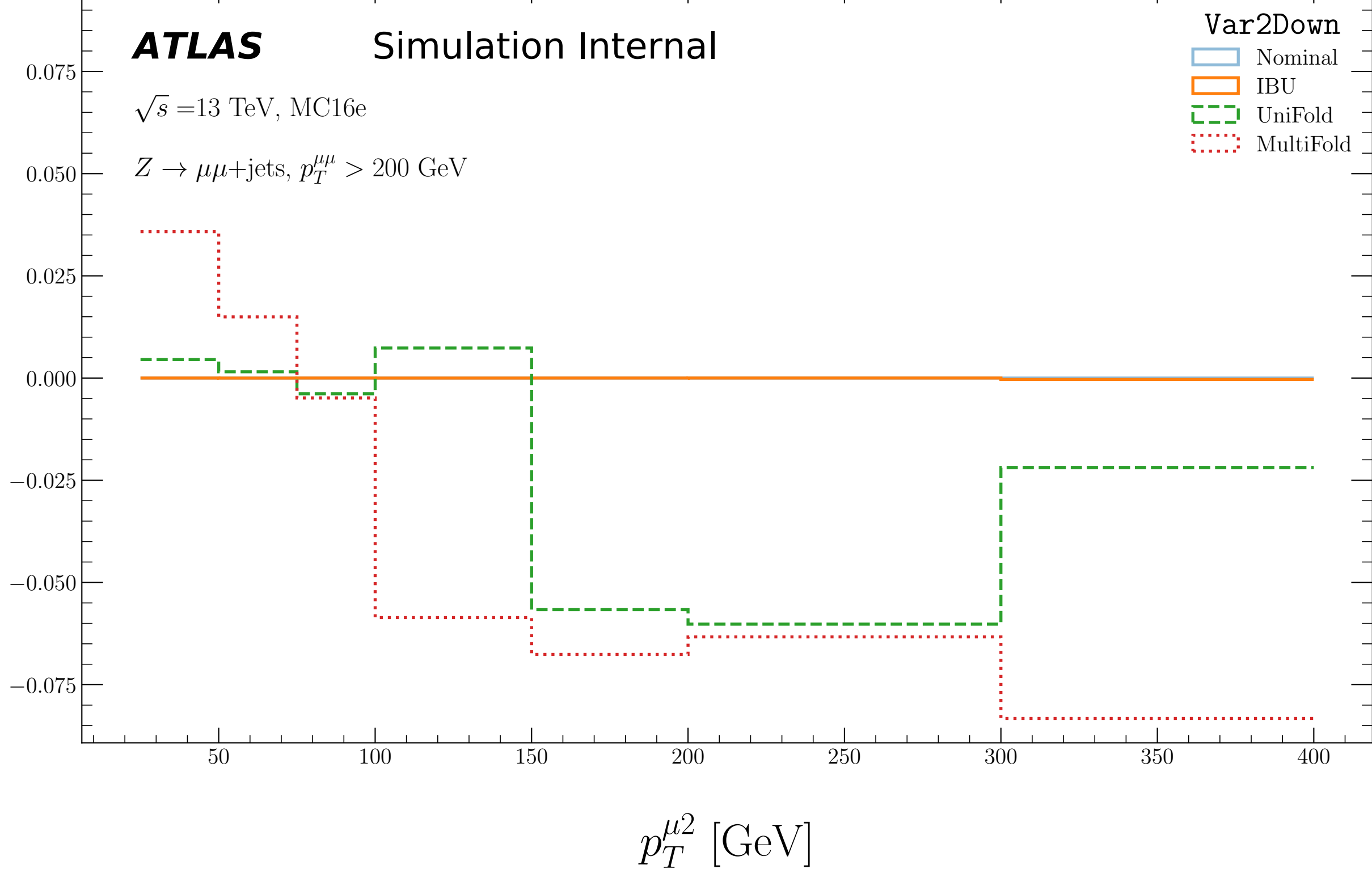
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

