

Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_isoSFUp

- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20  
0.15  
0.10  
0.05  
0.00  
1.2  
1.0  
0.8

Ratio to "Data" Truth

Leading track jet  $\phi$

3

2

1

0

-1

-2

-3

Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_isoSFDown

- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

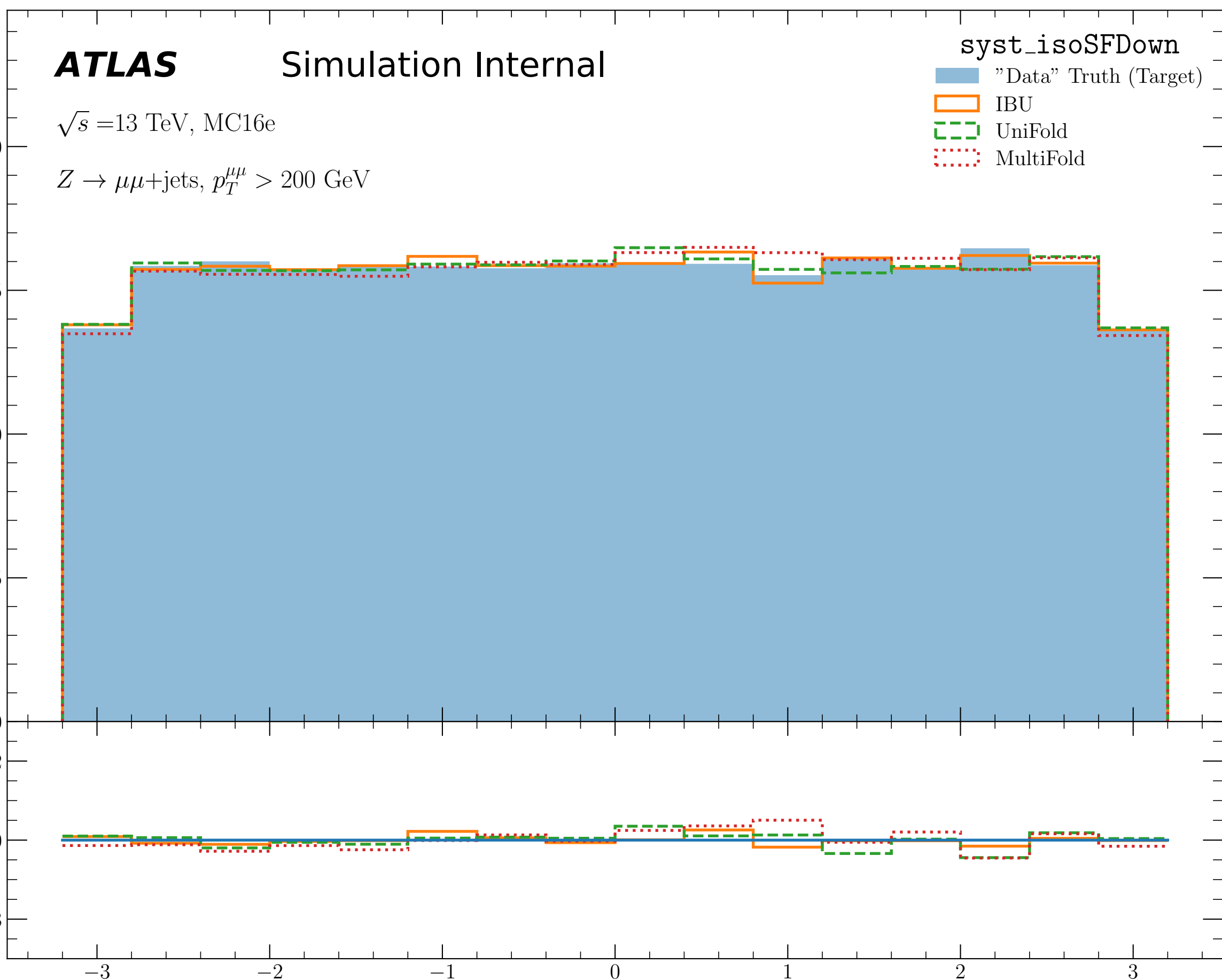
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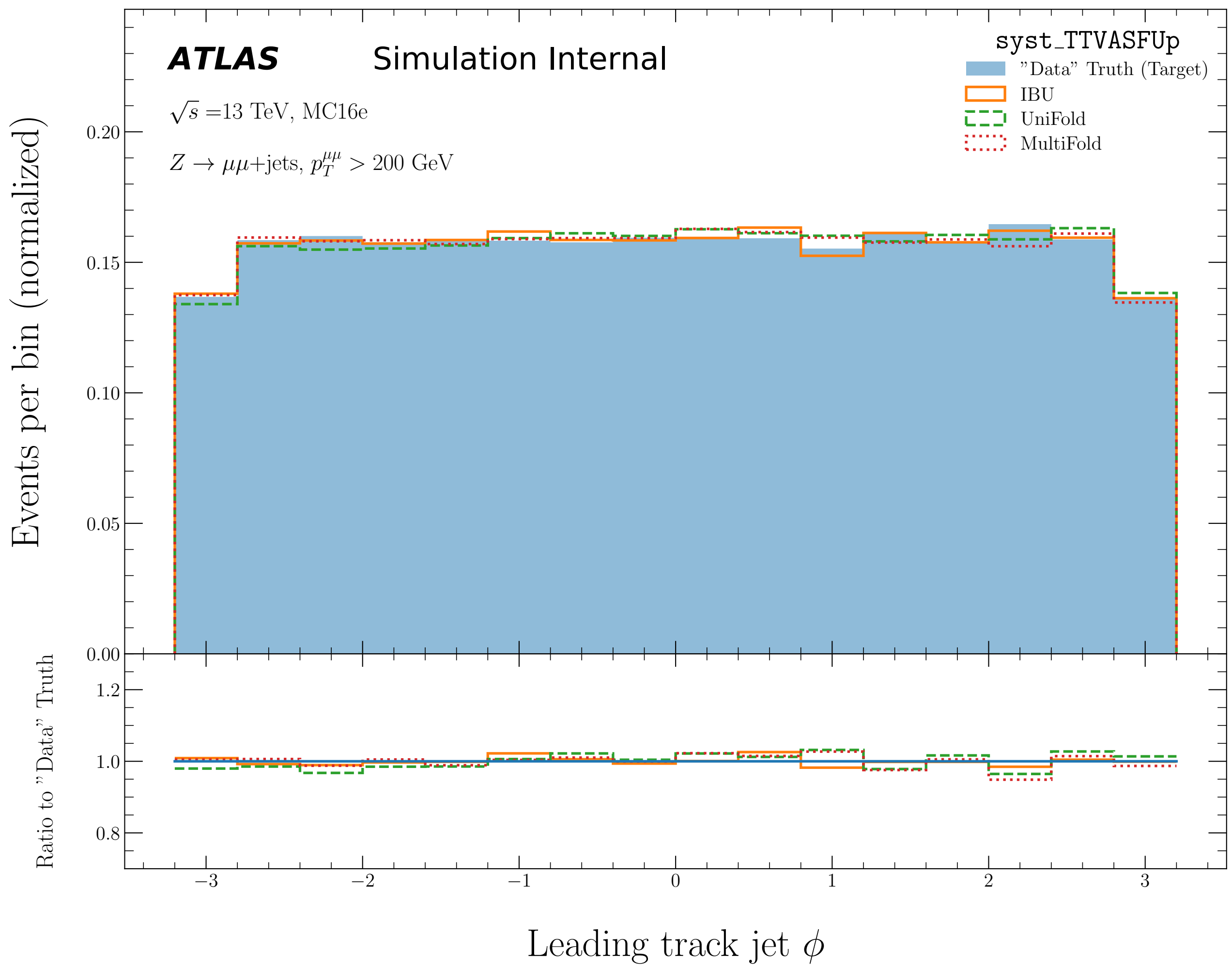
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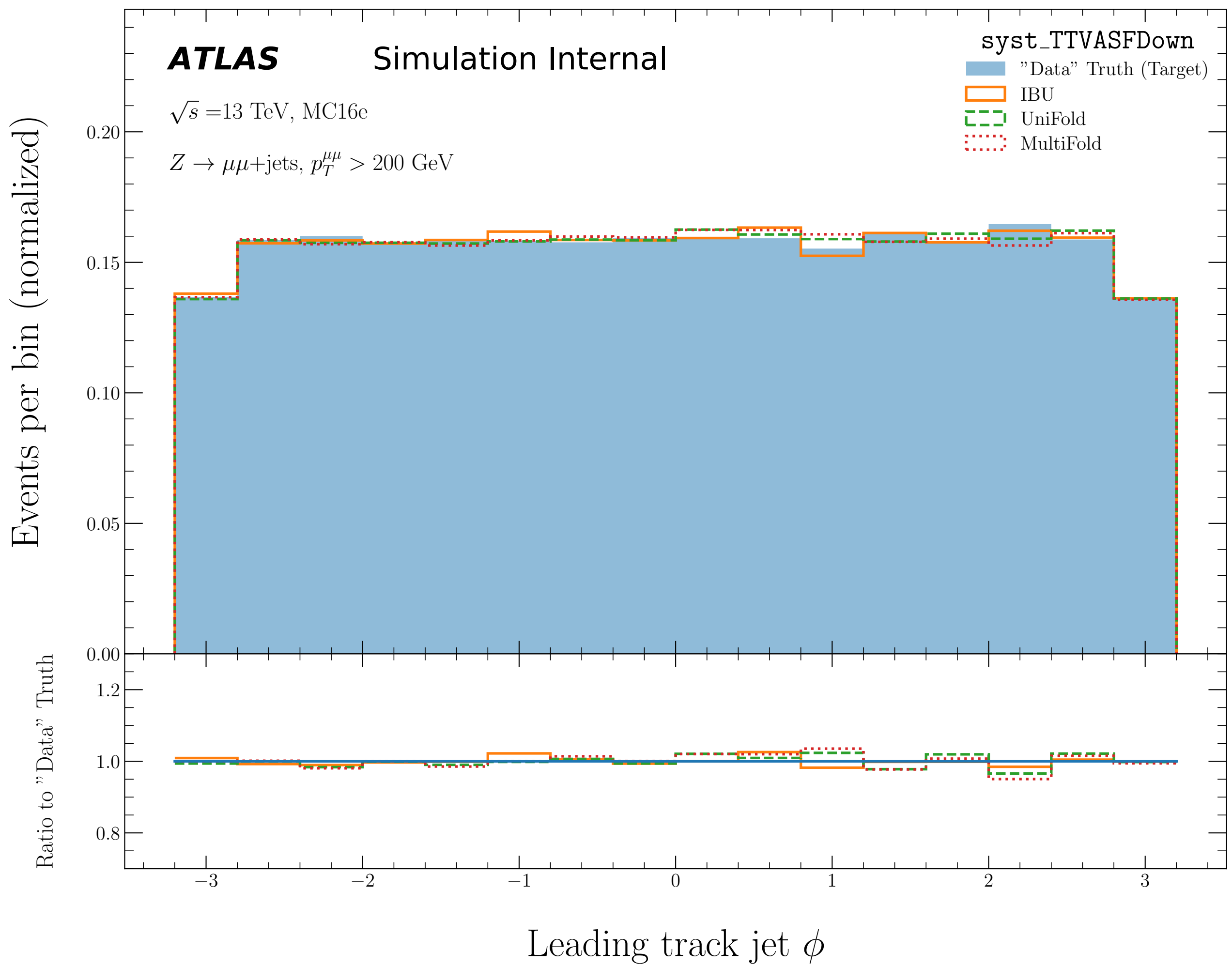
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3