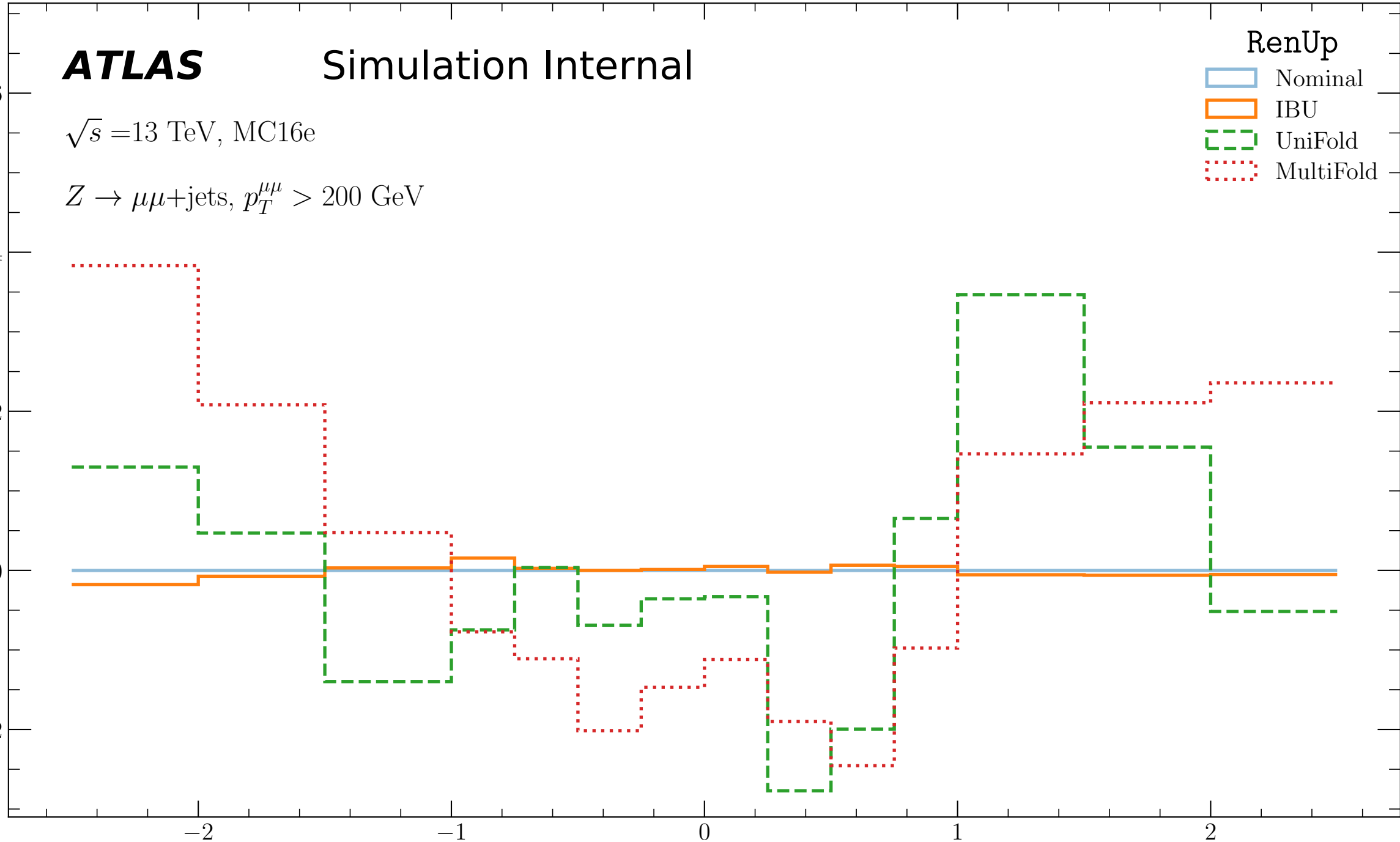
RenUp

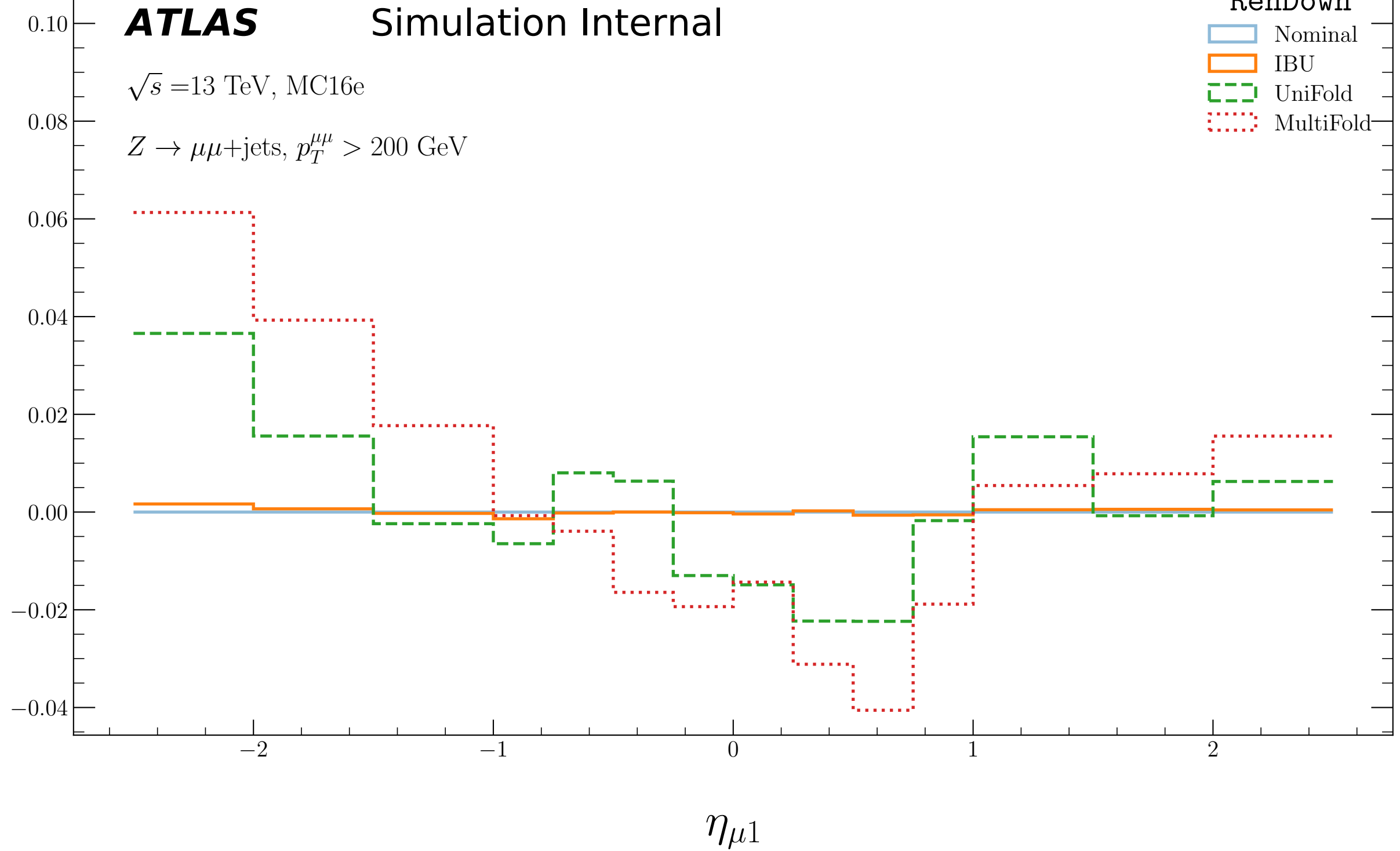
- Nominal
- IBU
- UniFold
- MultiFold

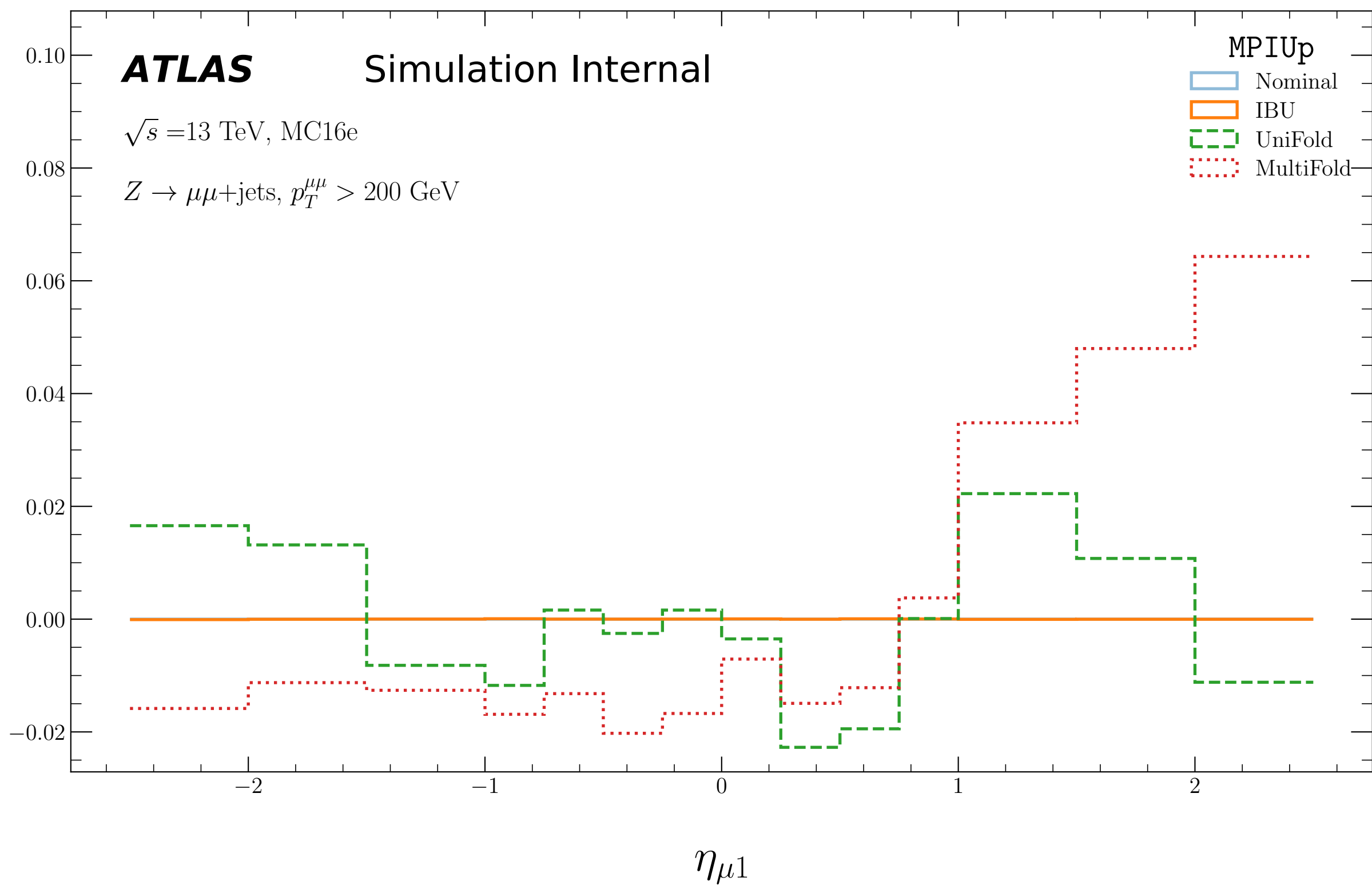
0.06
0.04
0.02
0.00
-0.02

 $\eta_{\mu 1}$

-2
-1
0
1
2







ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

Nominal

IBU

UniFold

MultiFold

0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02

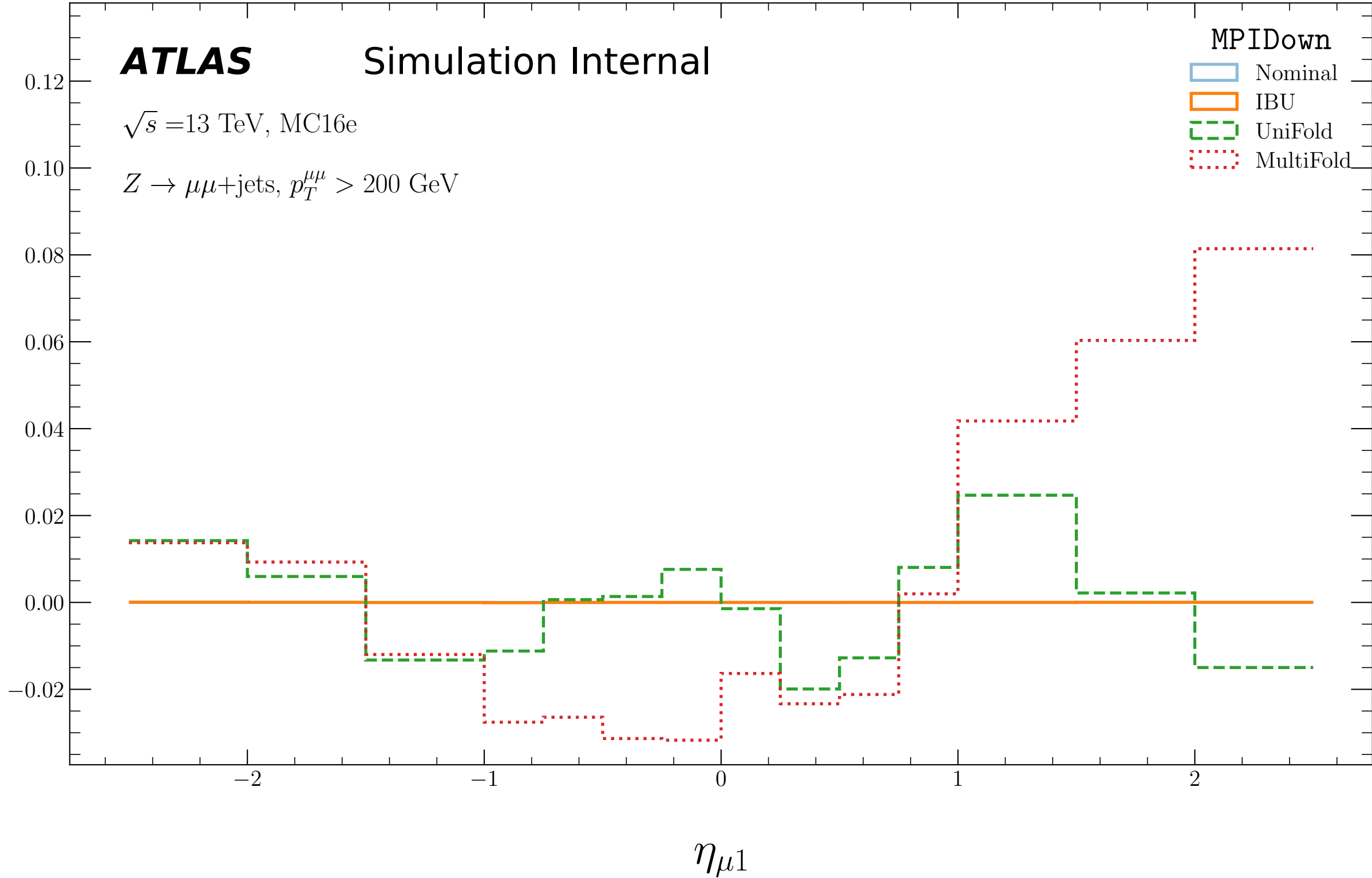
-2

-1

0

1

2

 $\eta_{\mu 1}$ 

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

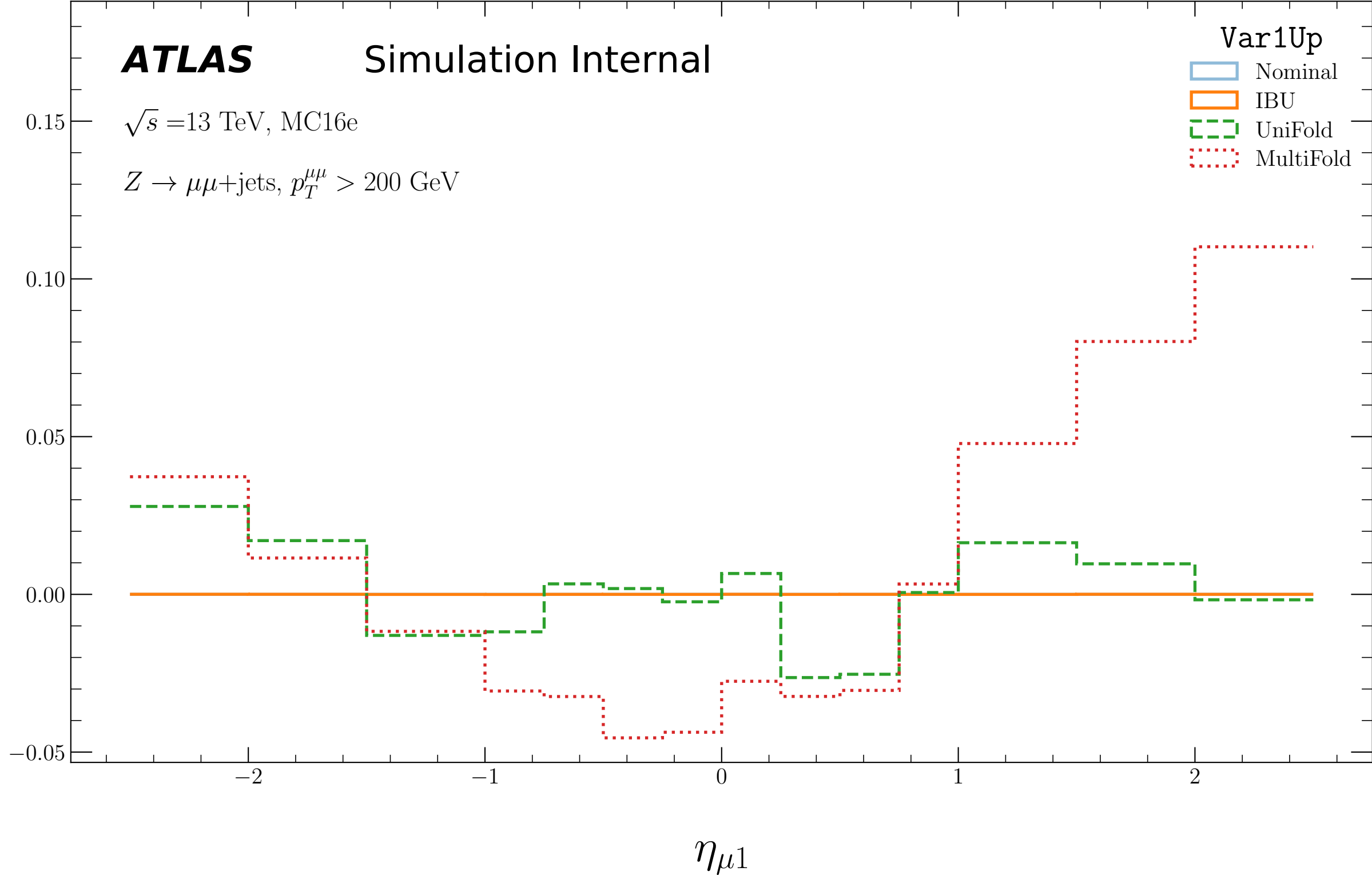
Var1Up

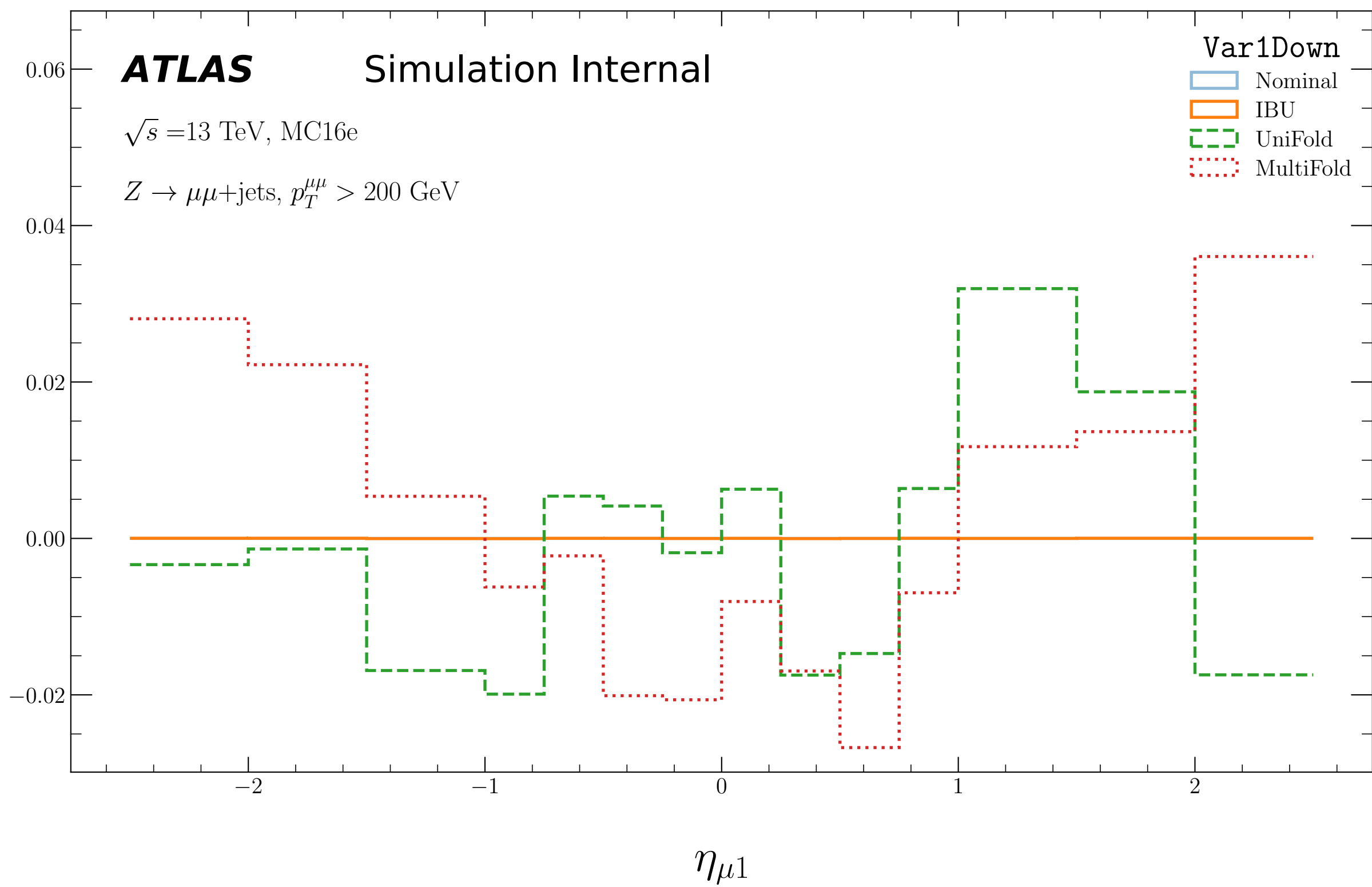
- Nominal
- IBU
- UniFold
- MultiFold

0.15
0.10
0.05
0.00
-0.05

 $\eta_{\mu 1}$

-2 -1 0 1 2





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

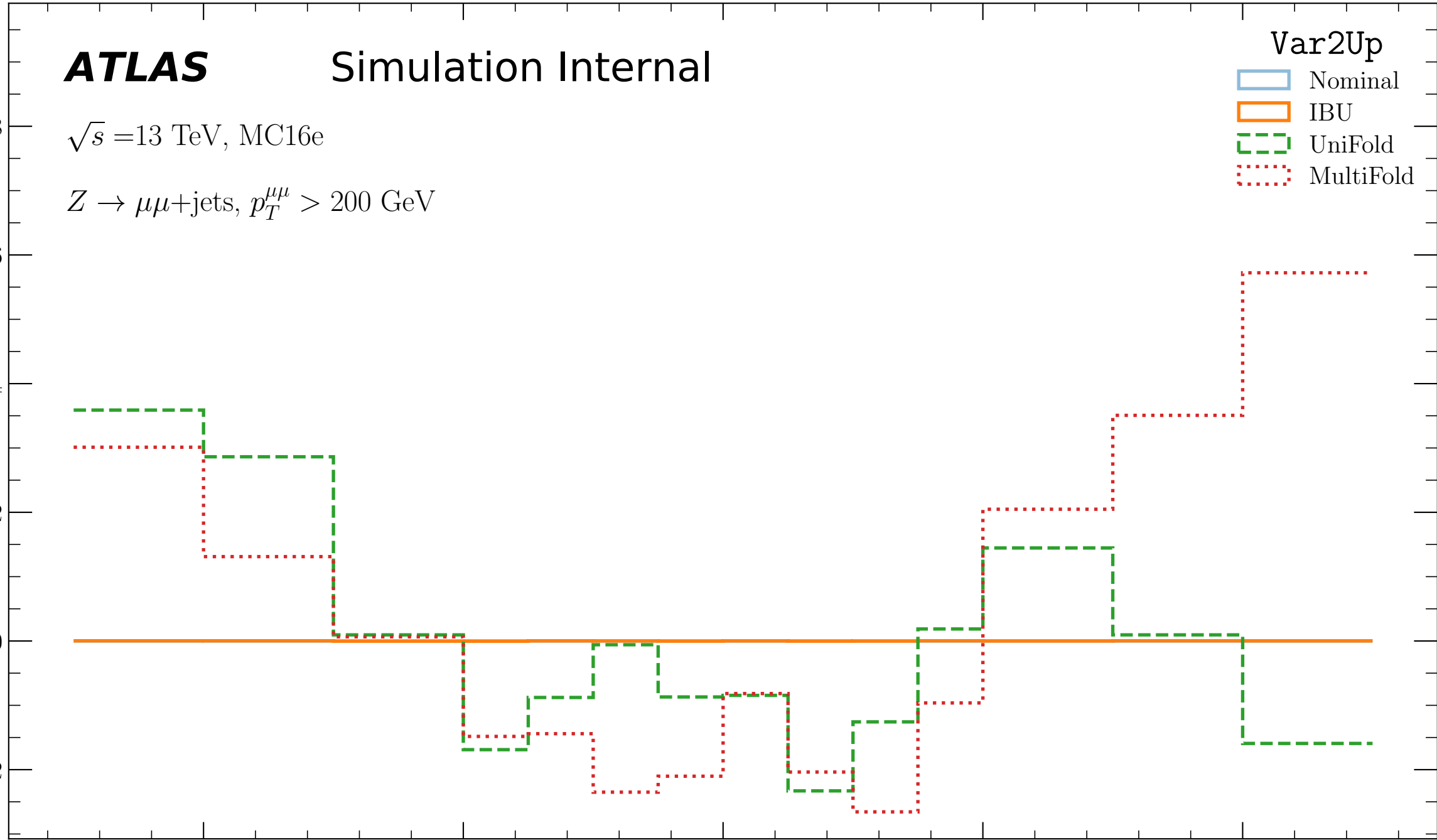
Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