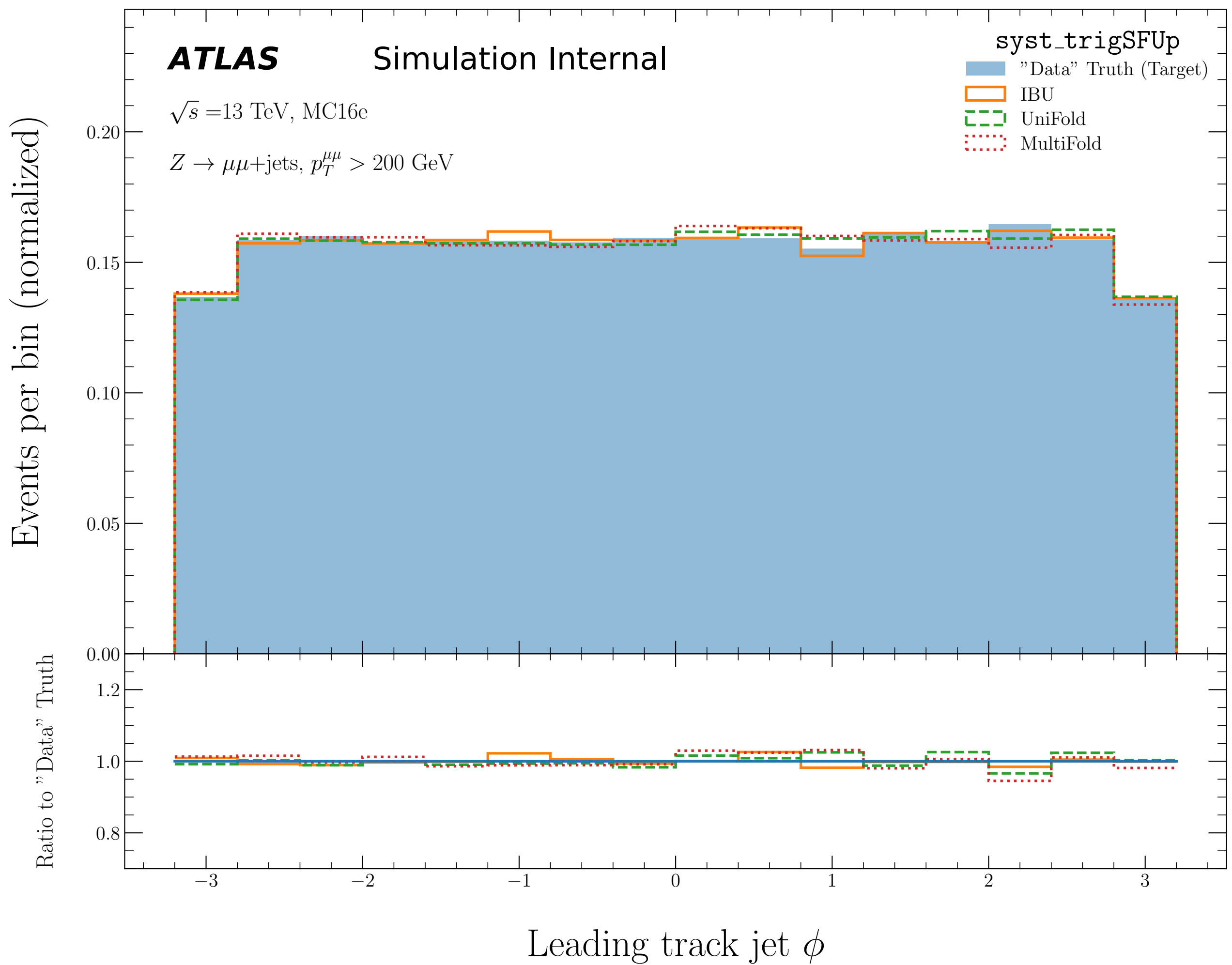
Leading track jet  $\phi$

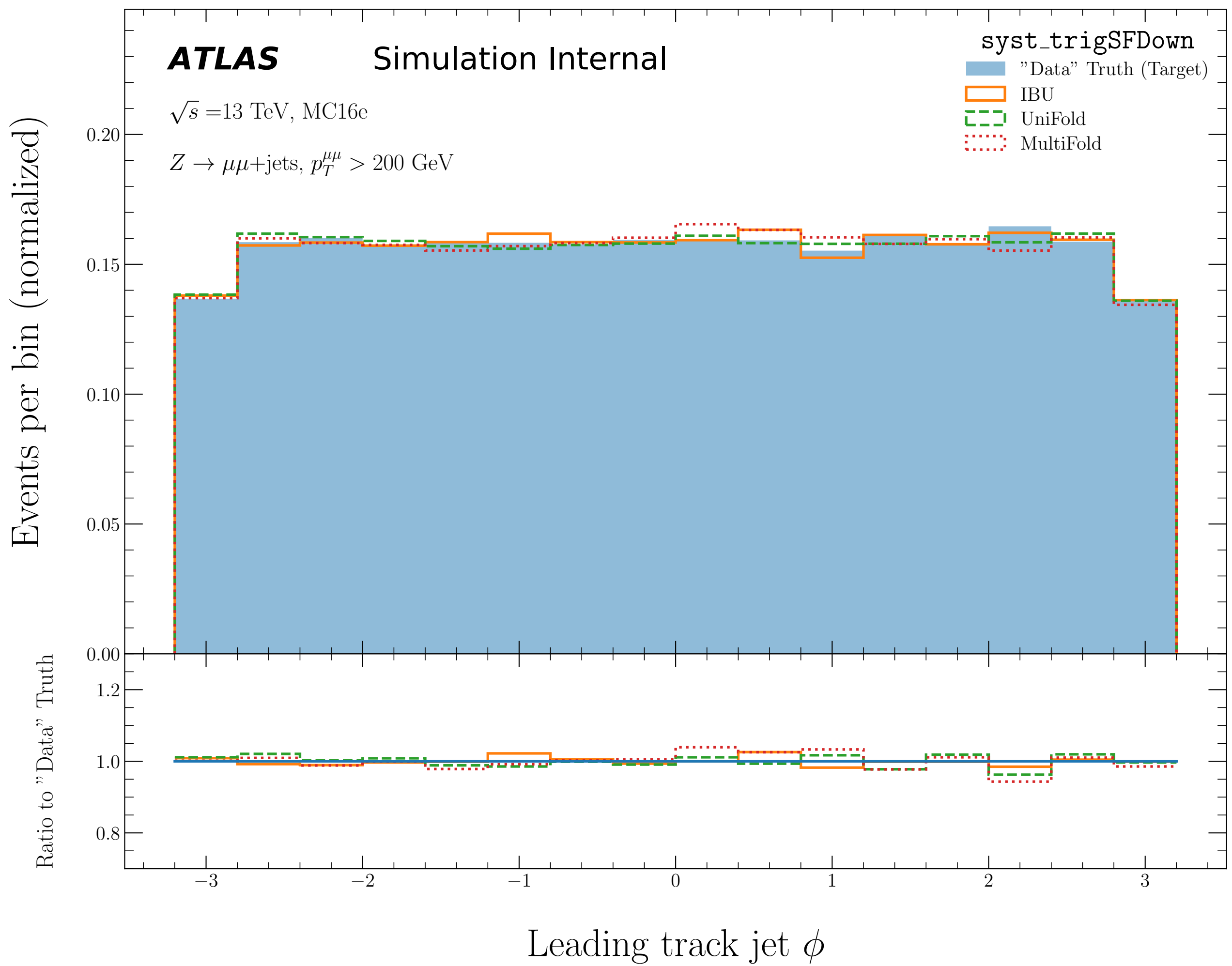


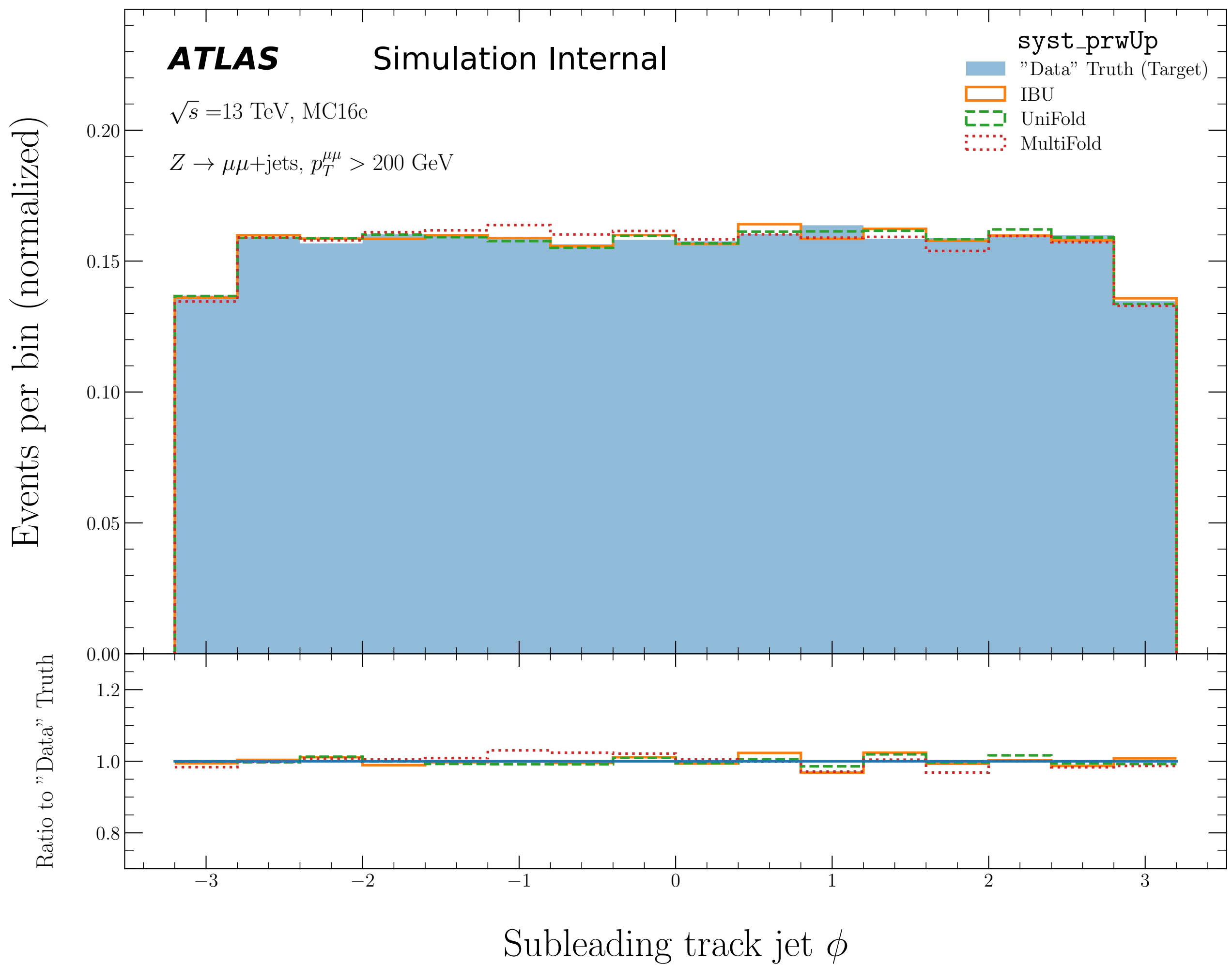