0.08
0.06
0.04
0.02
0.00
-0.02

 $\eta_{\mu 1}$

-2
-1
0
1
2



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

-2

-1

0

1

2

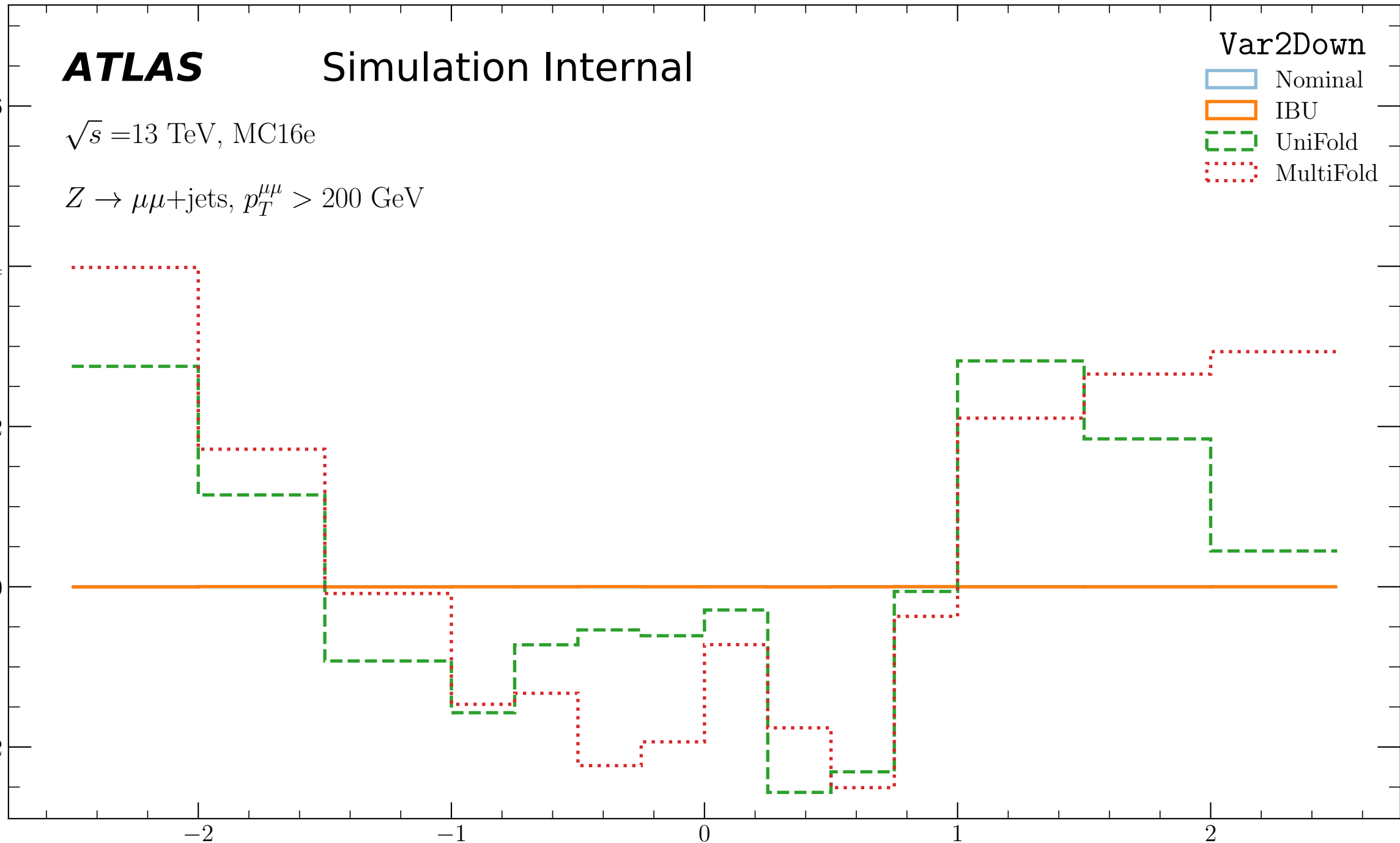
 $\eta_{\mu 1}$

0.04

0.02

0.00

-0.02



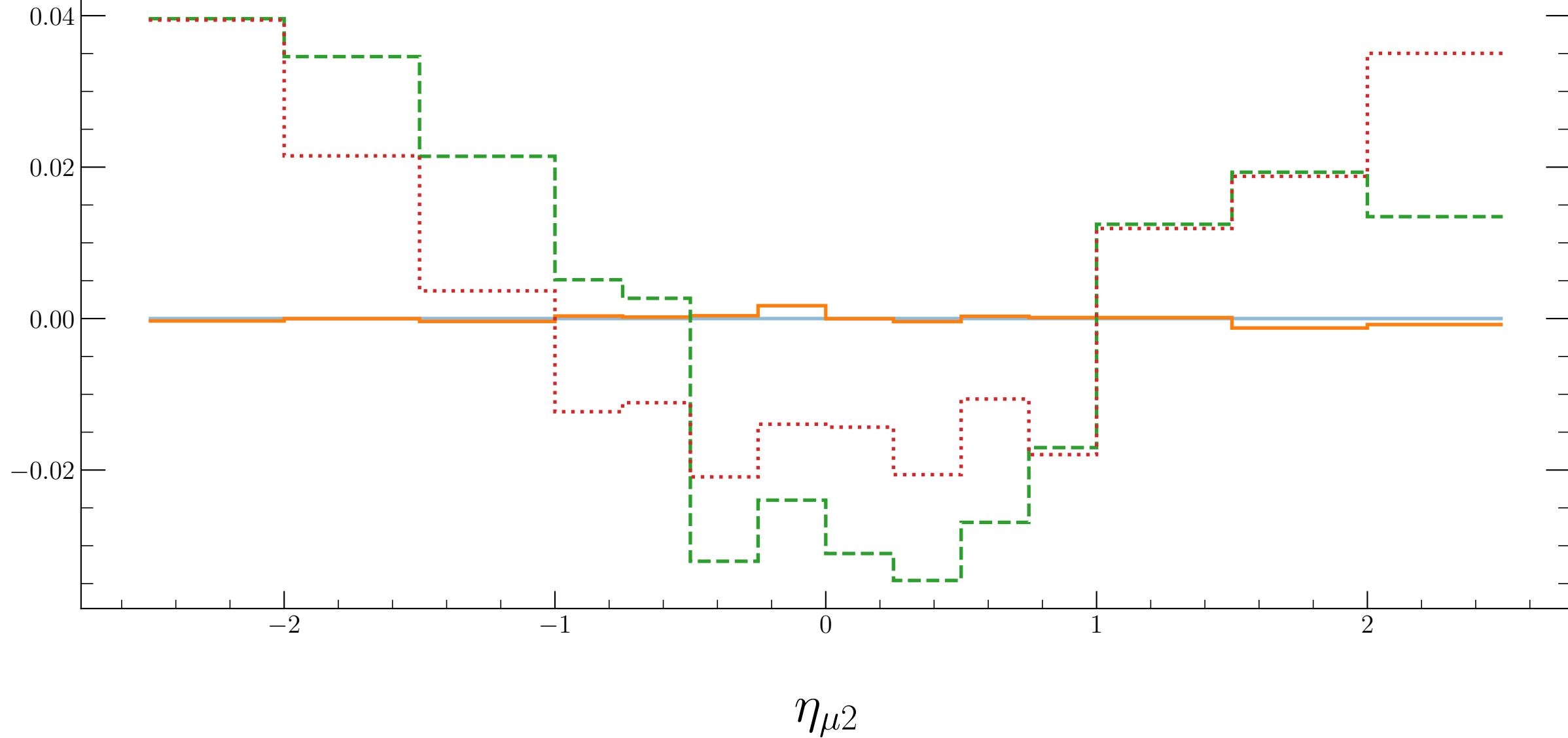
ATLAS

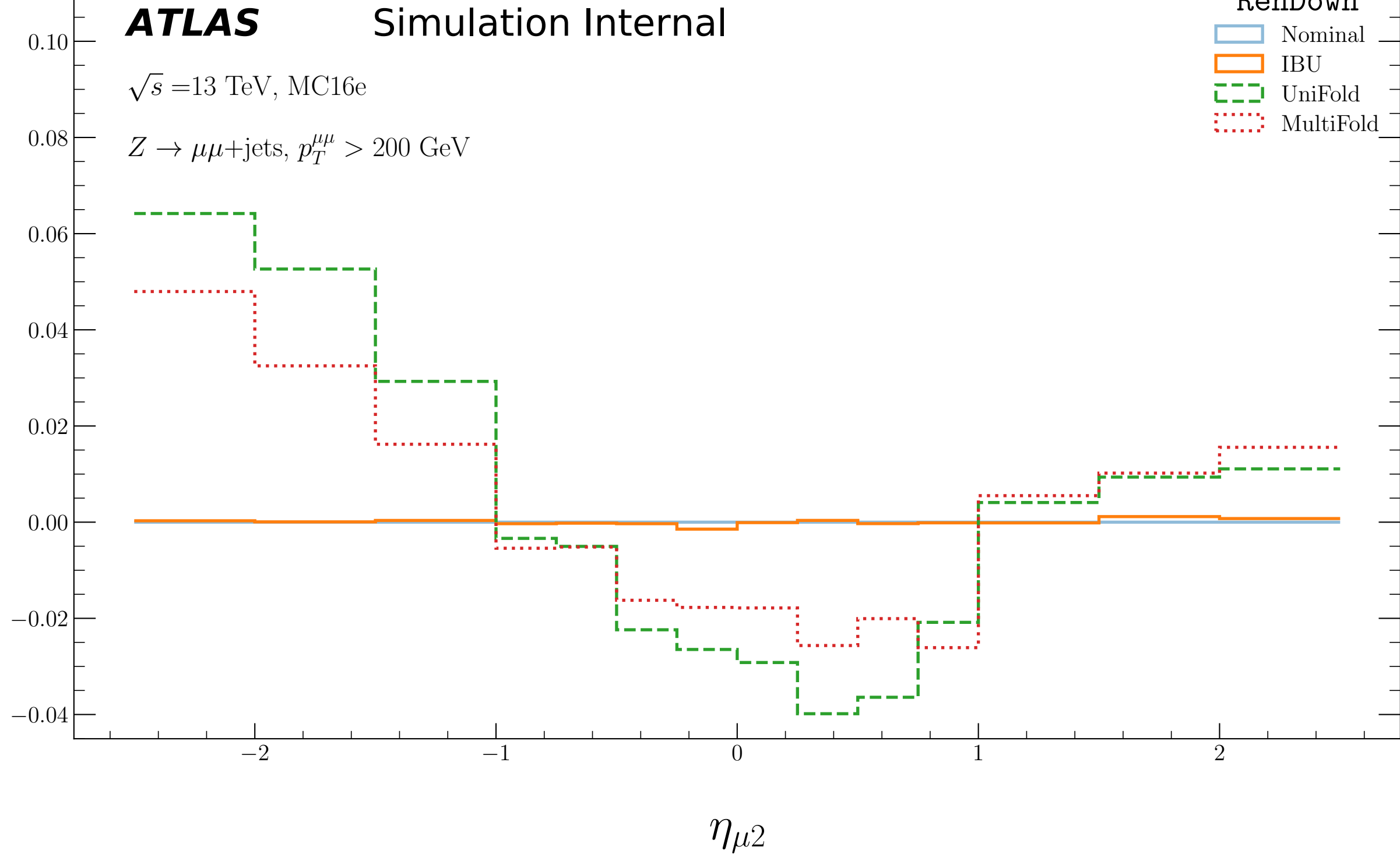
Simulation Internal

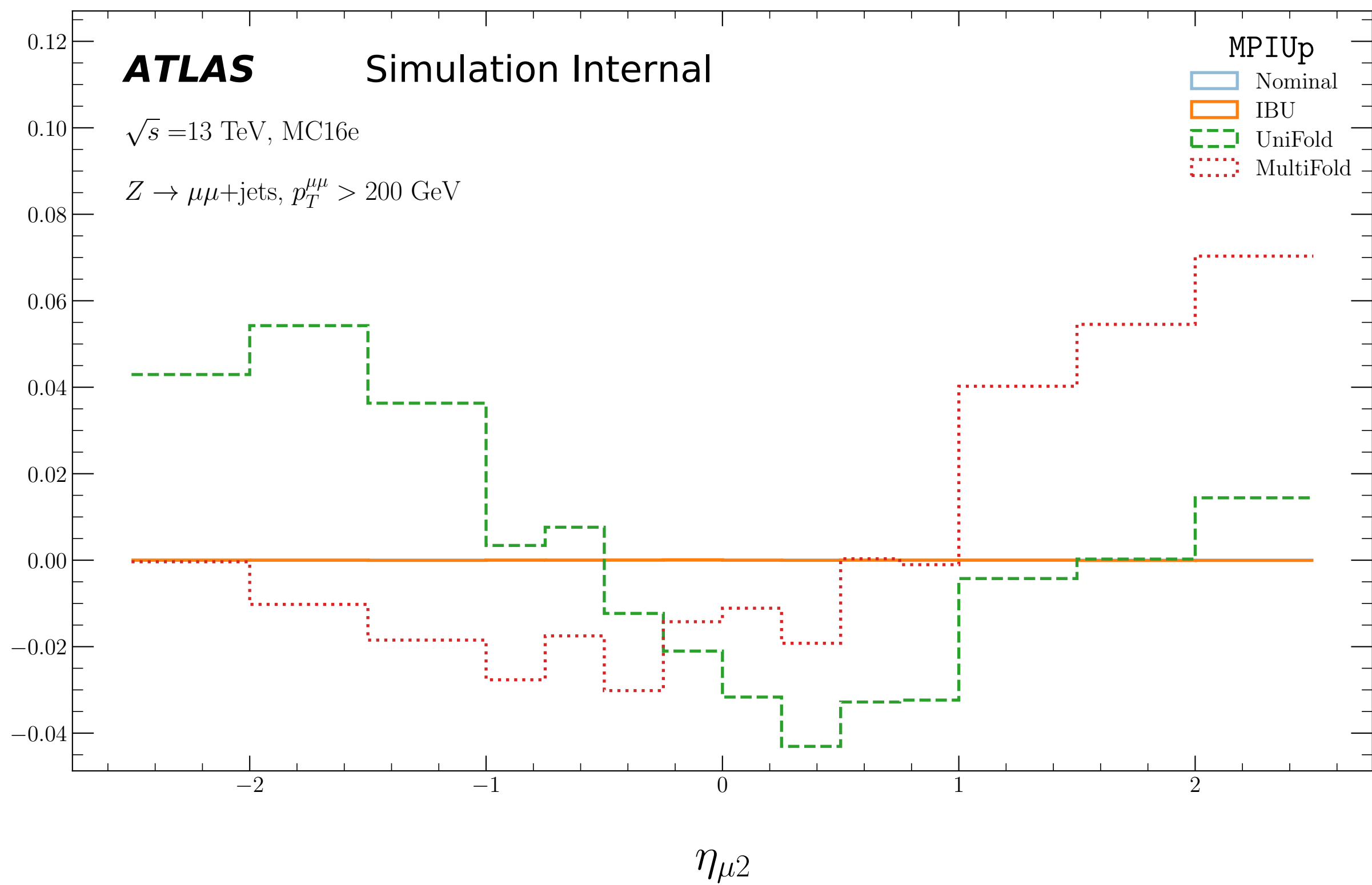
 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold







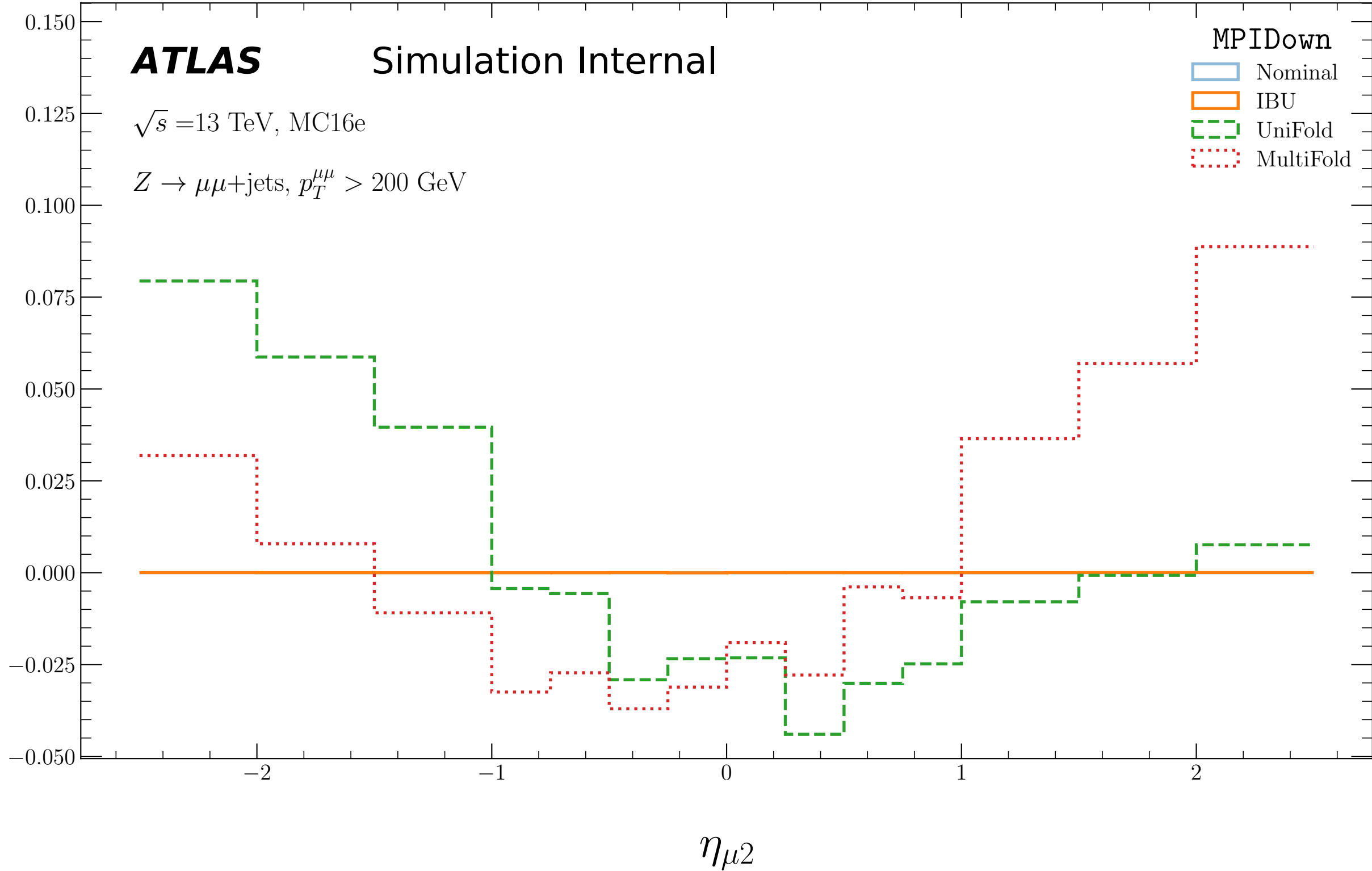
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