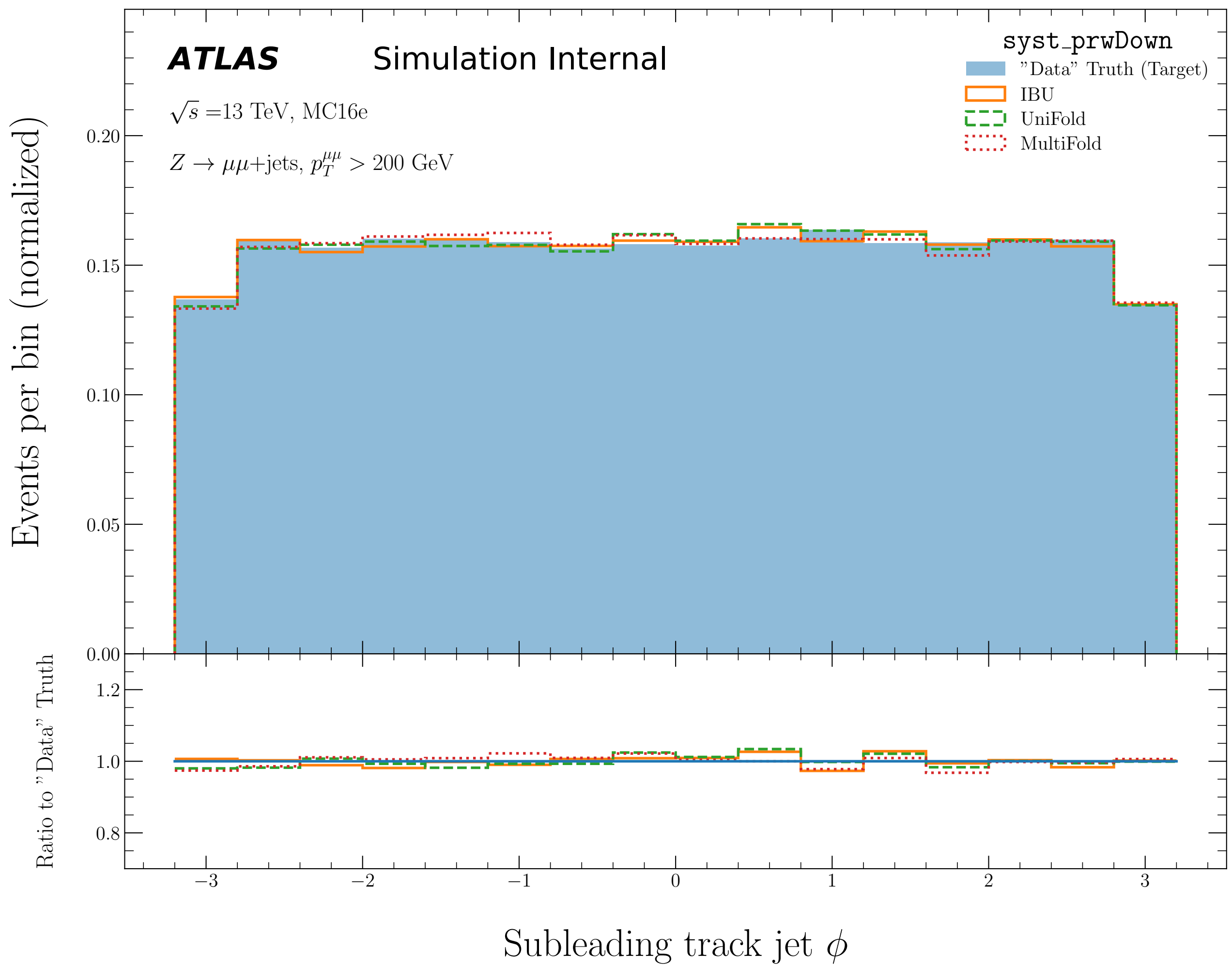


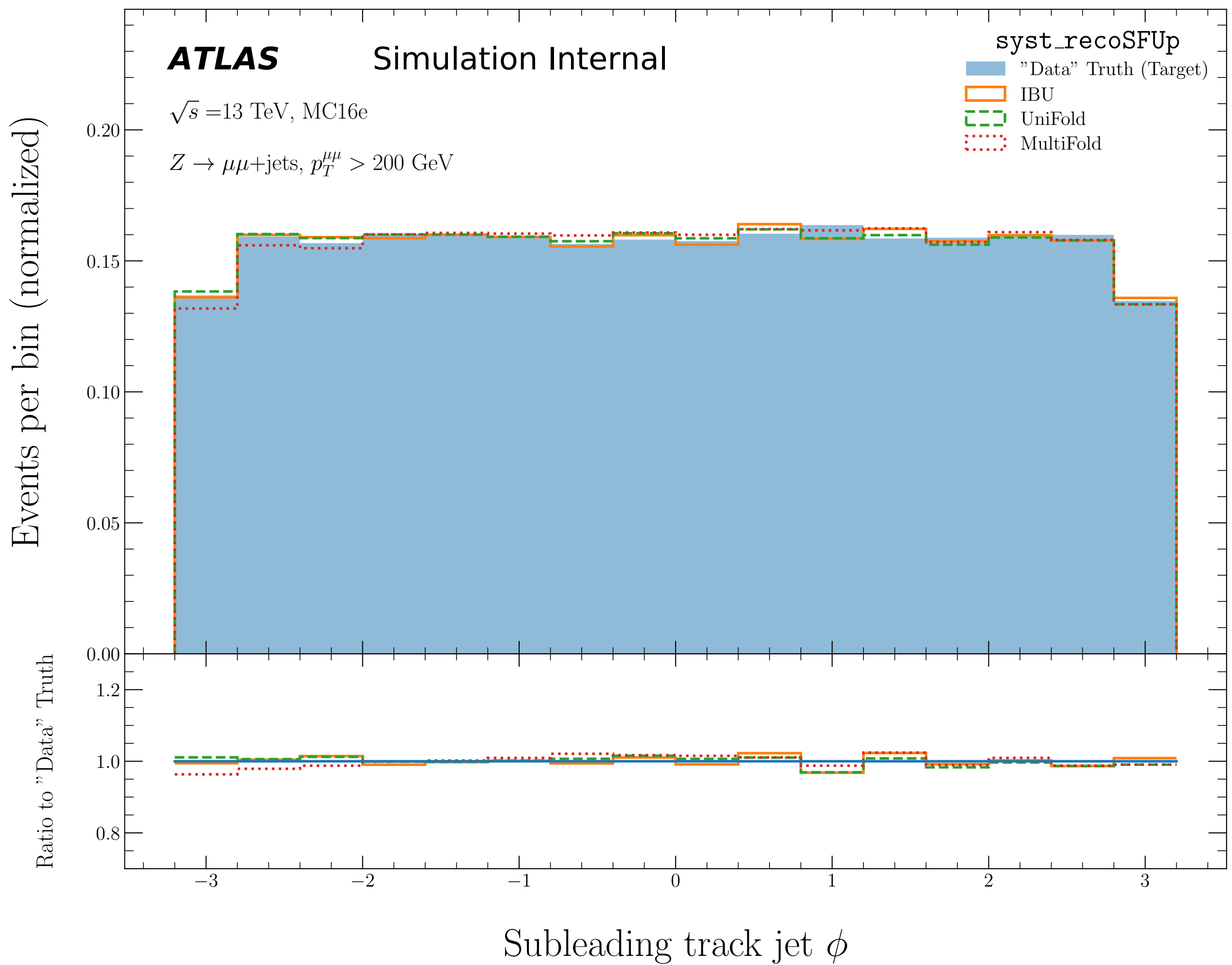


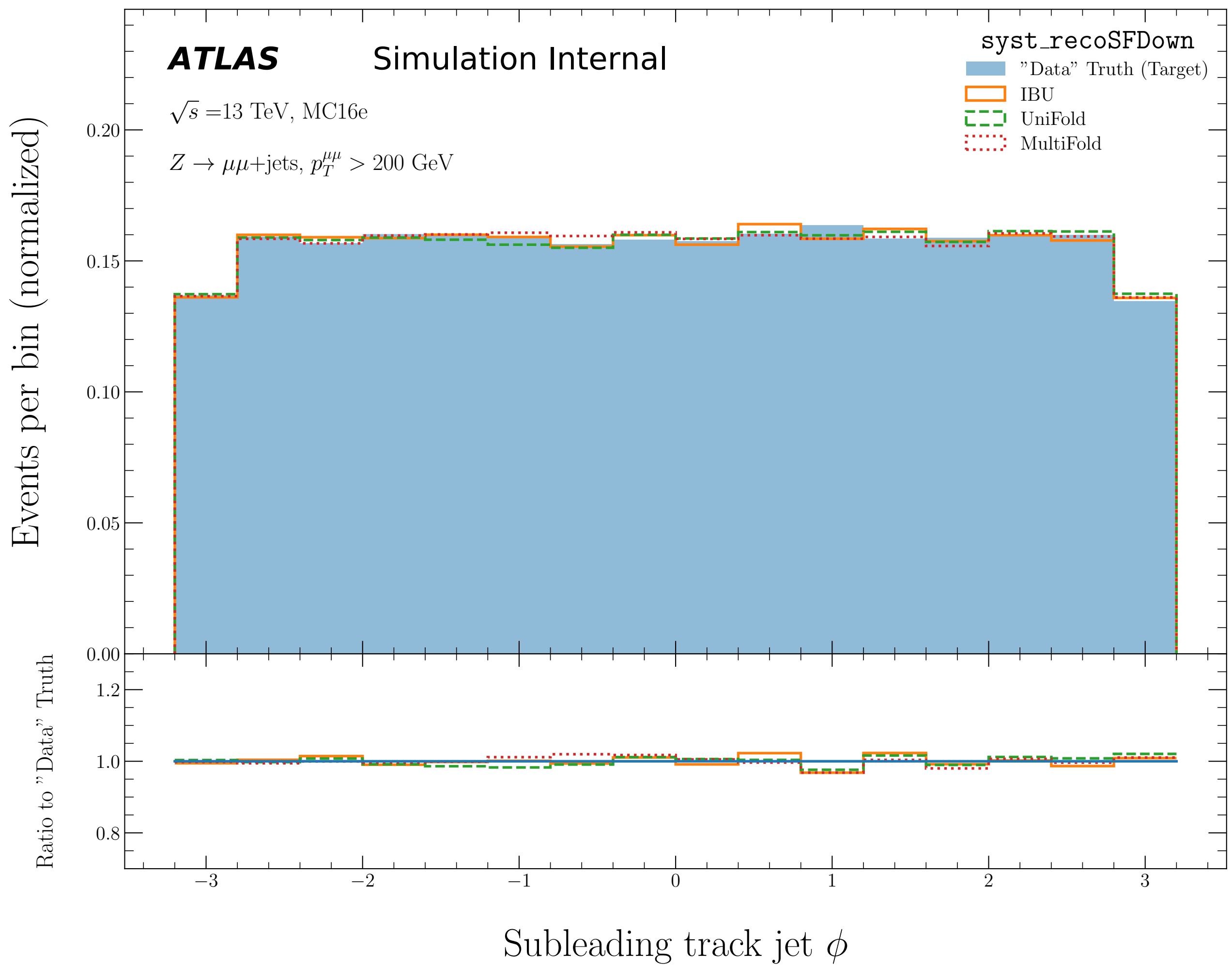