MPIDown

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold

0.15
0.10
0.05
0.00
-0.05

 $\eta_{\mu 2}$

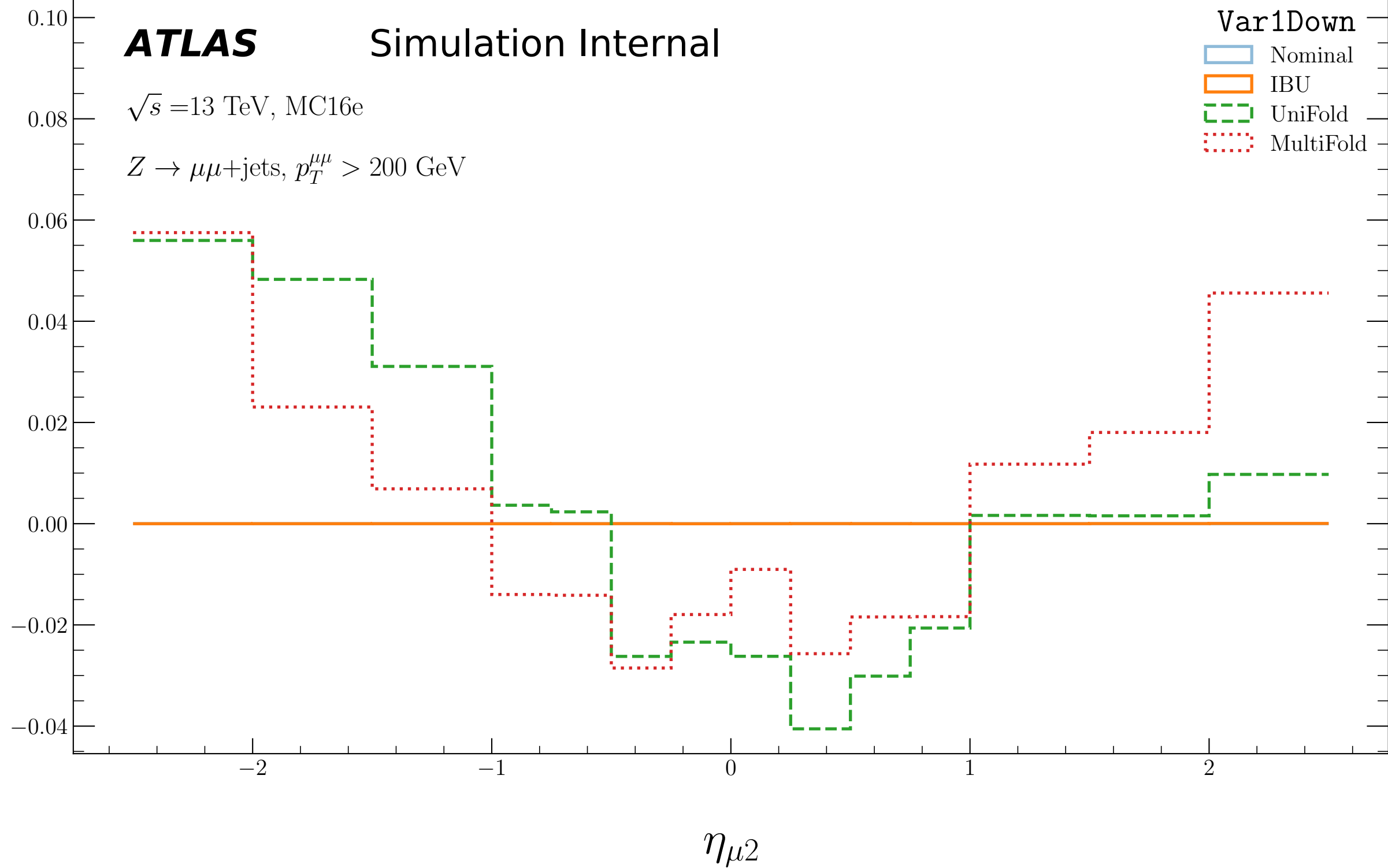
-2

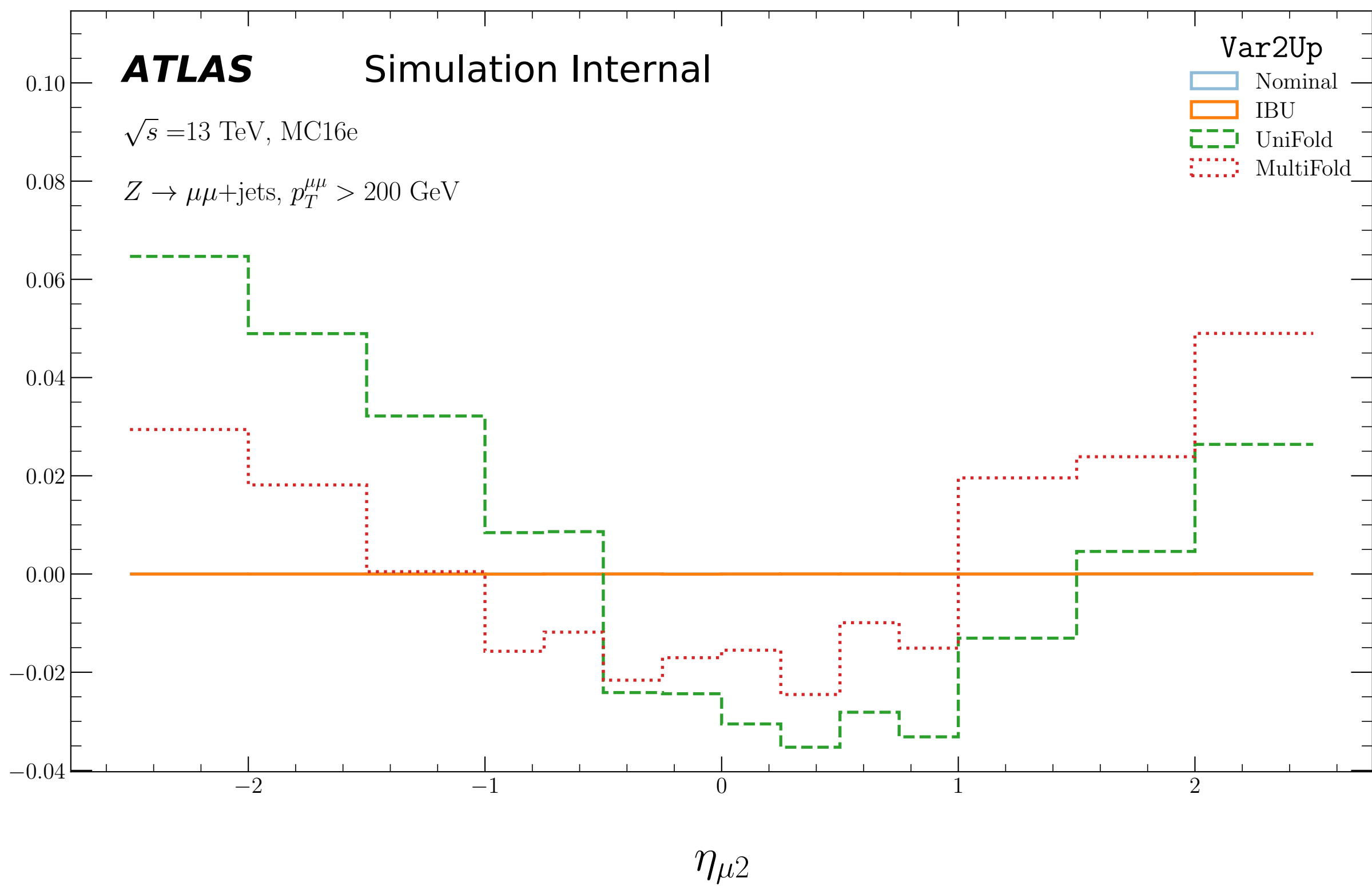
-1

0

1

2





ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

Nominal

IBU

UniFold

MultiFold

0.06
0.04
0.02
0.00
-0.02

-2

-1

0

1

2

 $\eta_{\mu 2}$ 0.06
0.04
0.02
0.00
-0.02

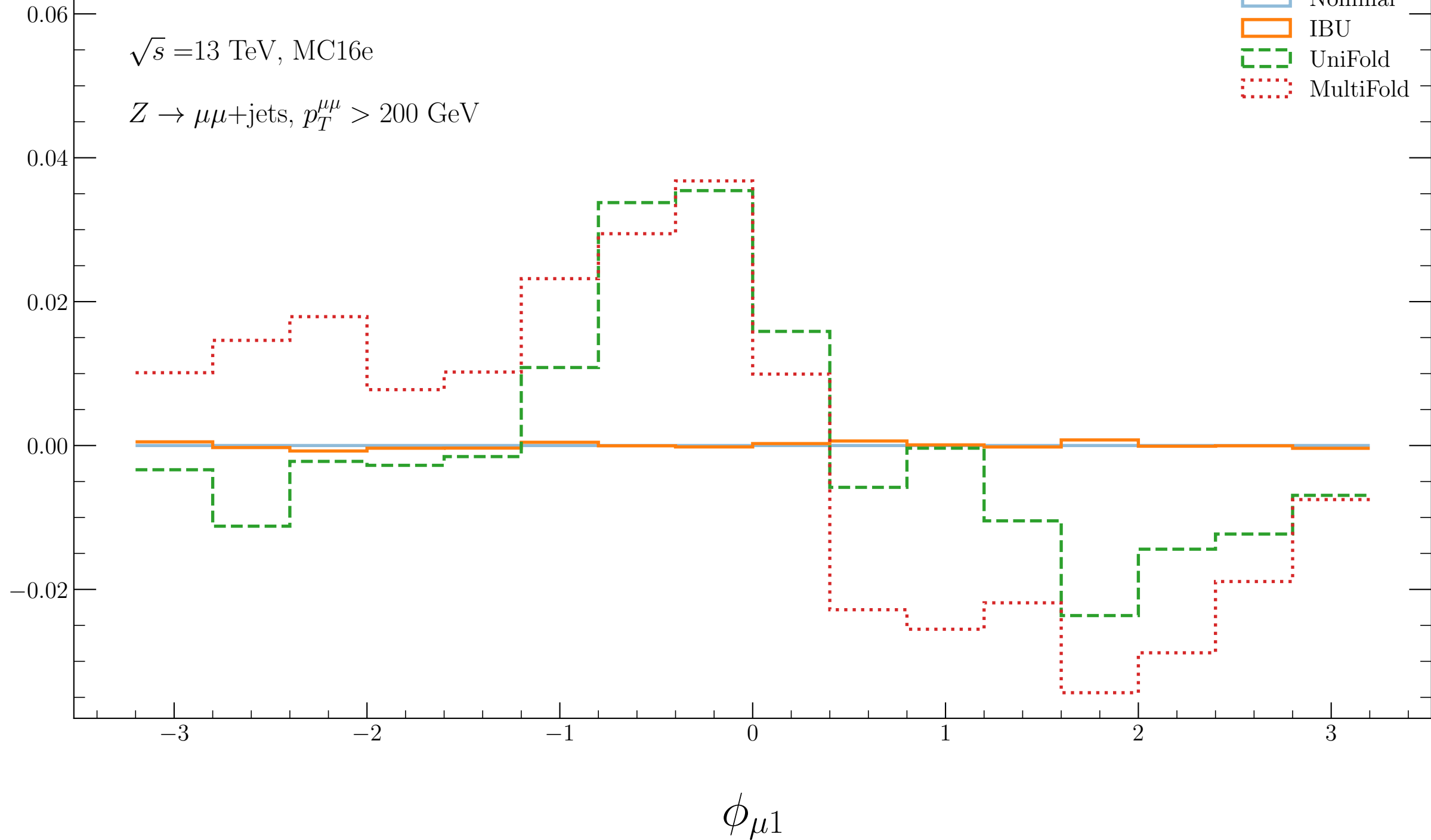
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenUp