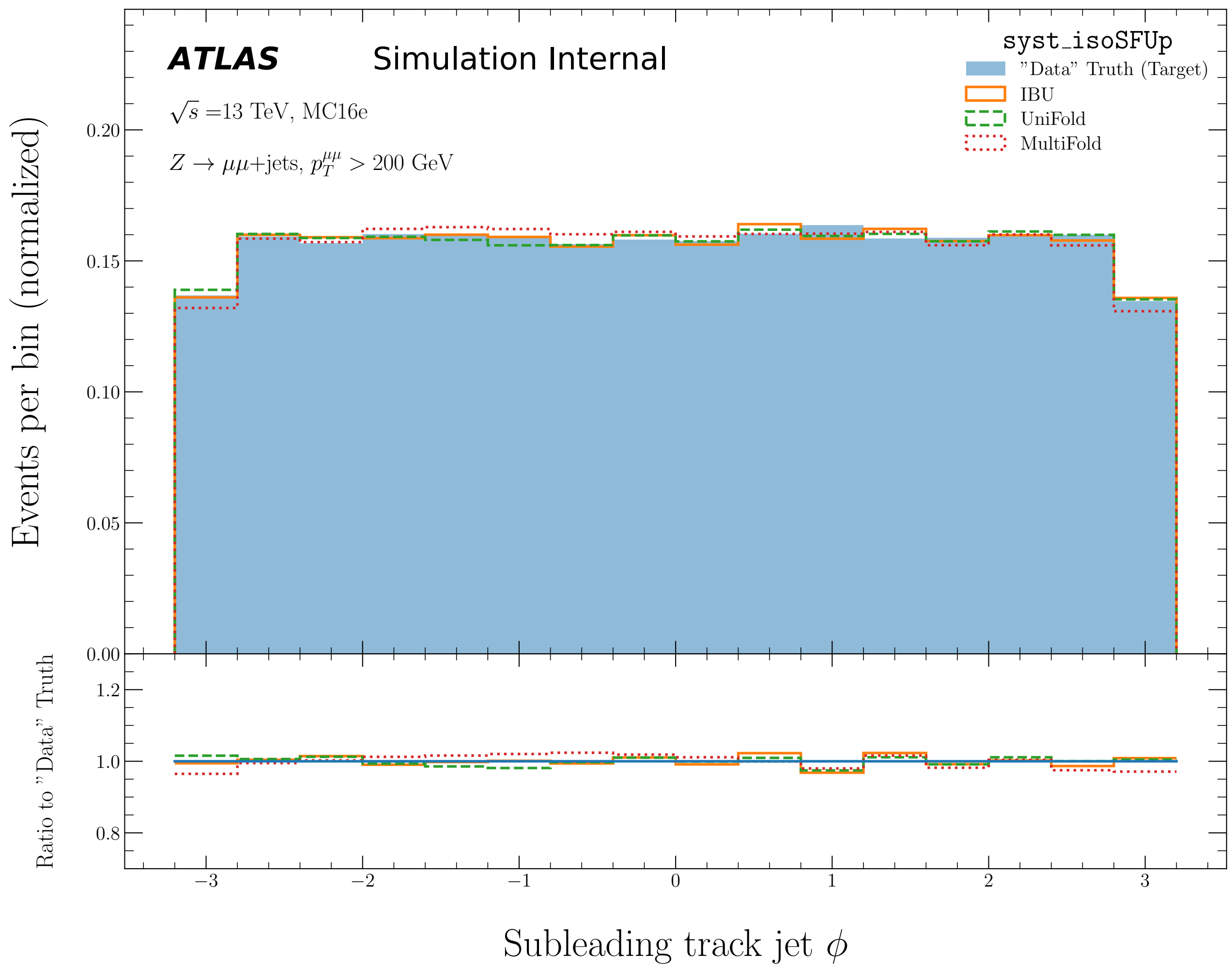


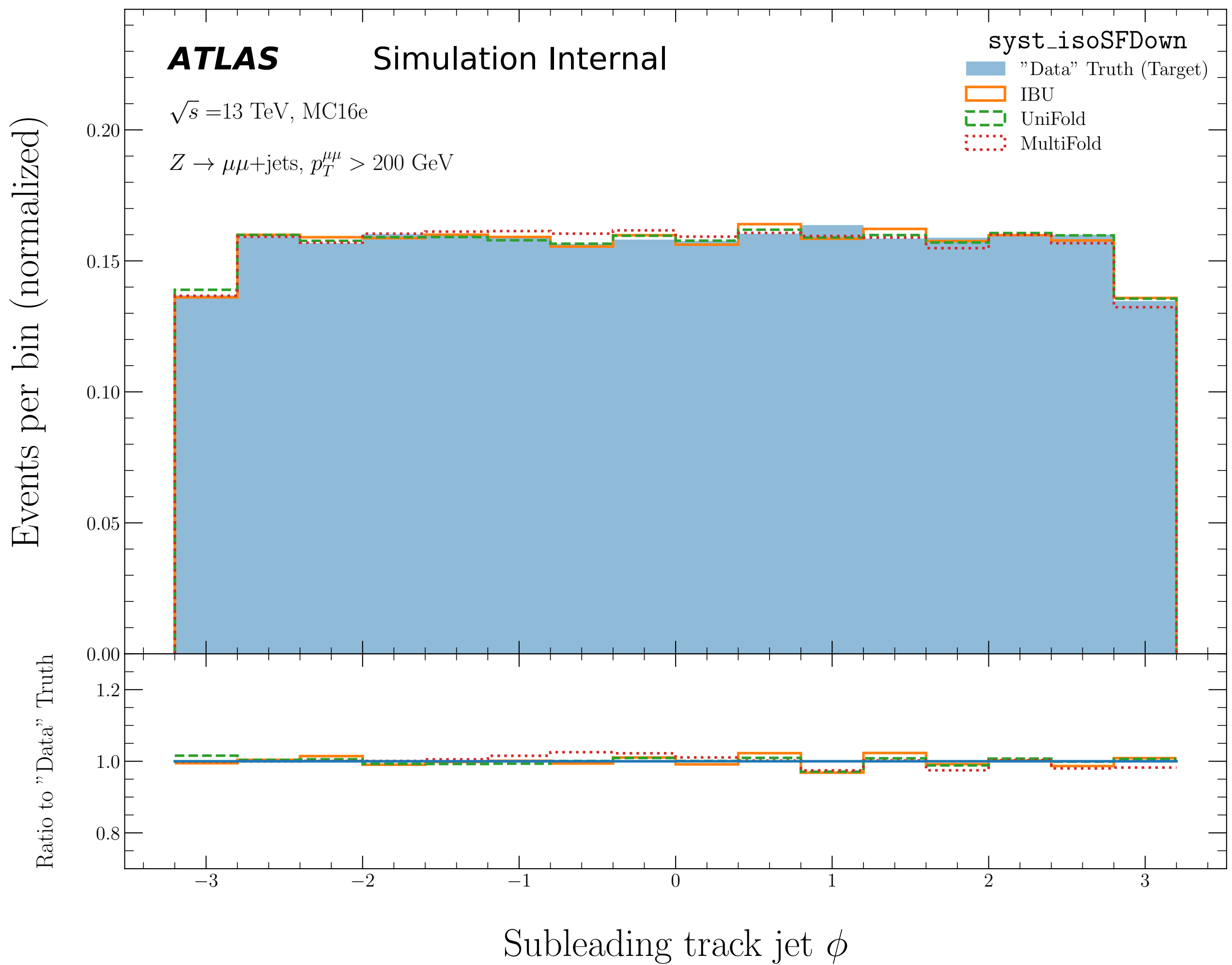




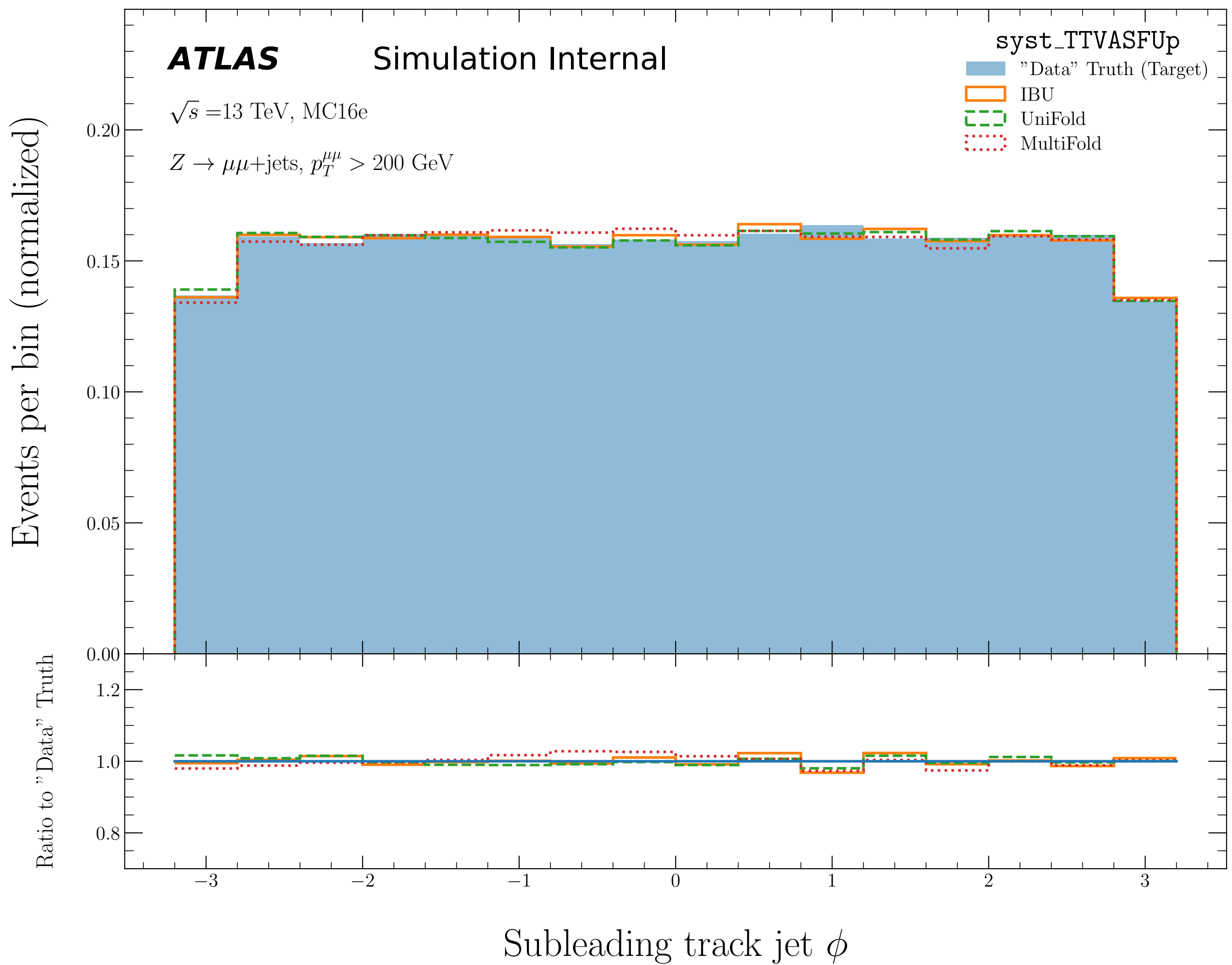


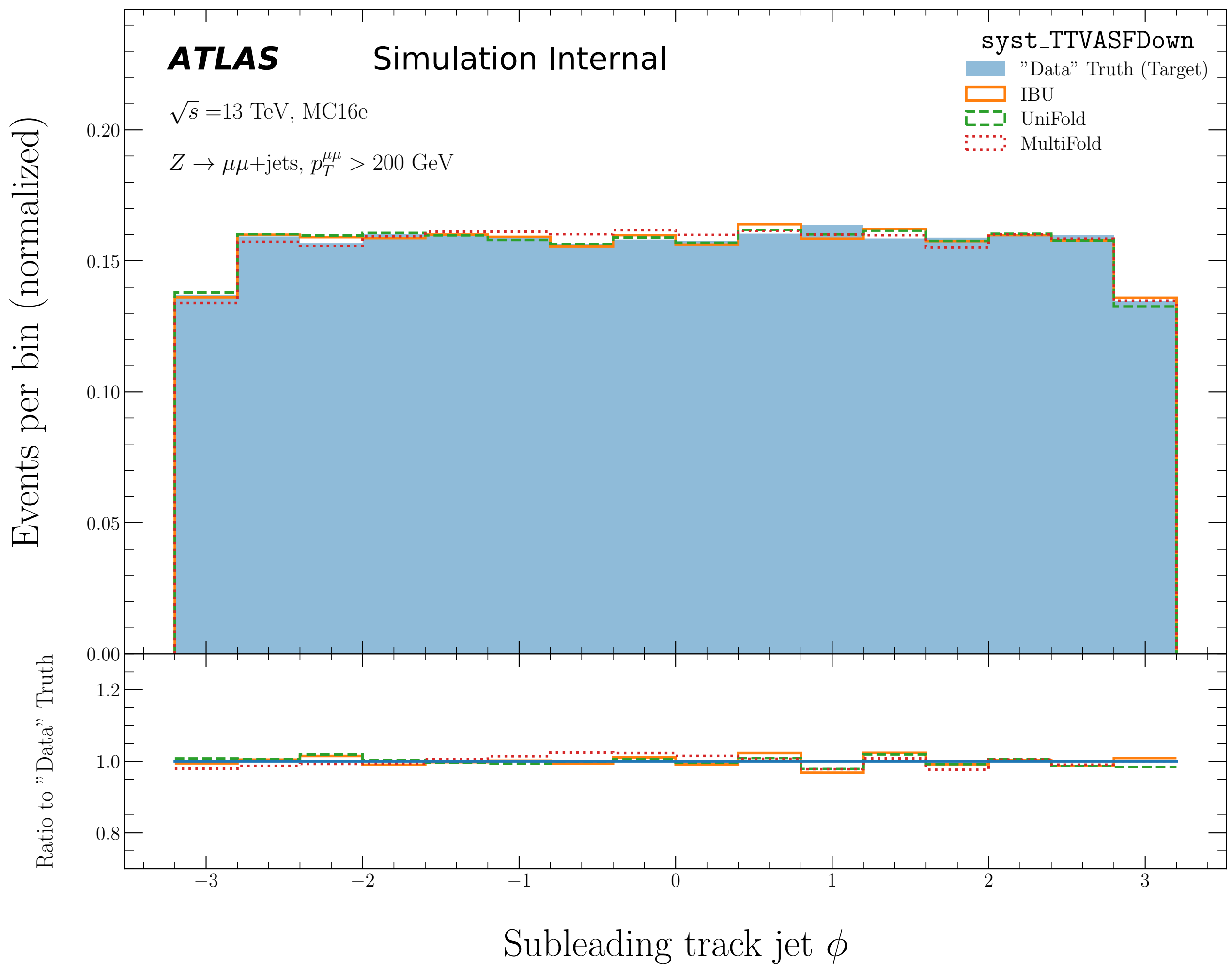


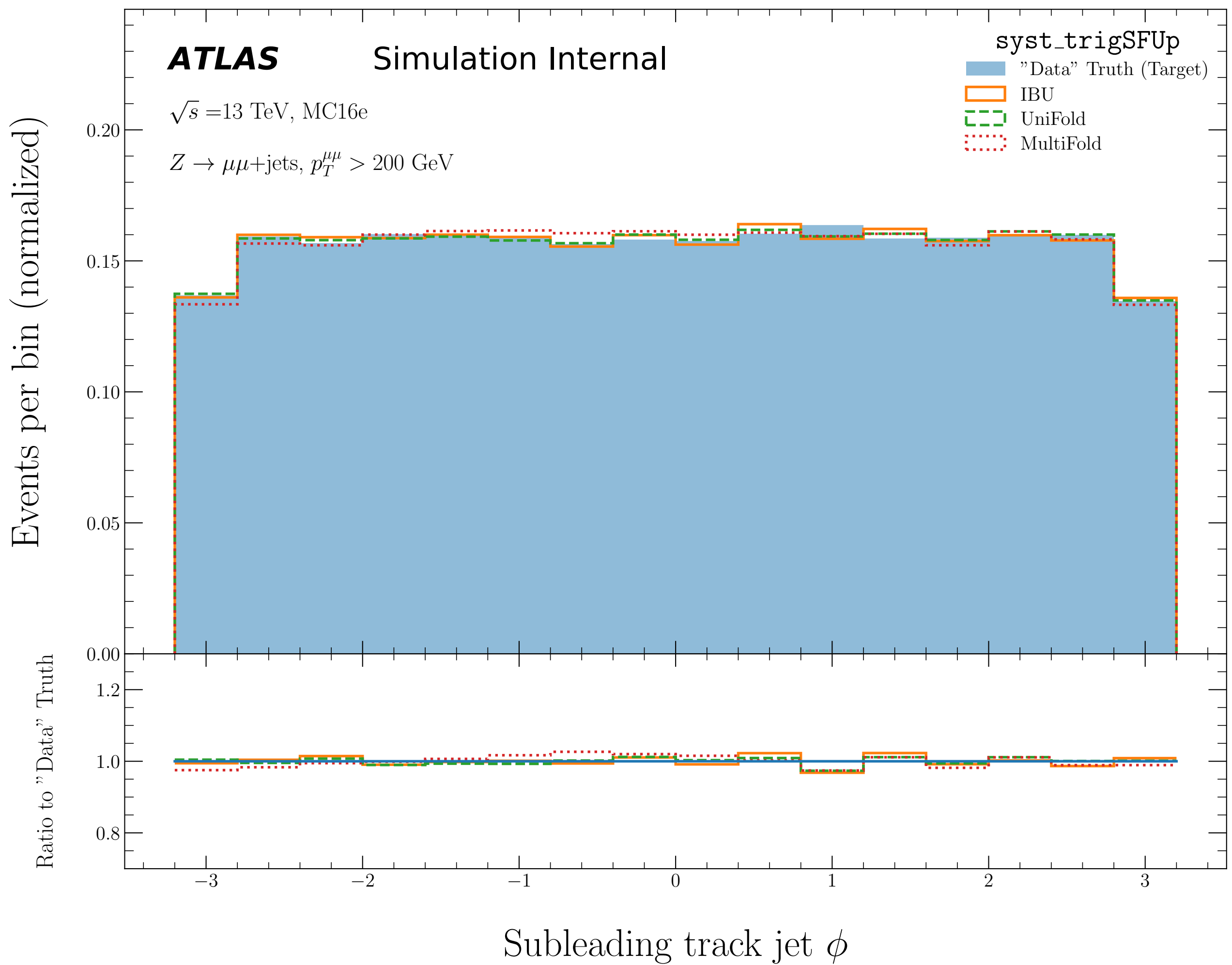


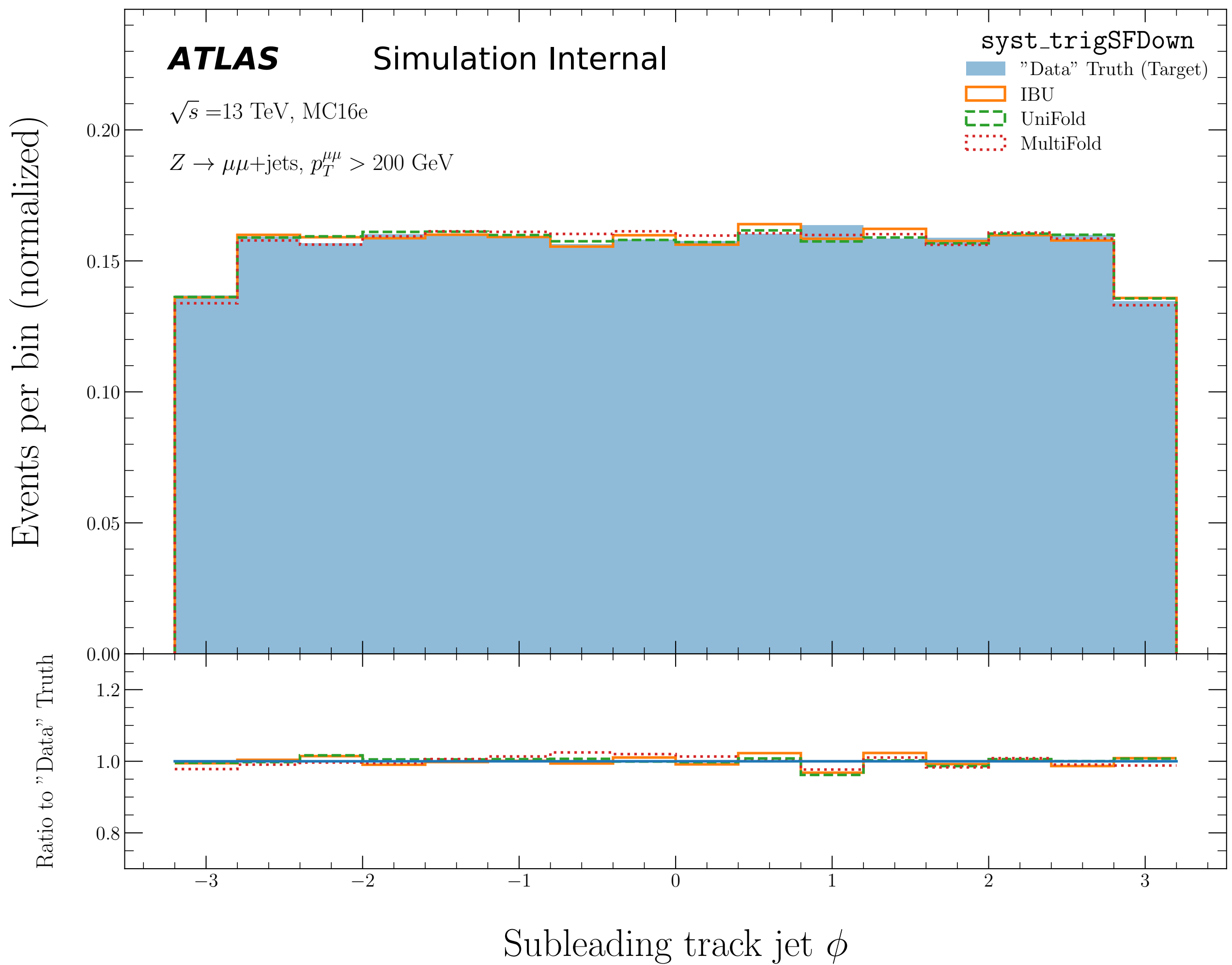


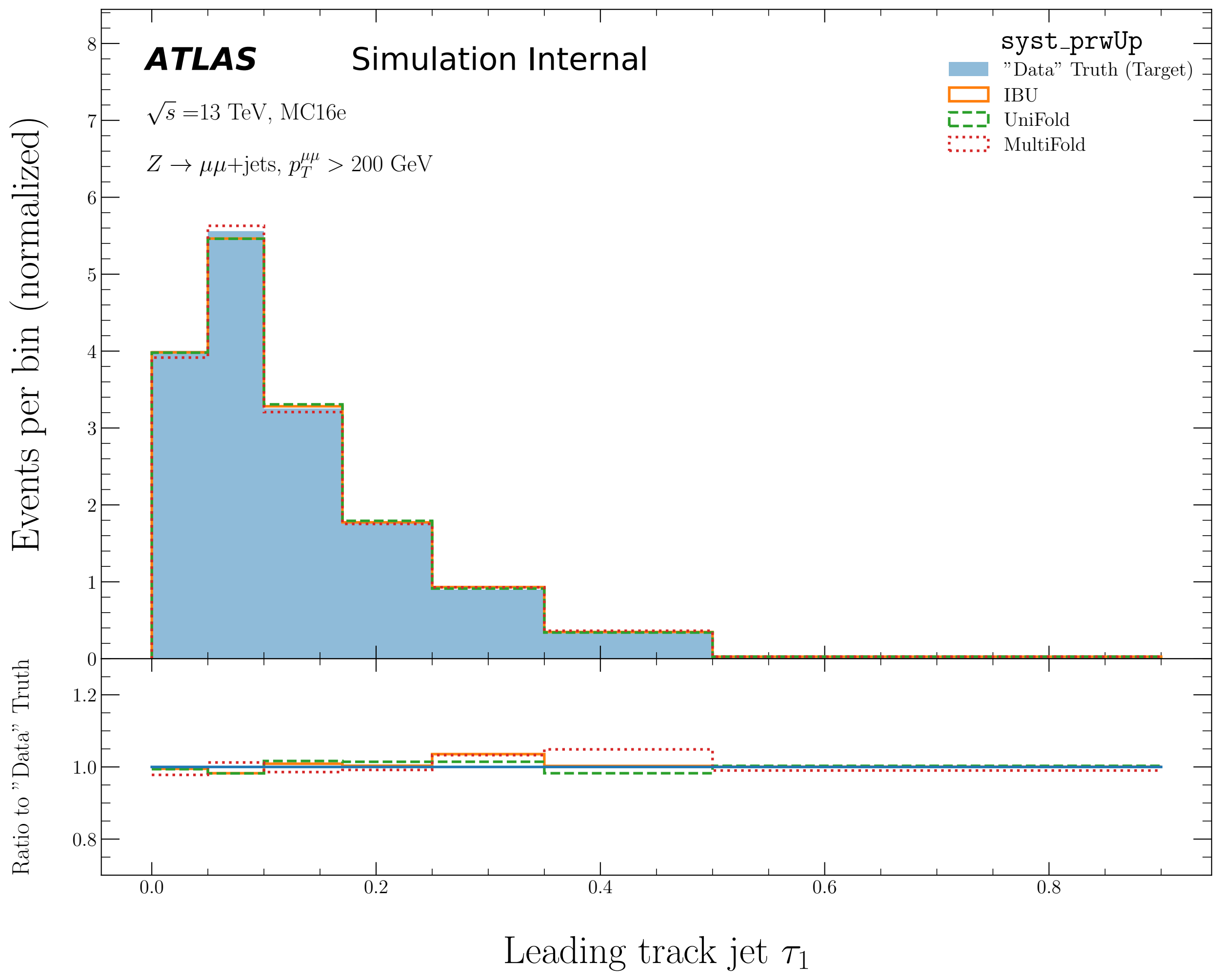