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

RenDown

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.02
0.00
-0.02

-3

-2

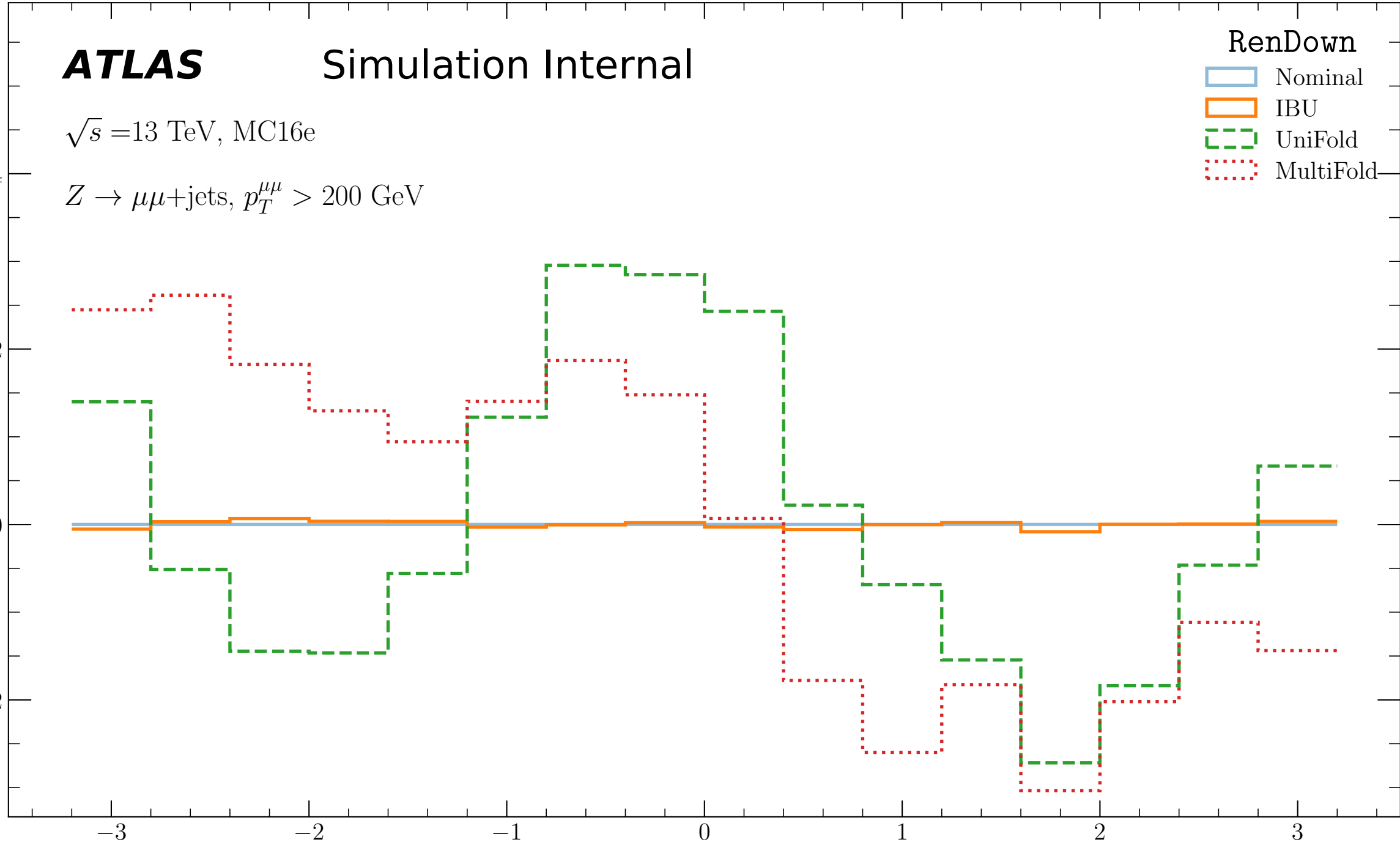
-1

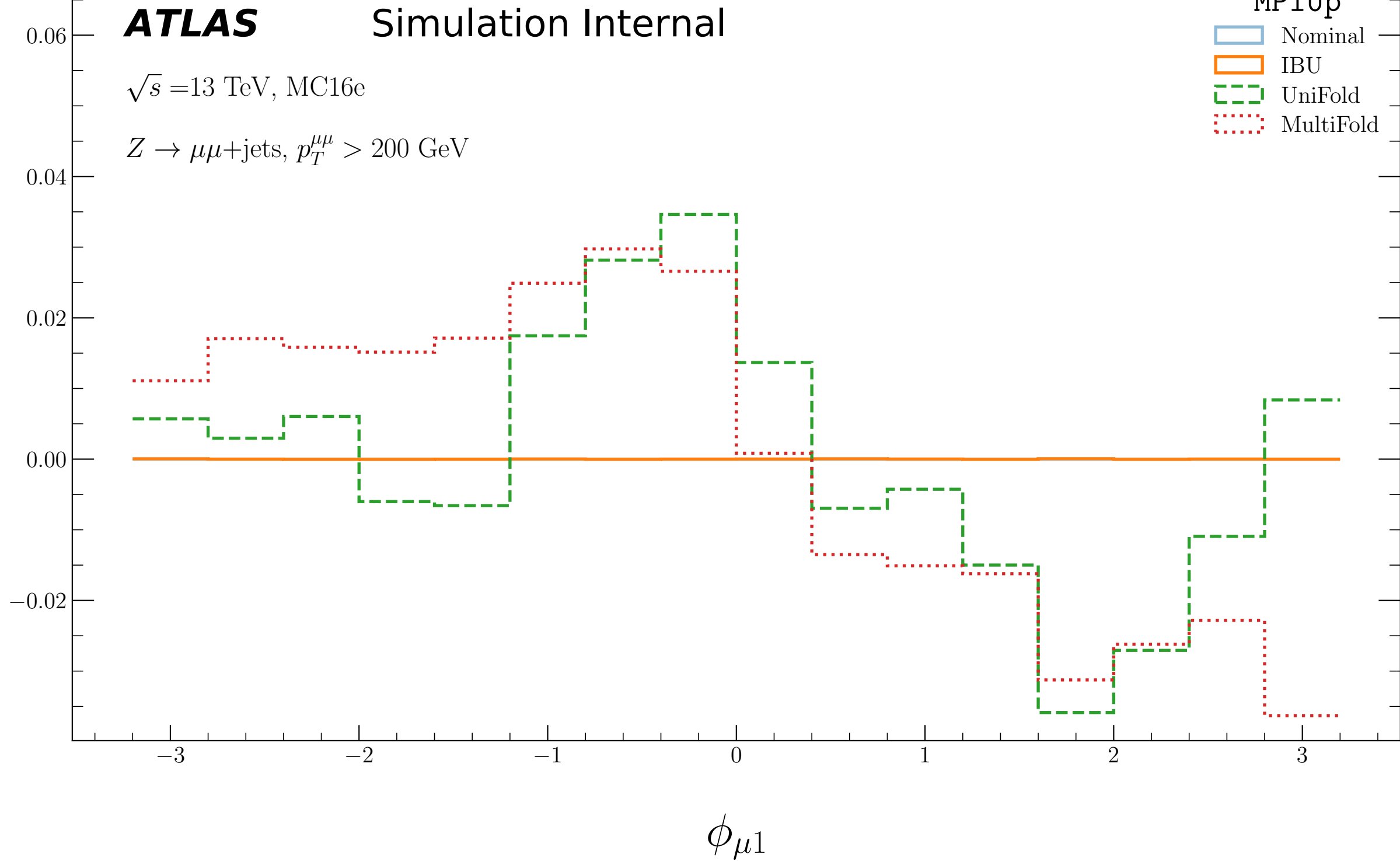
0

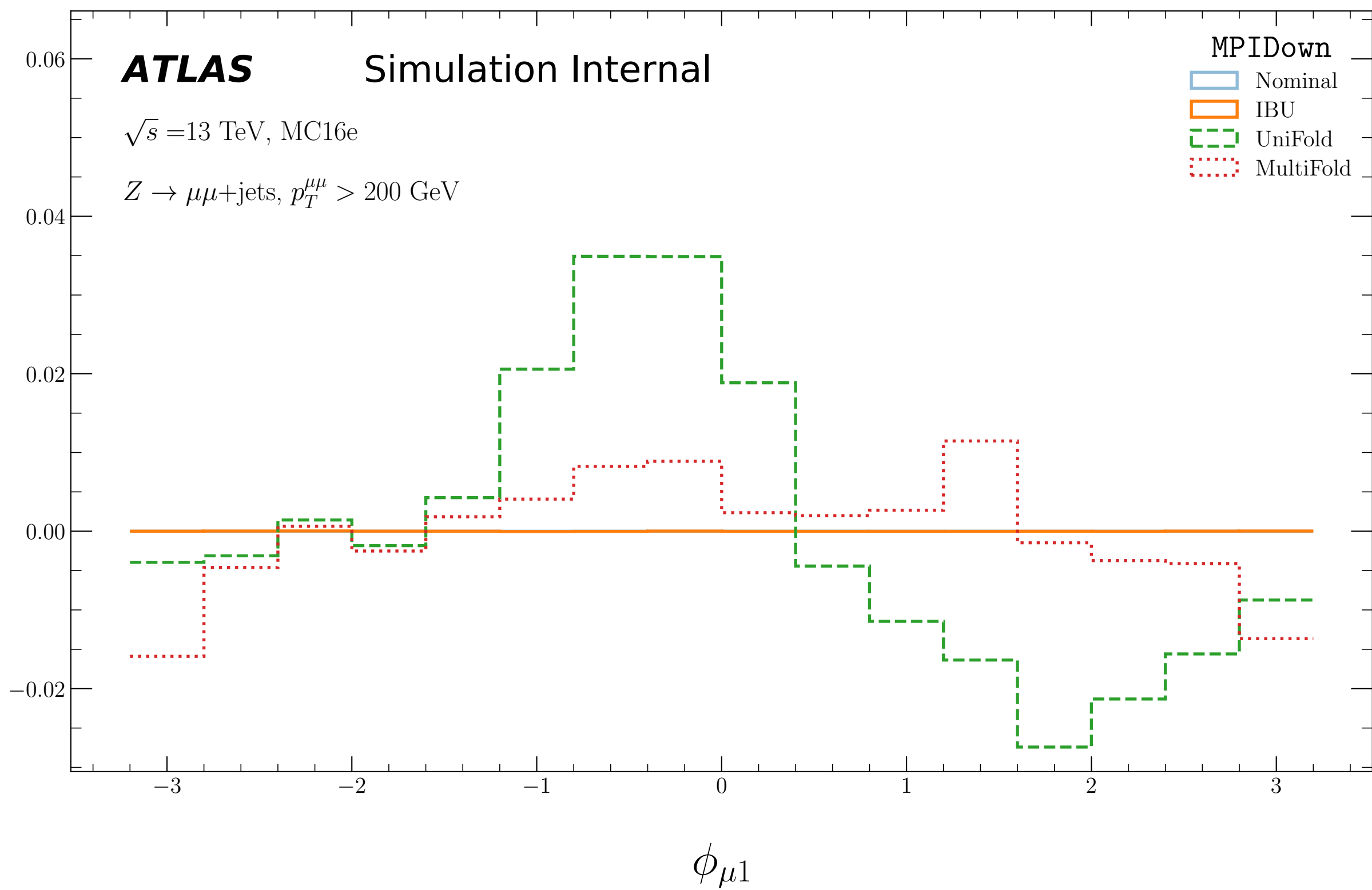
1

2

3

 $\phi_{\mu 1}$ 





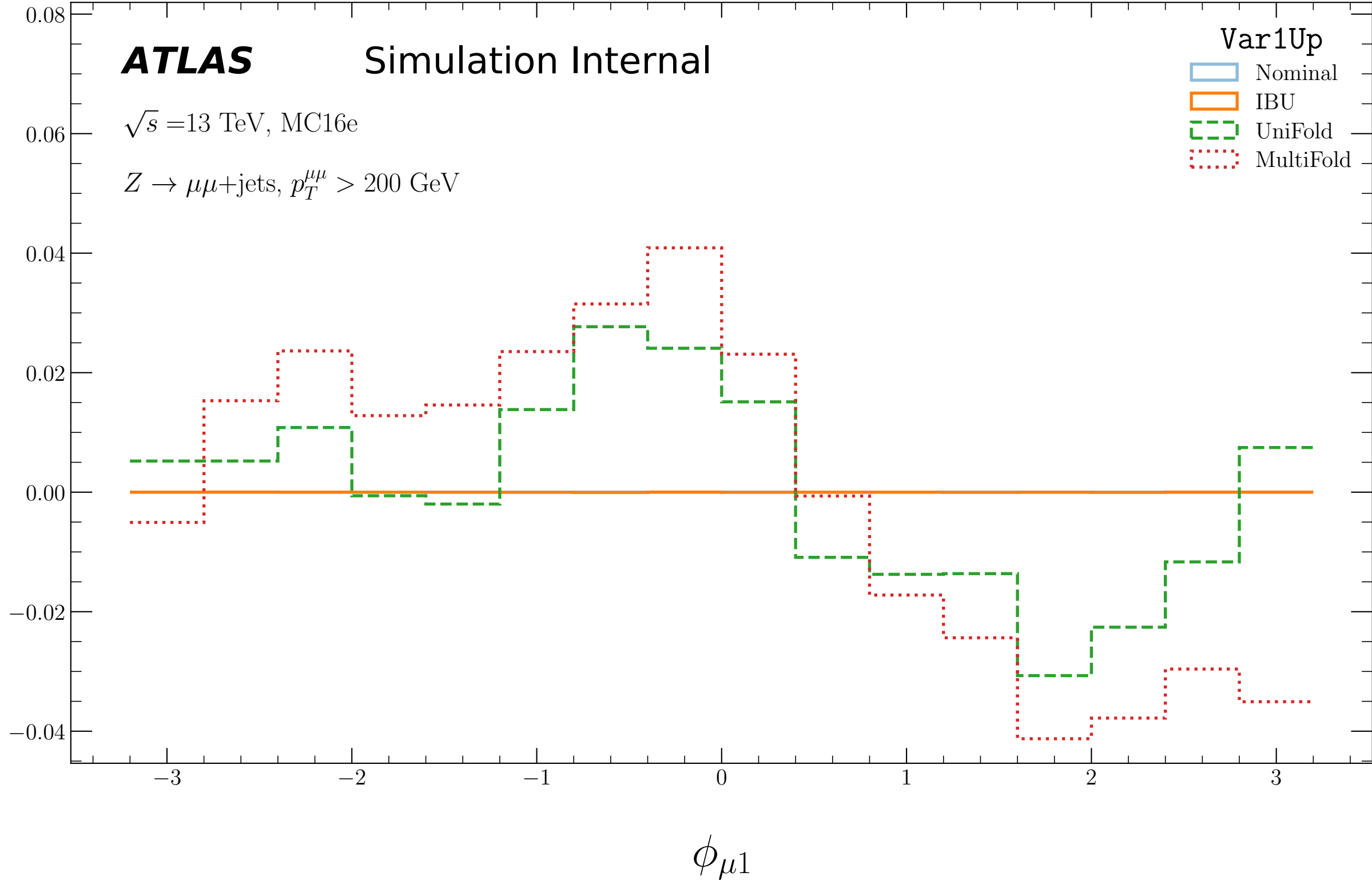
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Up