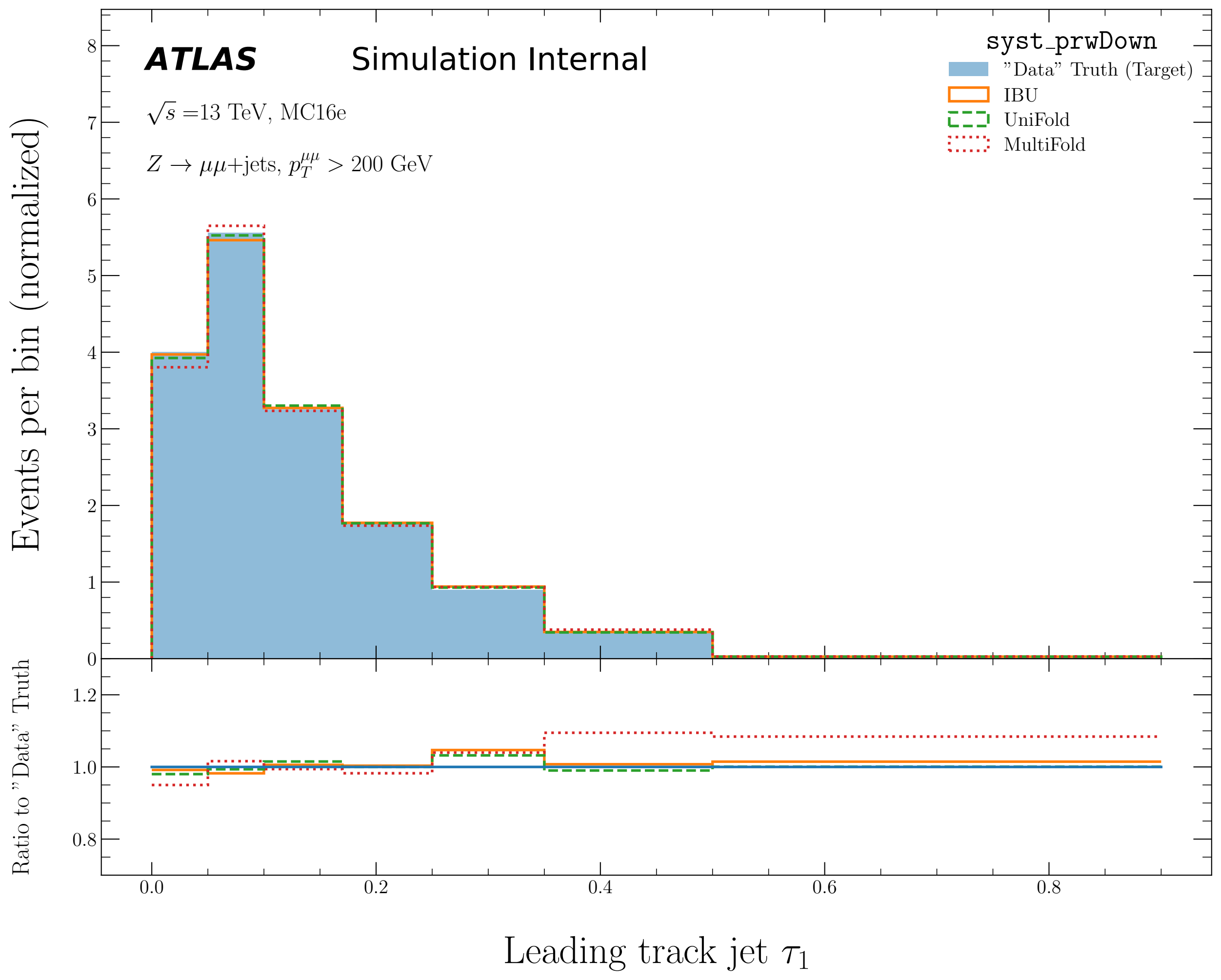


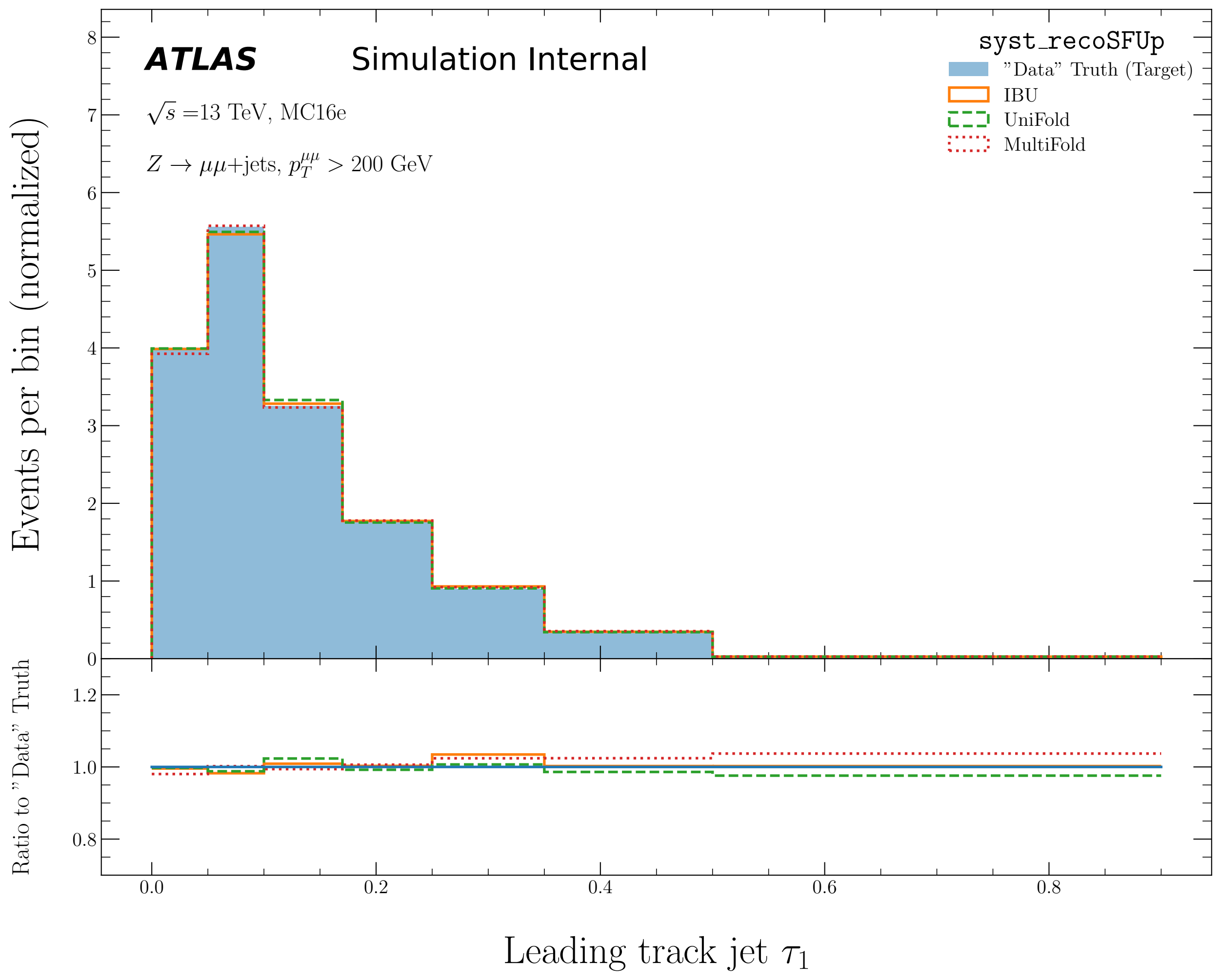


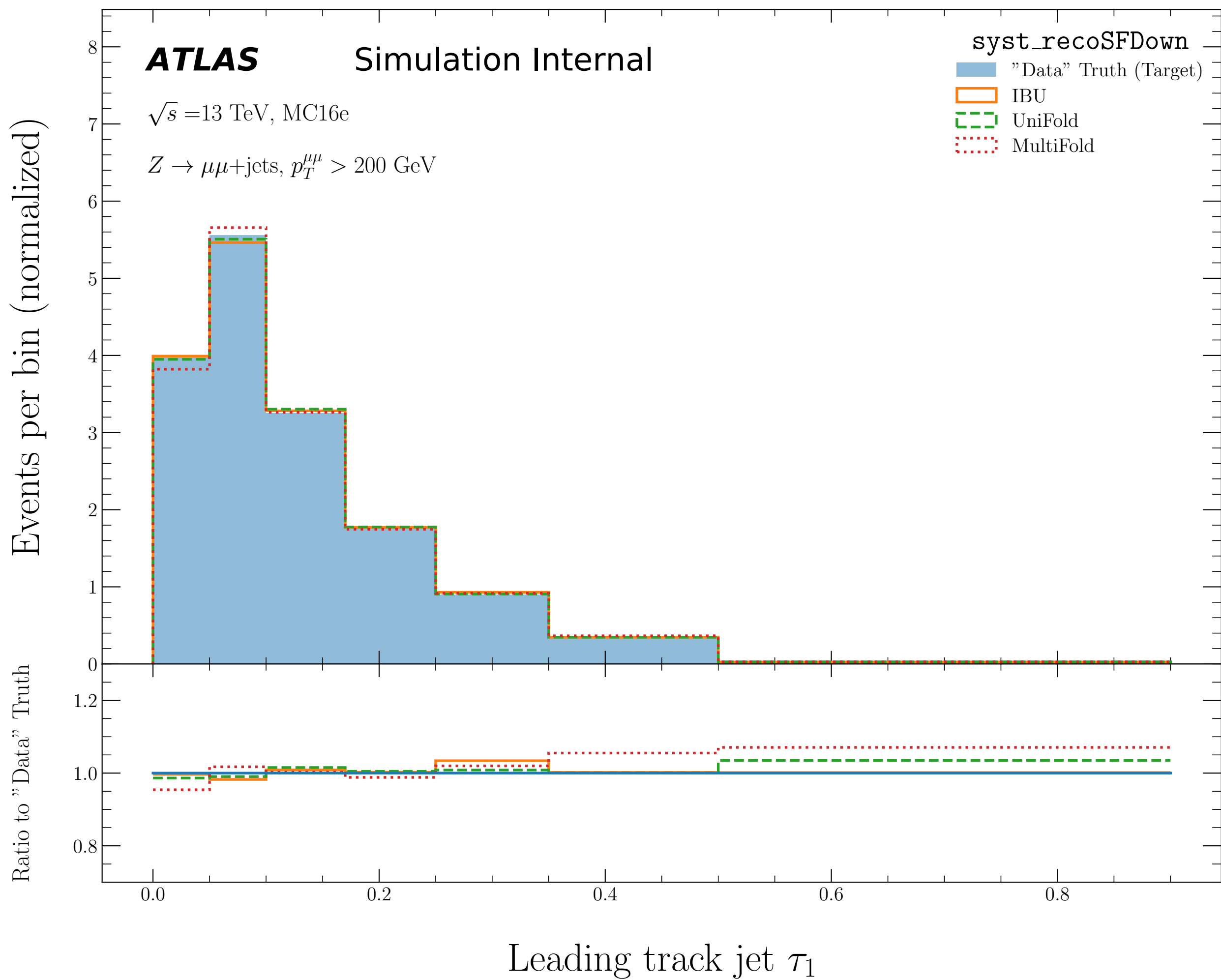