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var1Down

- Nominal
- IBU
- UniFold
- MultiFold

0.06
0.04
0.02
0.00
-0.02

-3

-2

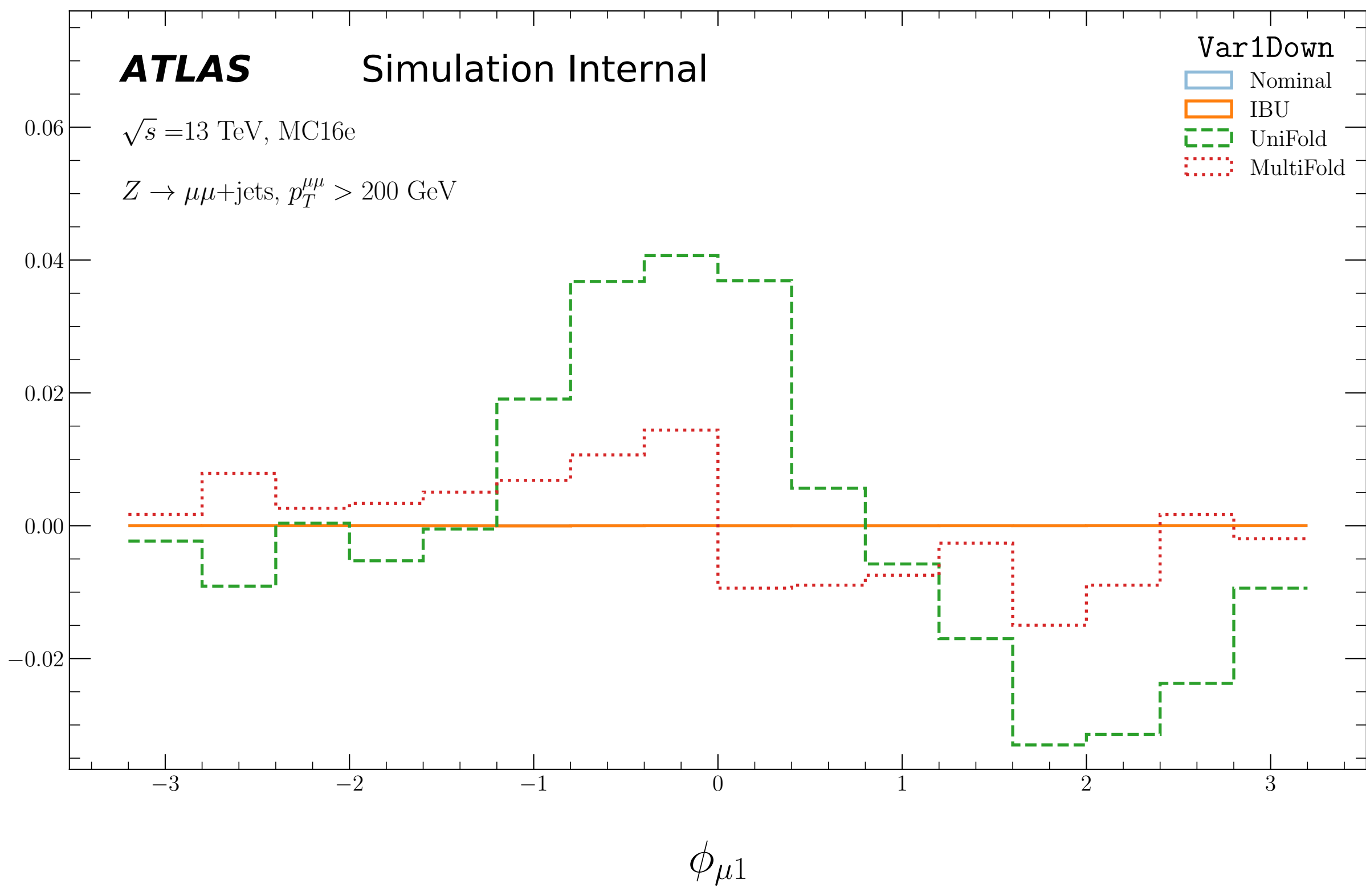
-1

0

1

2

3

 $\phi_{\mu 1}$ 

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold

0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02

-3

-2

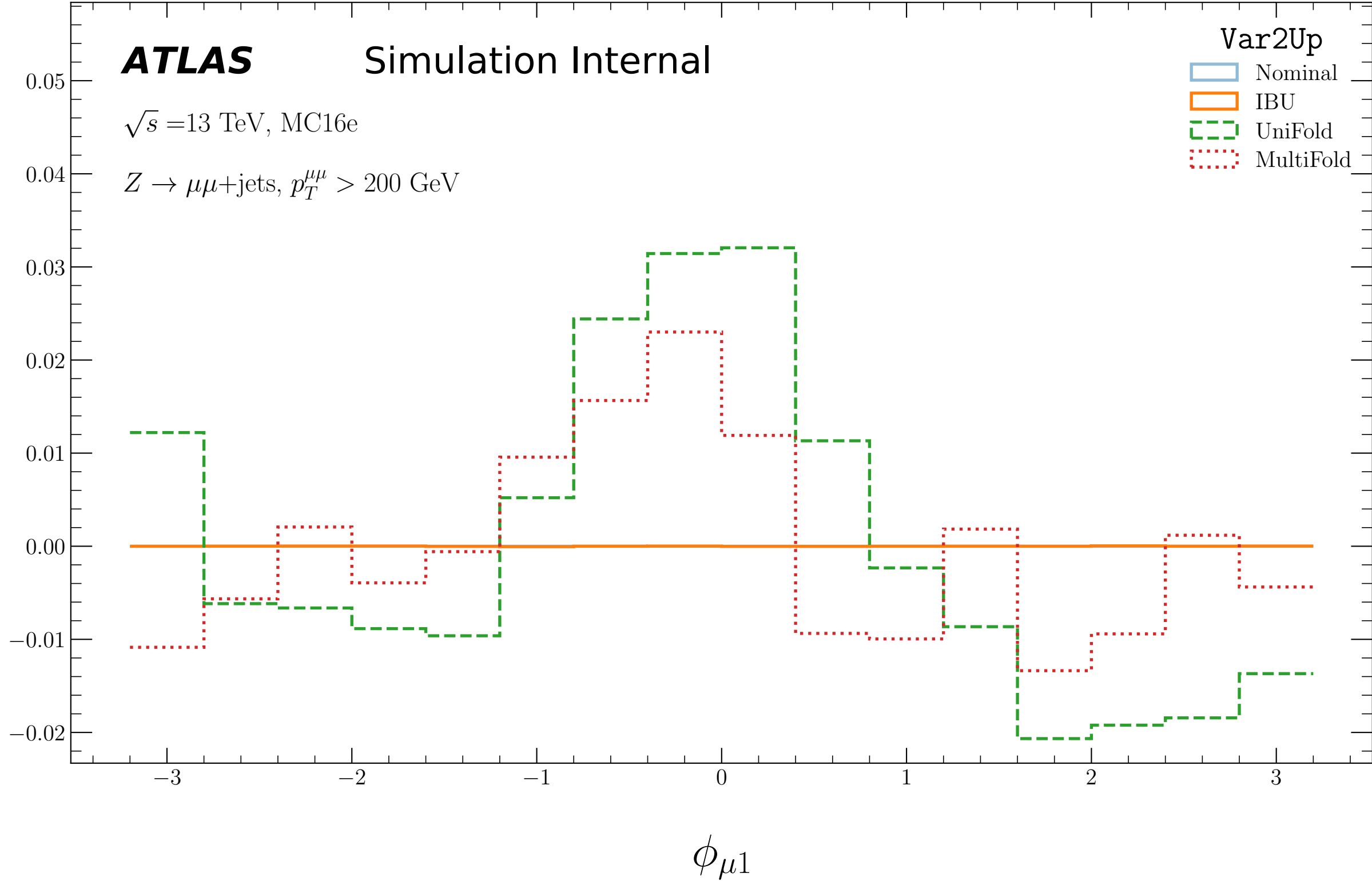
-1

0

1

2

3

 $\phi_{\mu 1}$ 

ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold

0.04
0.02
0.00
-0.02

-3

-2

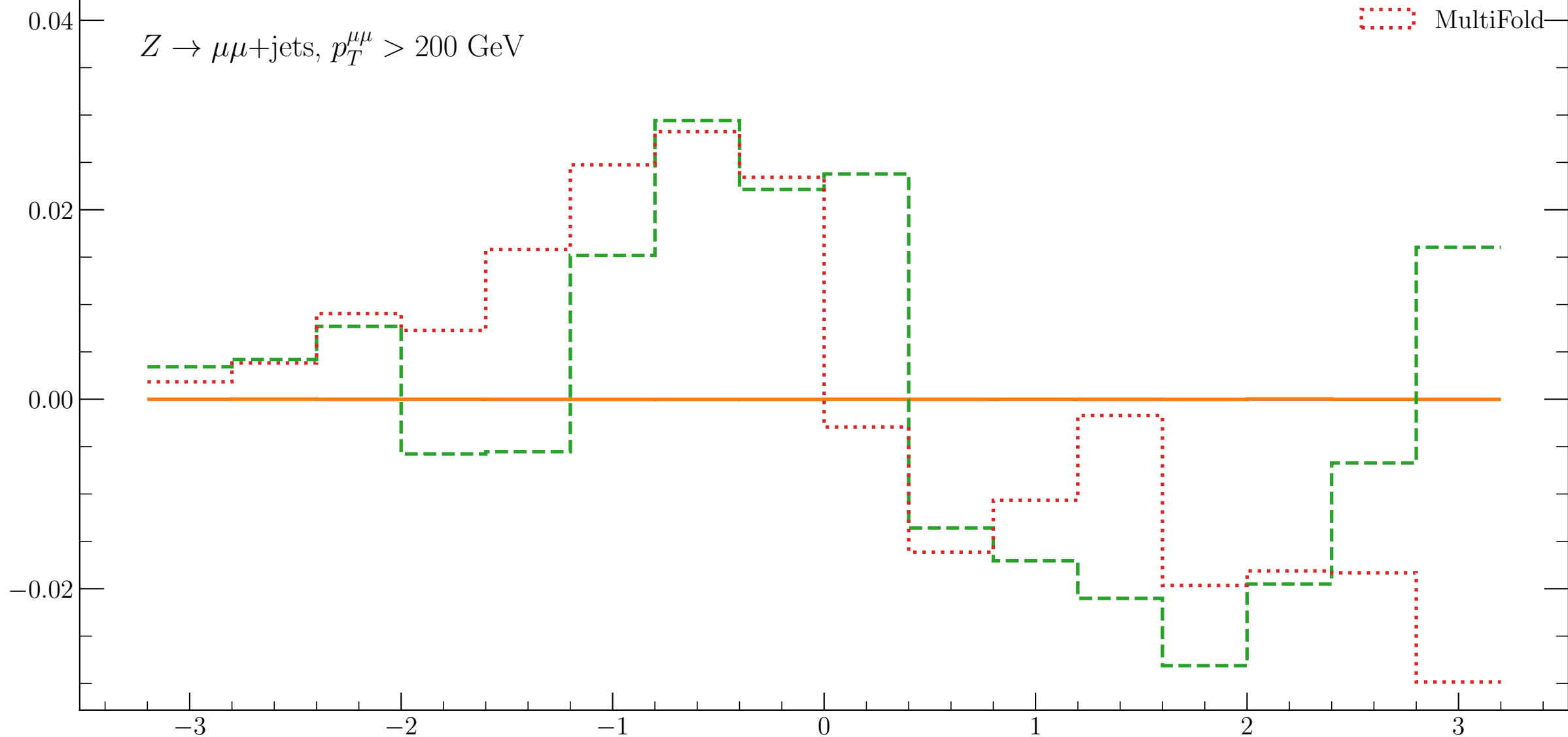
-1

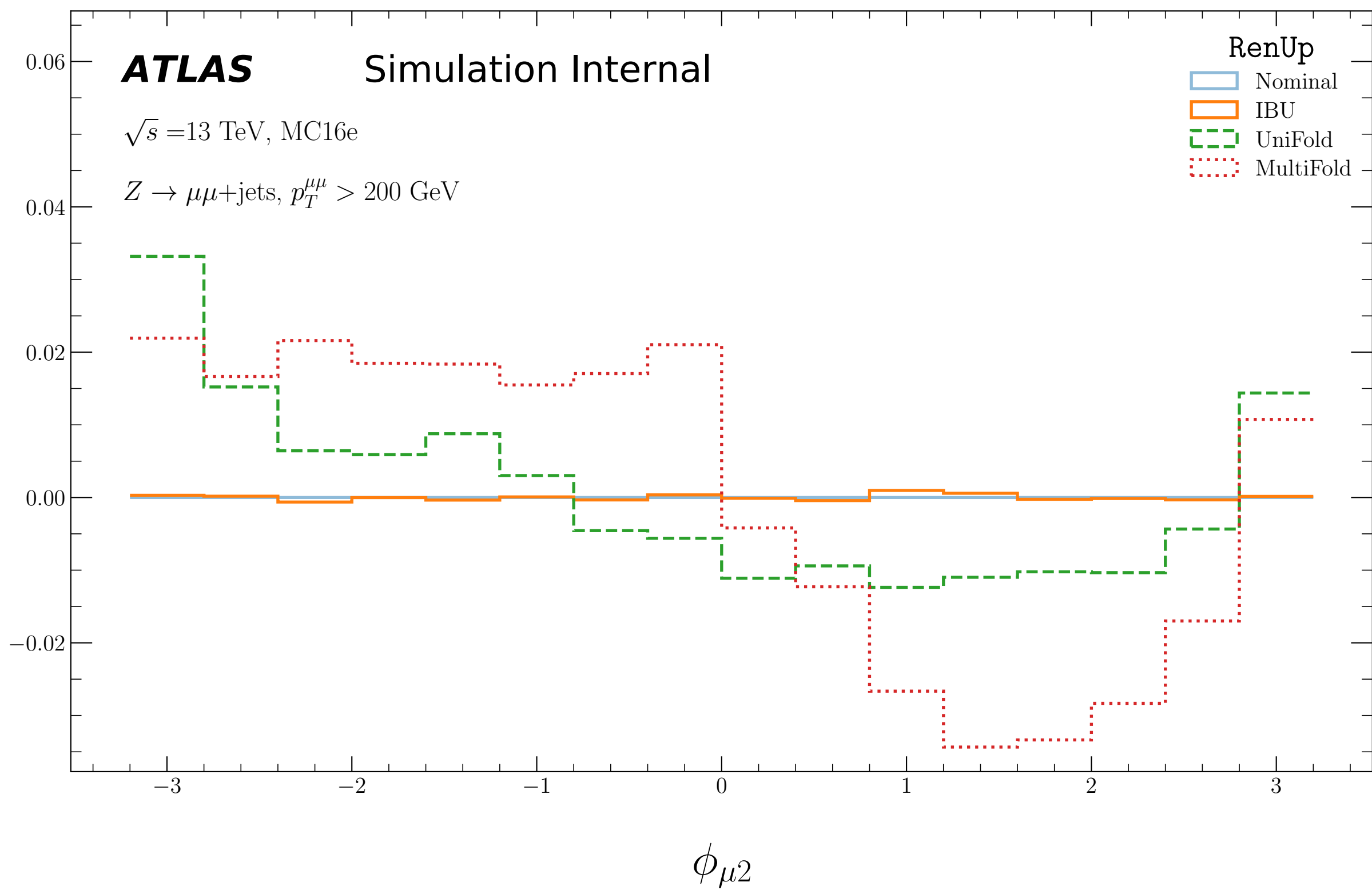
0

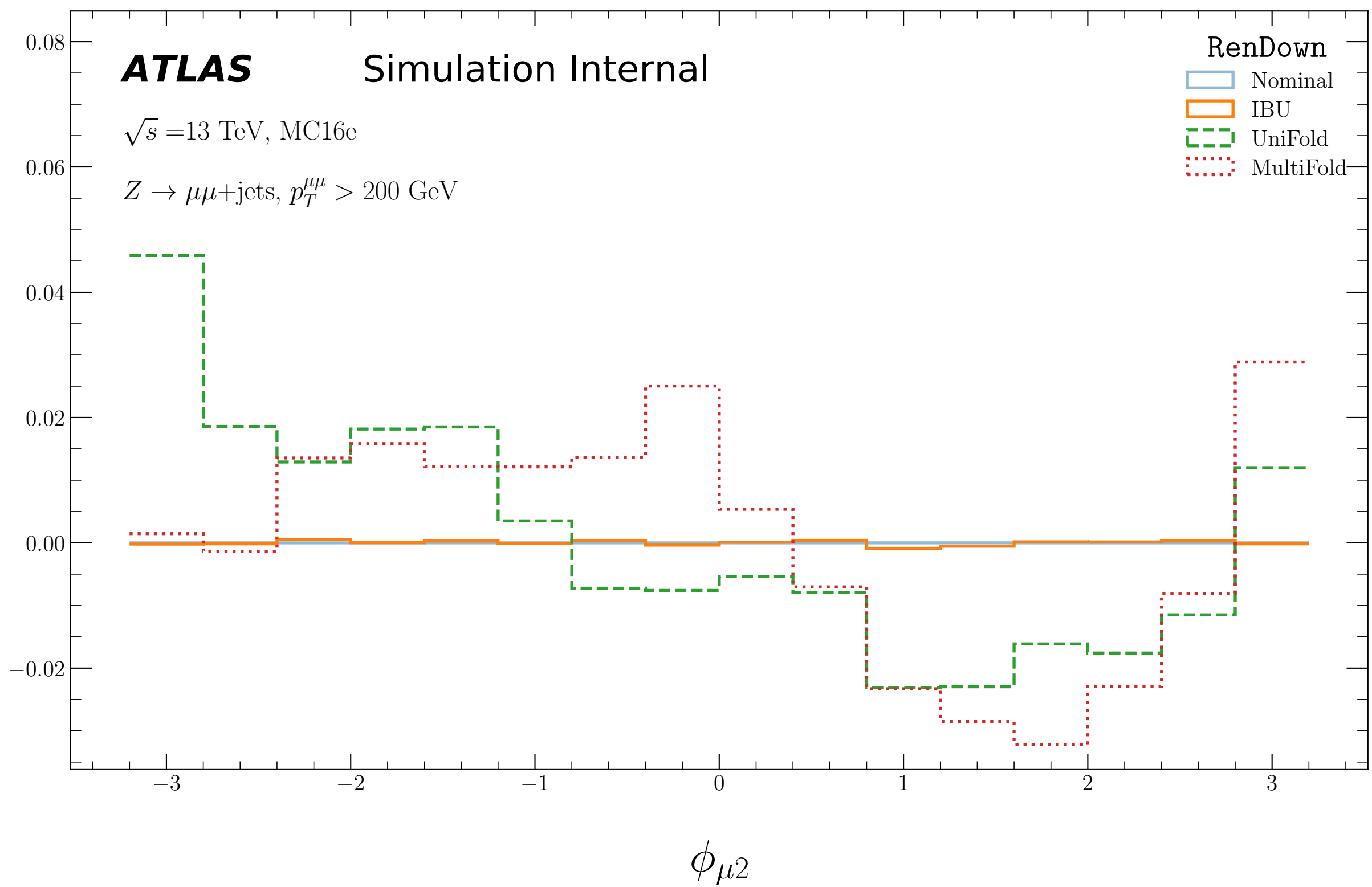
1

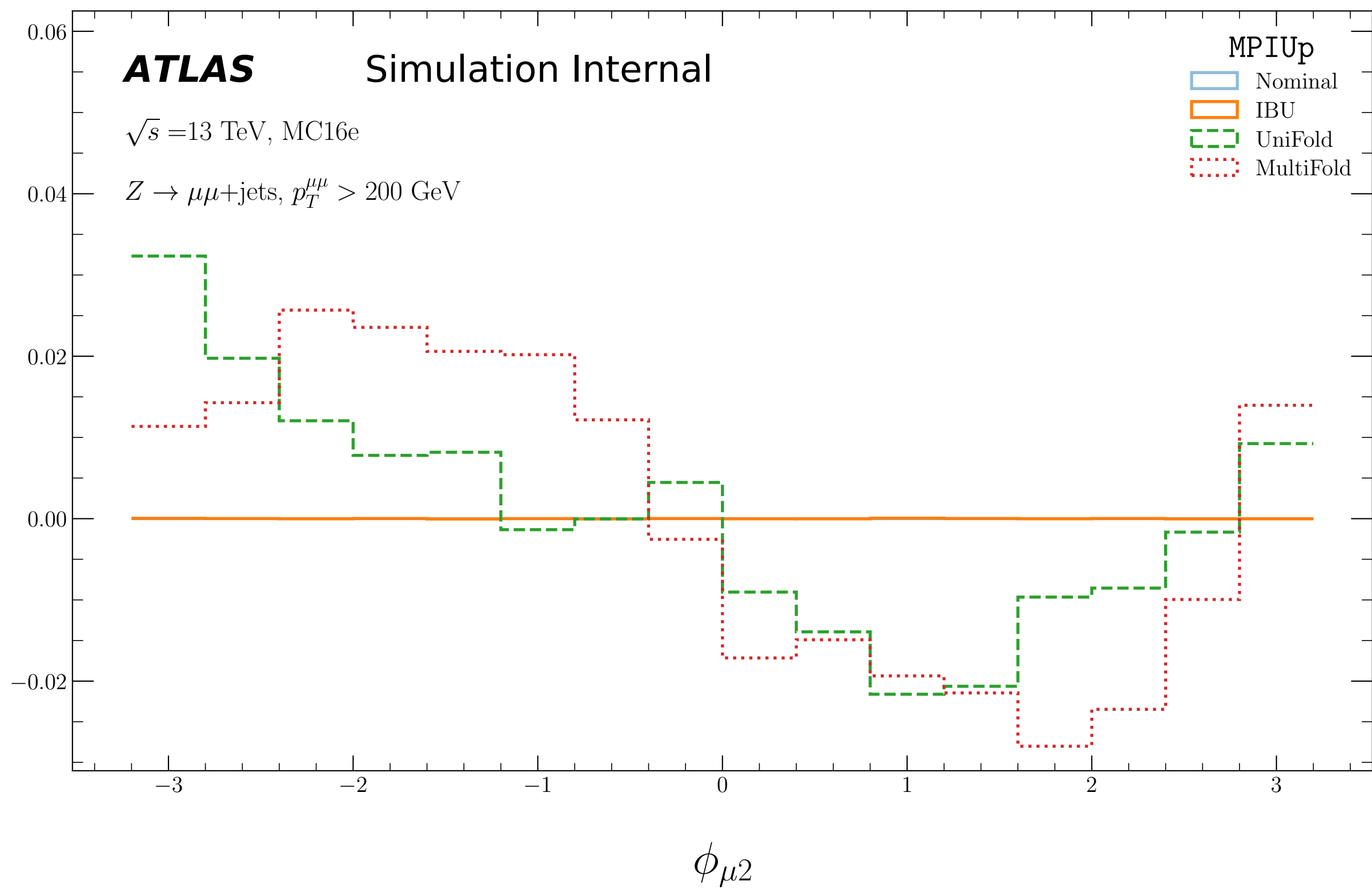
2

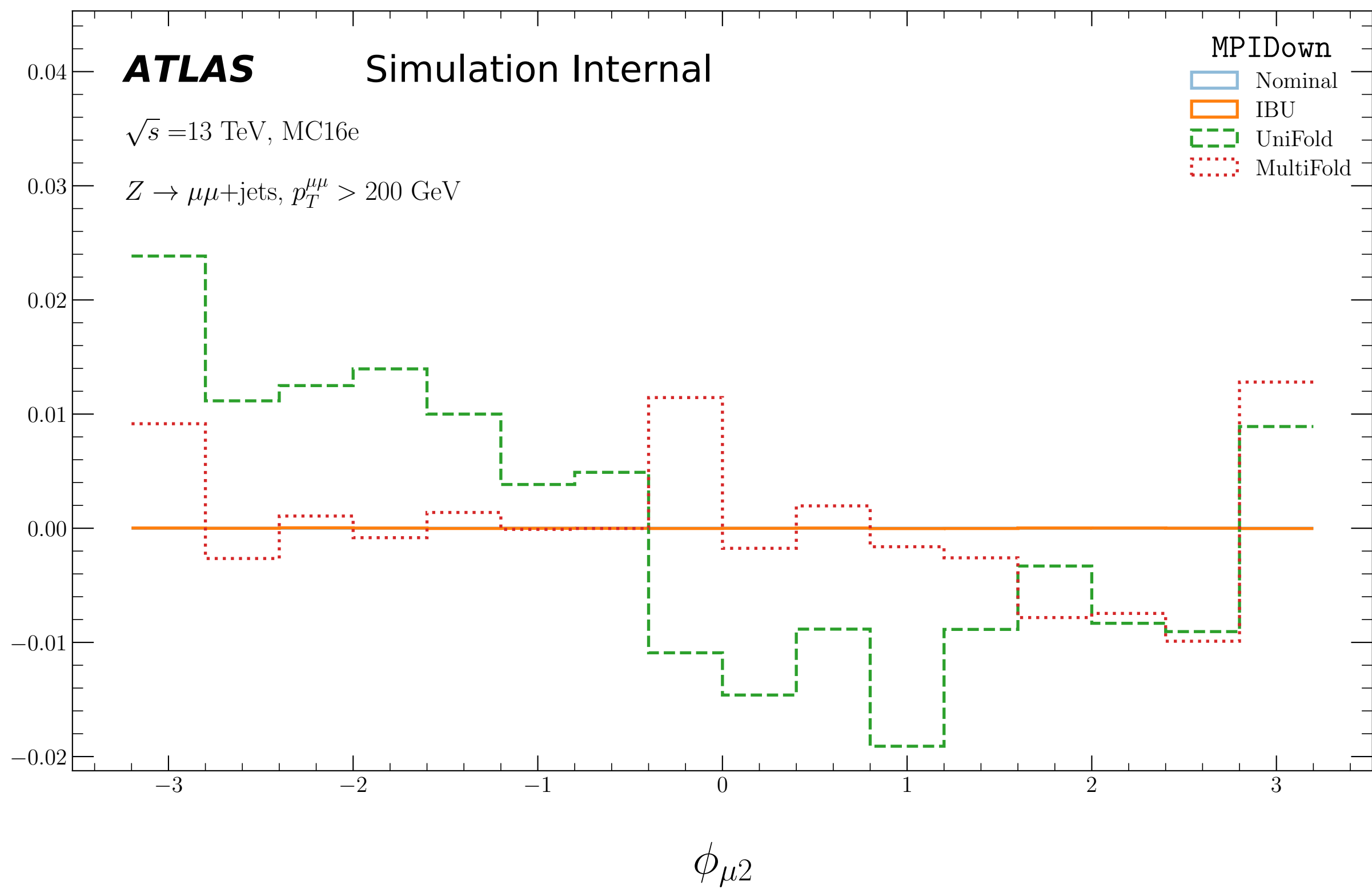
3

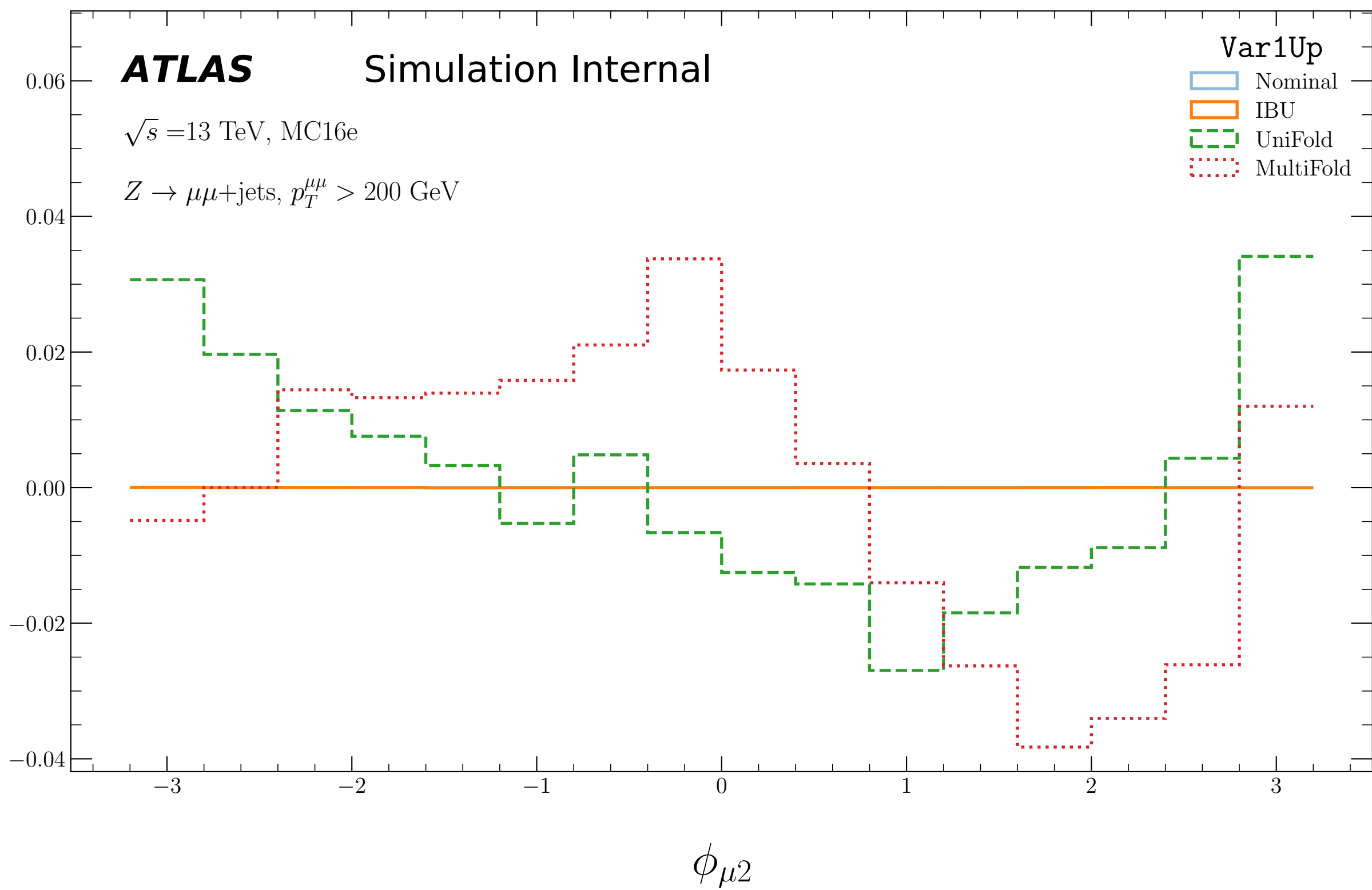
 $\phi_{\mu 1}$ 

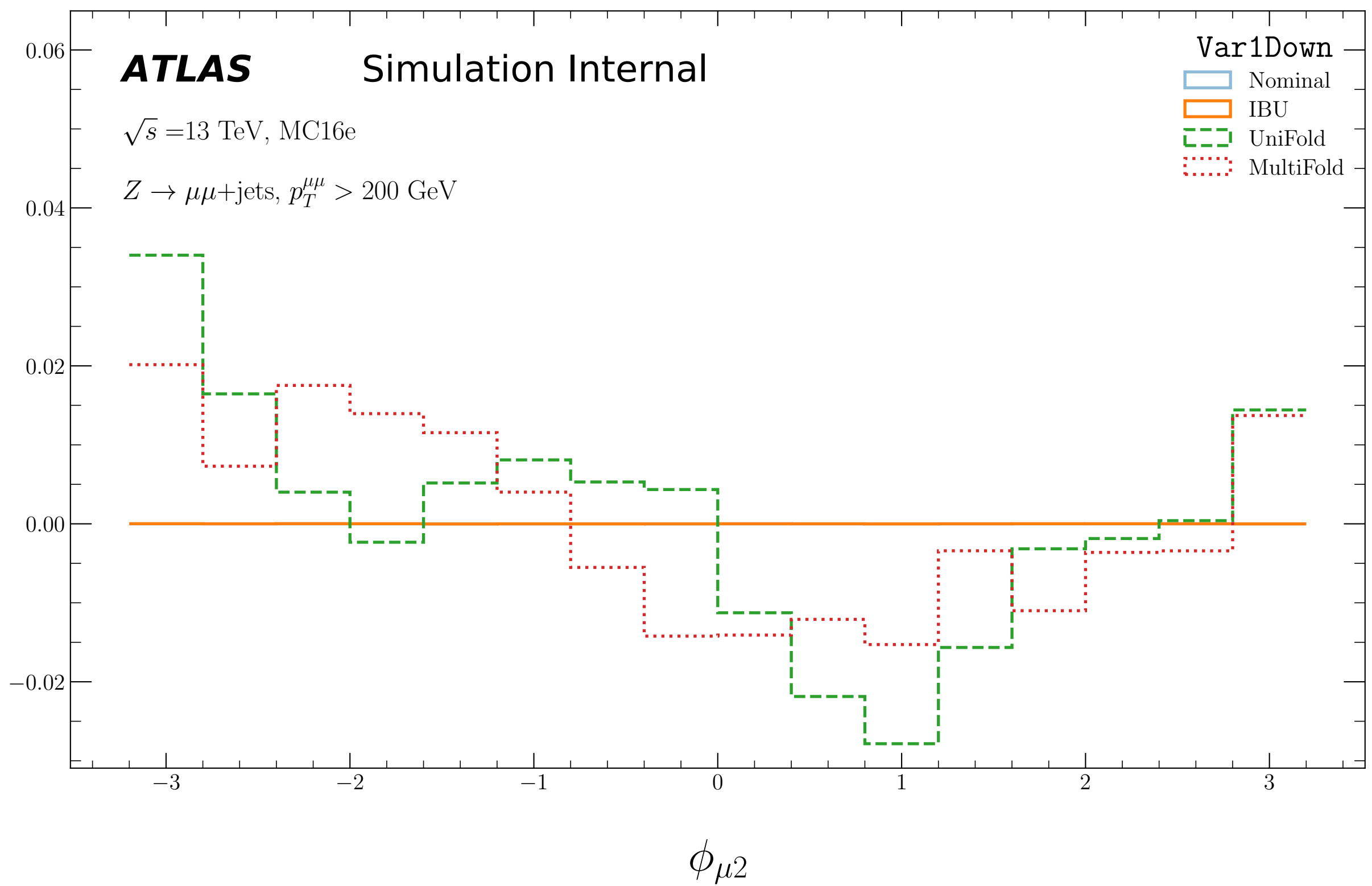












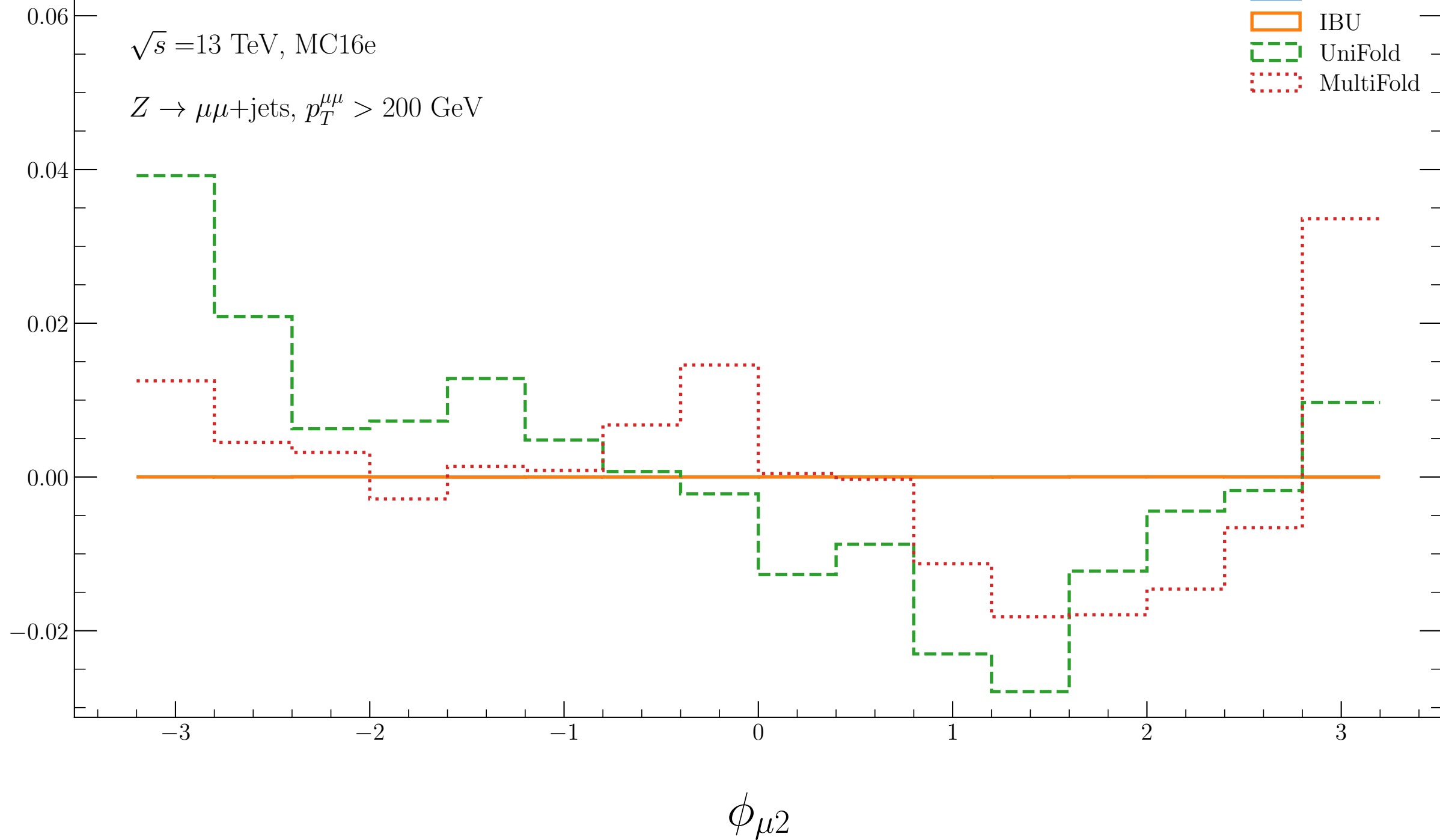
ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Up

- Nominal
- IBU
- UniFold
- MultiFold



ATLAS

Simulation Internal

 $\sqrt{s} = 13$ TeV, MC16e $Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$ GeV

Var2Down

- Nominal
- IBU
- UniFold
- MultiFold