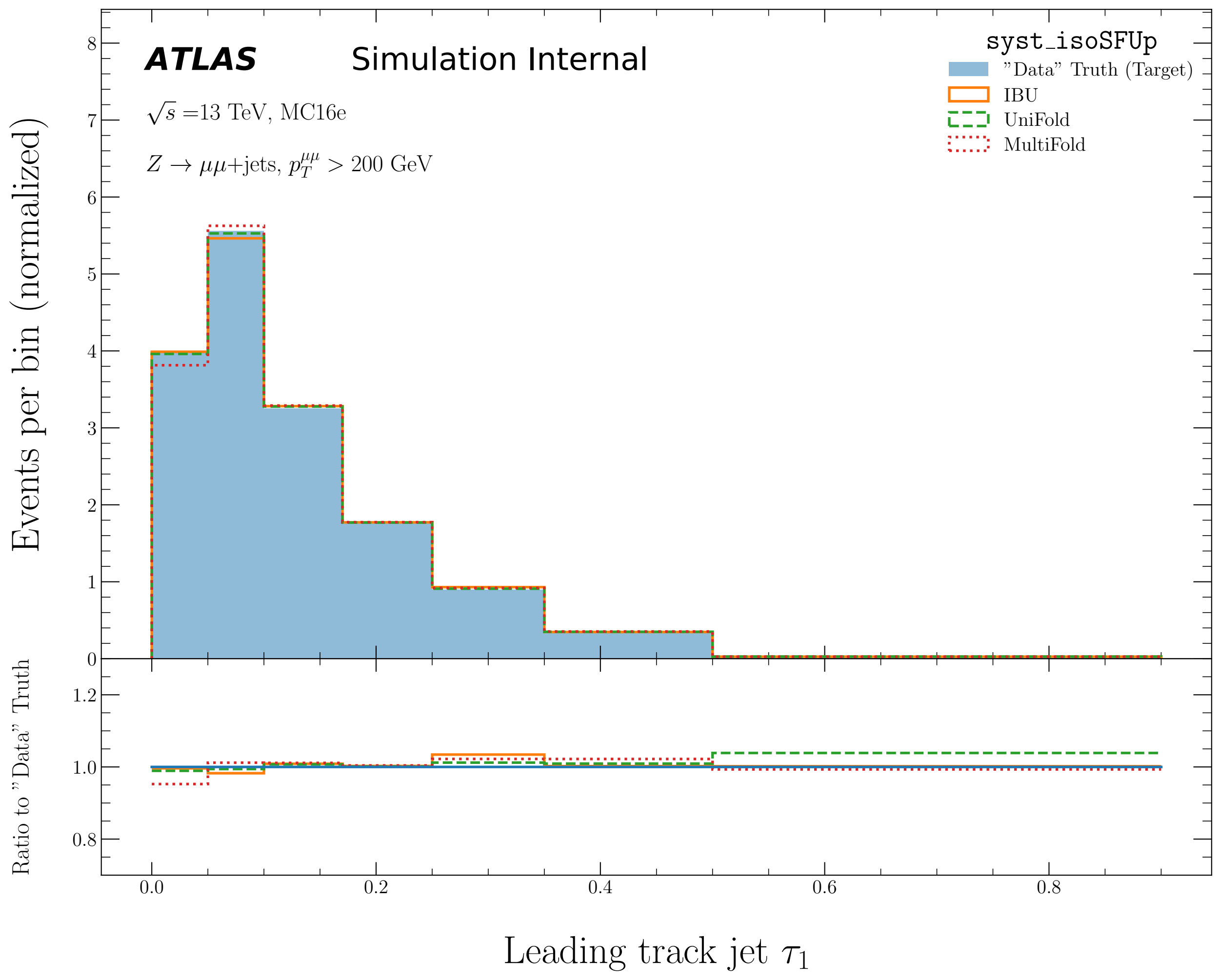


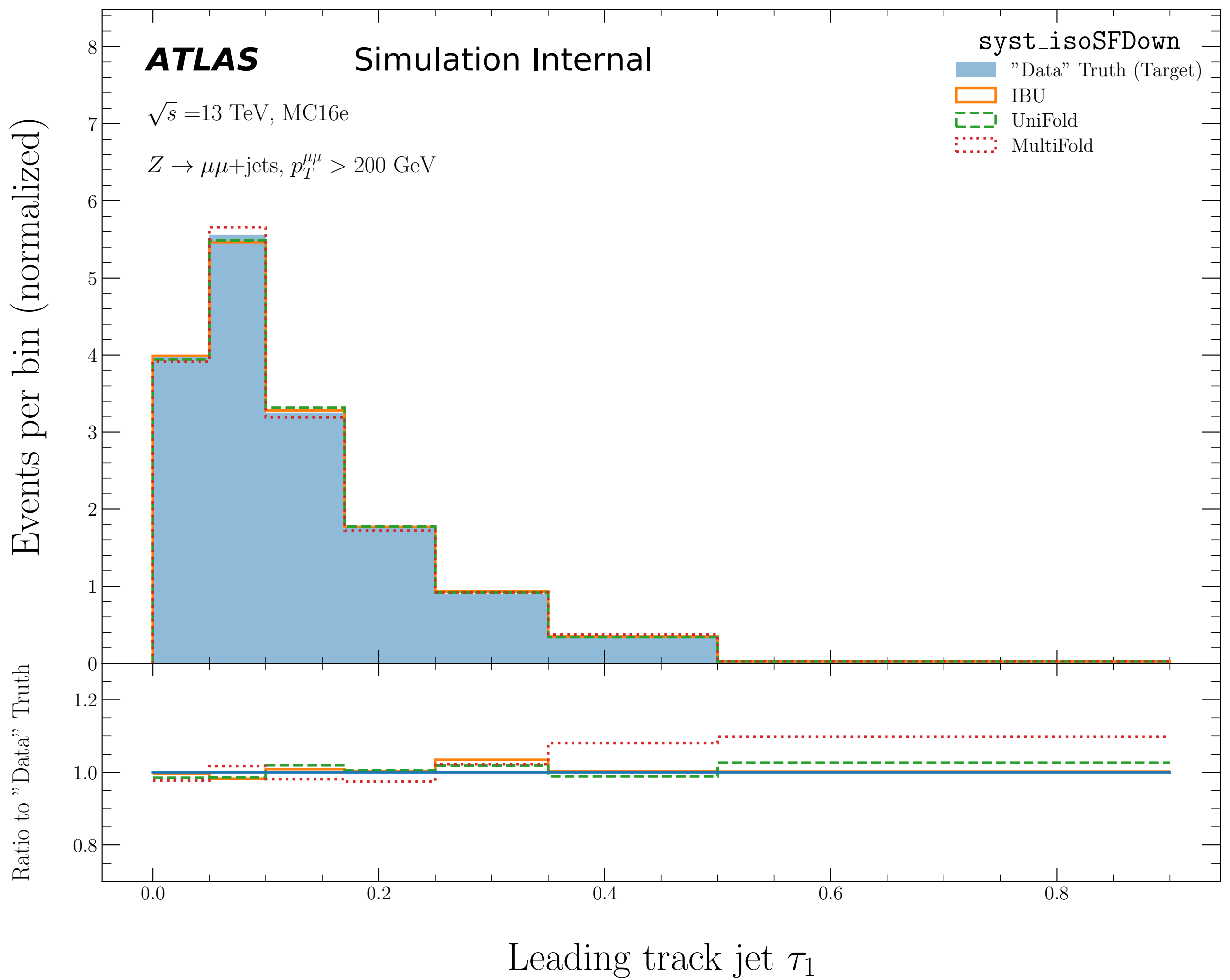


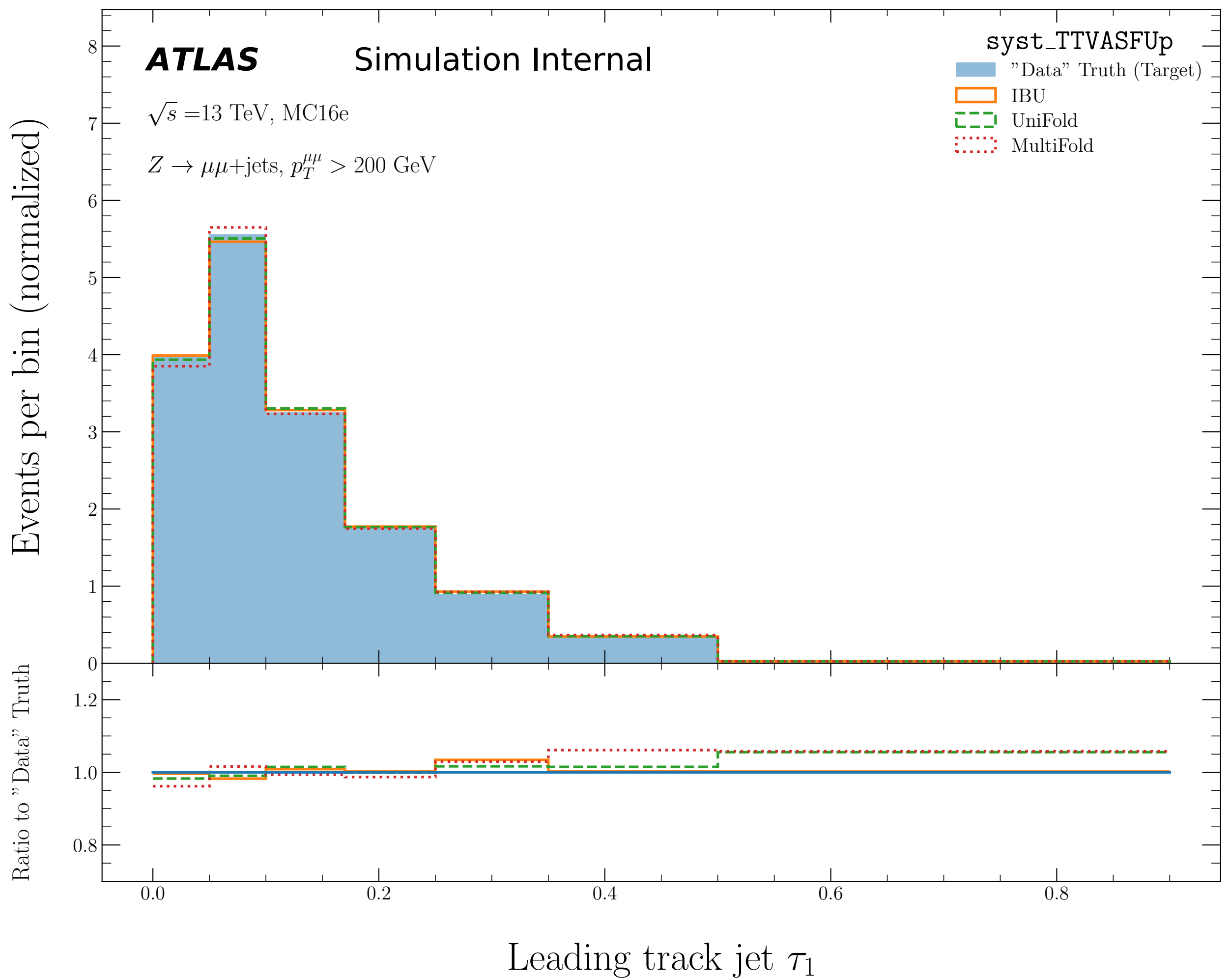


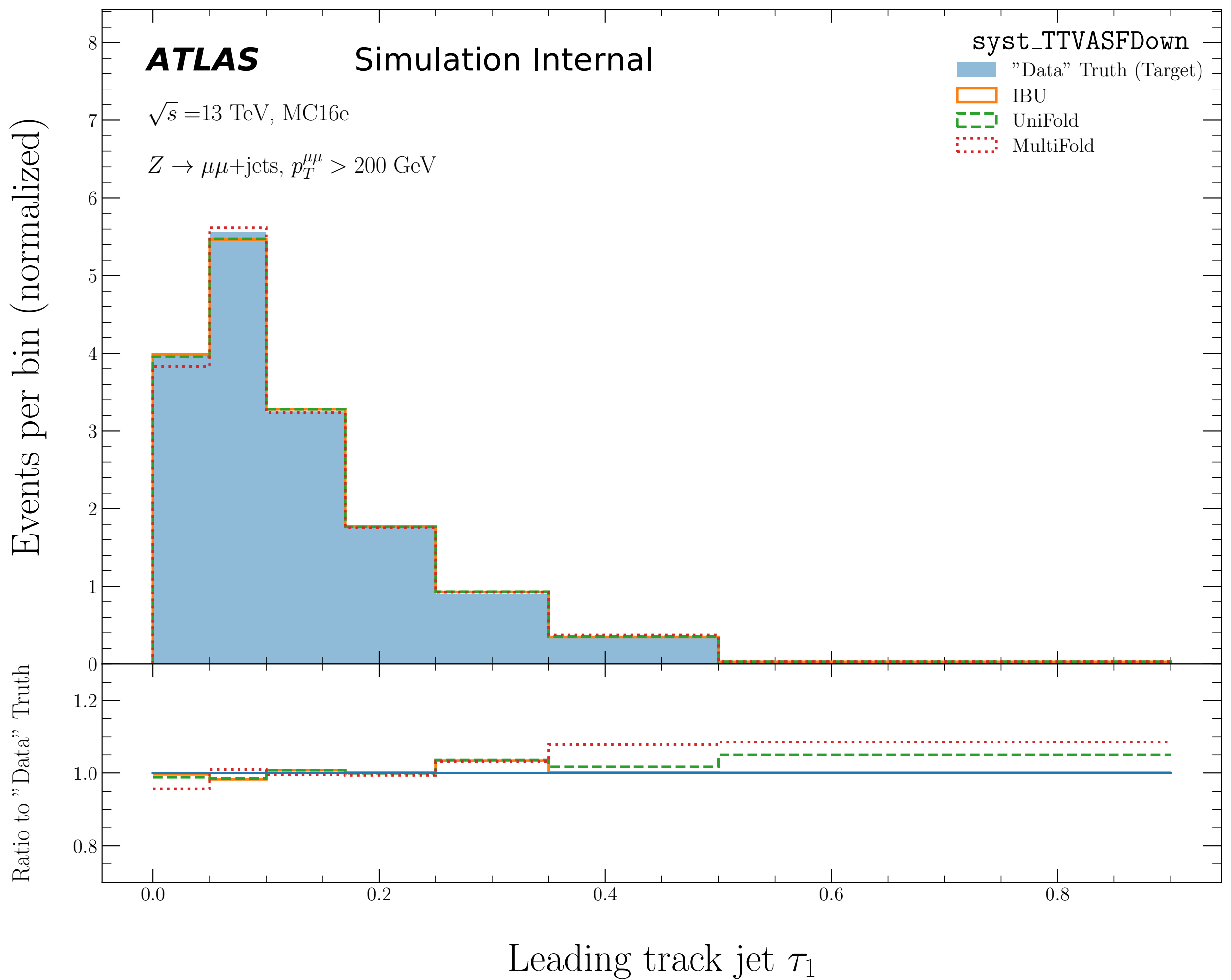


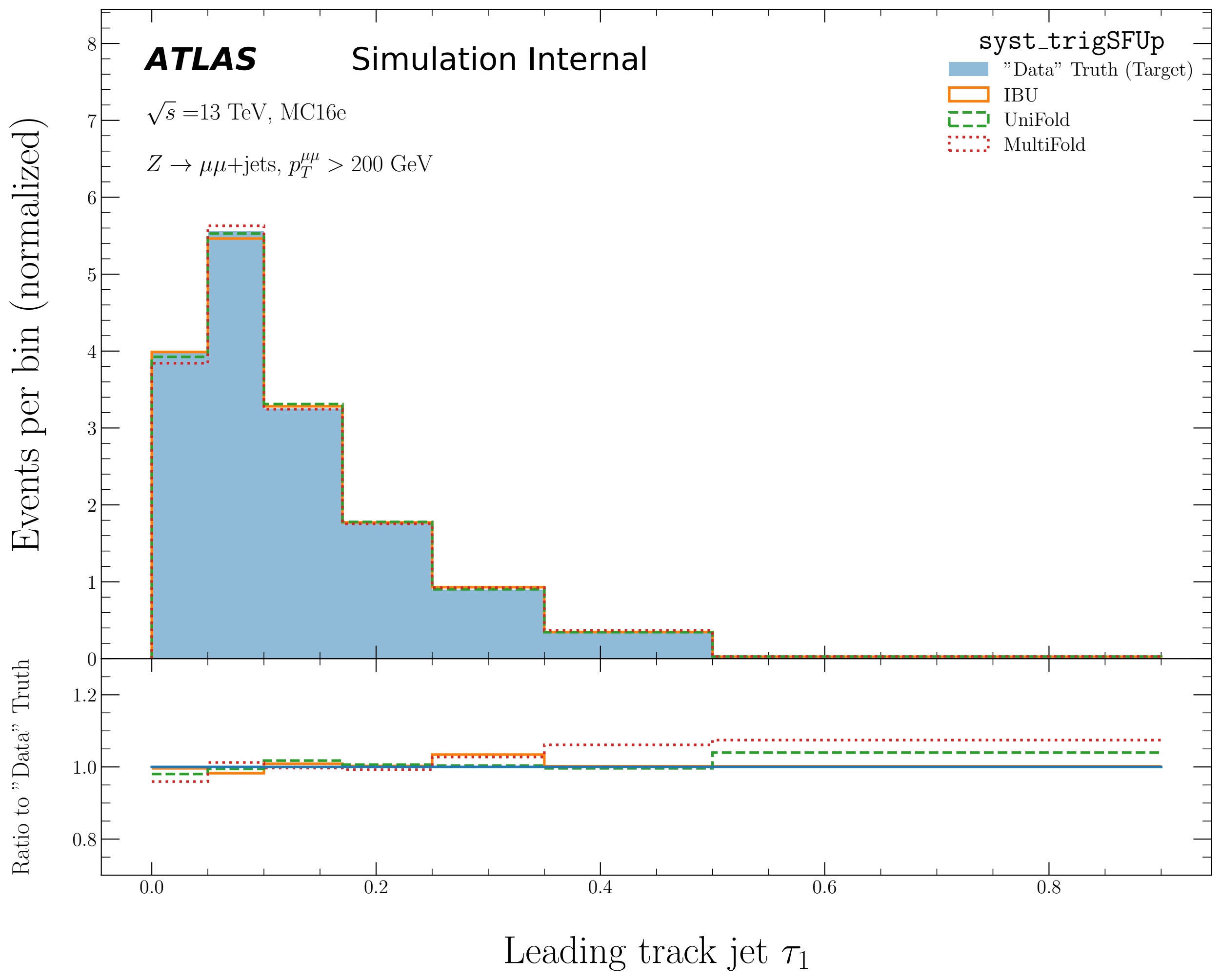


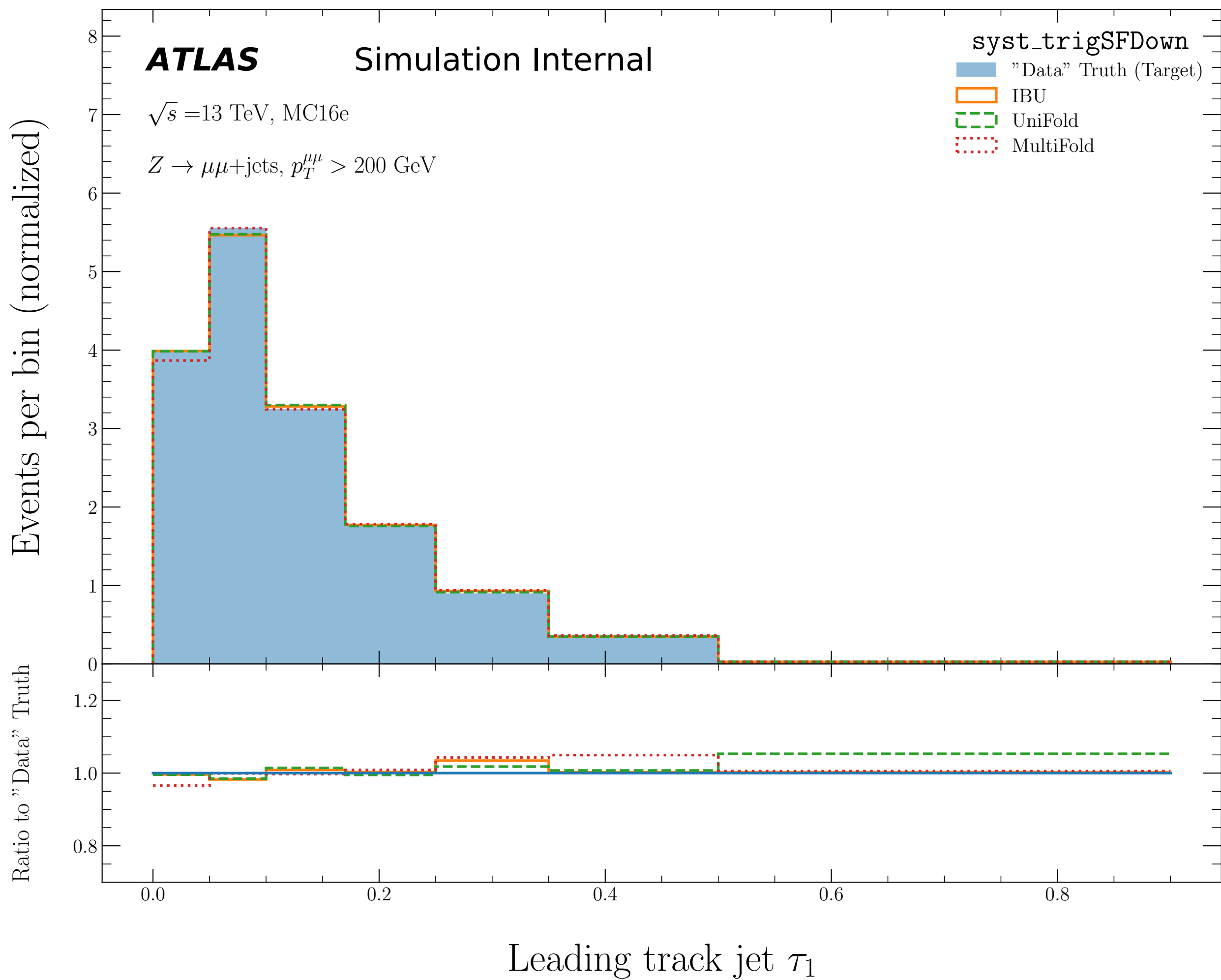


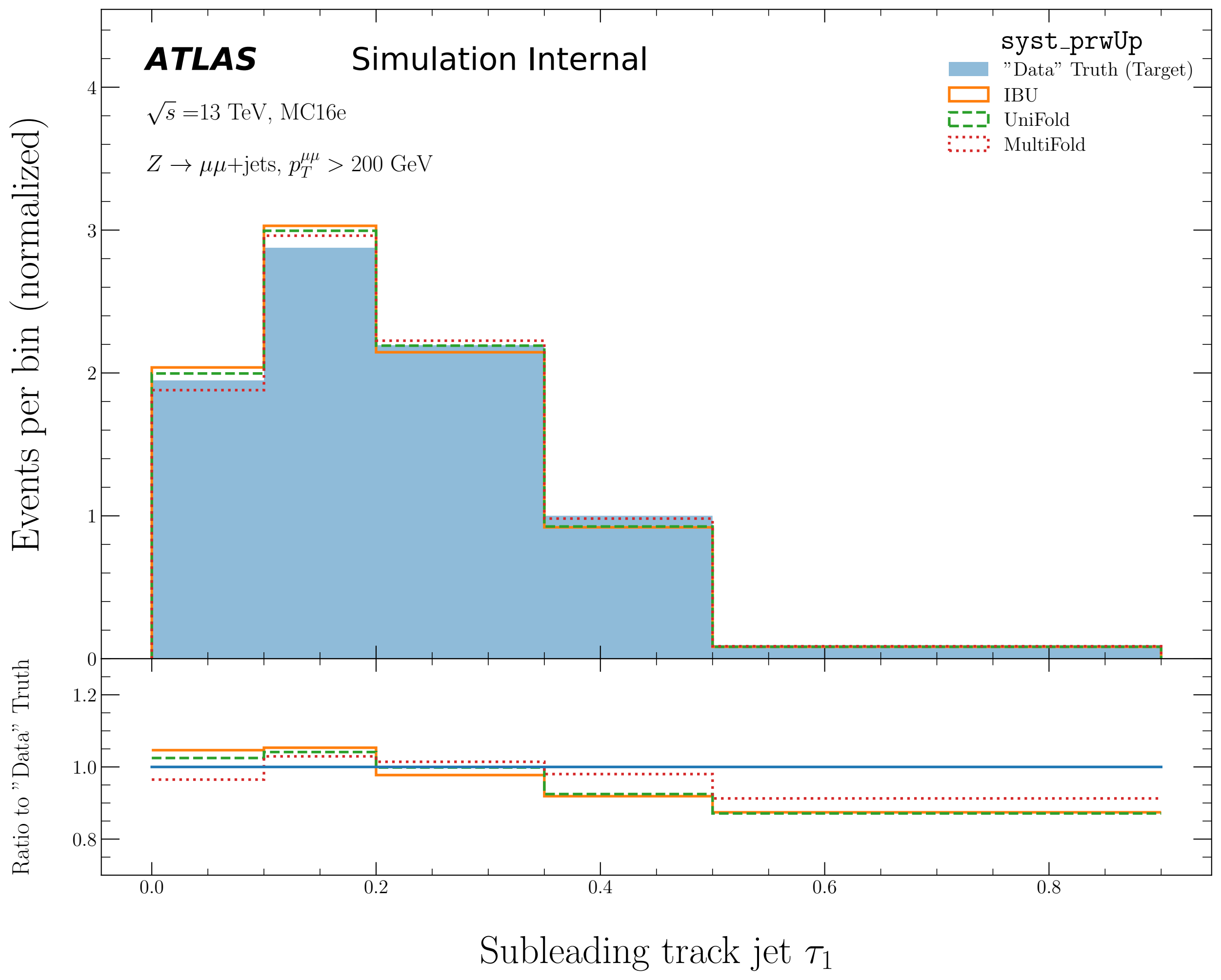


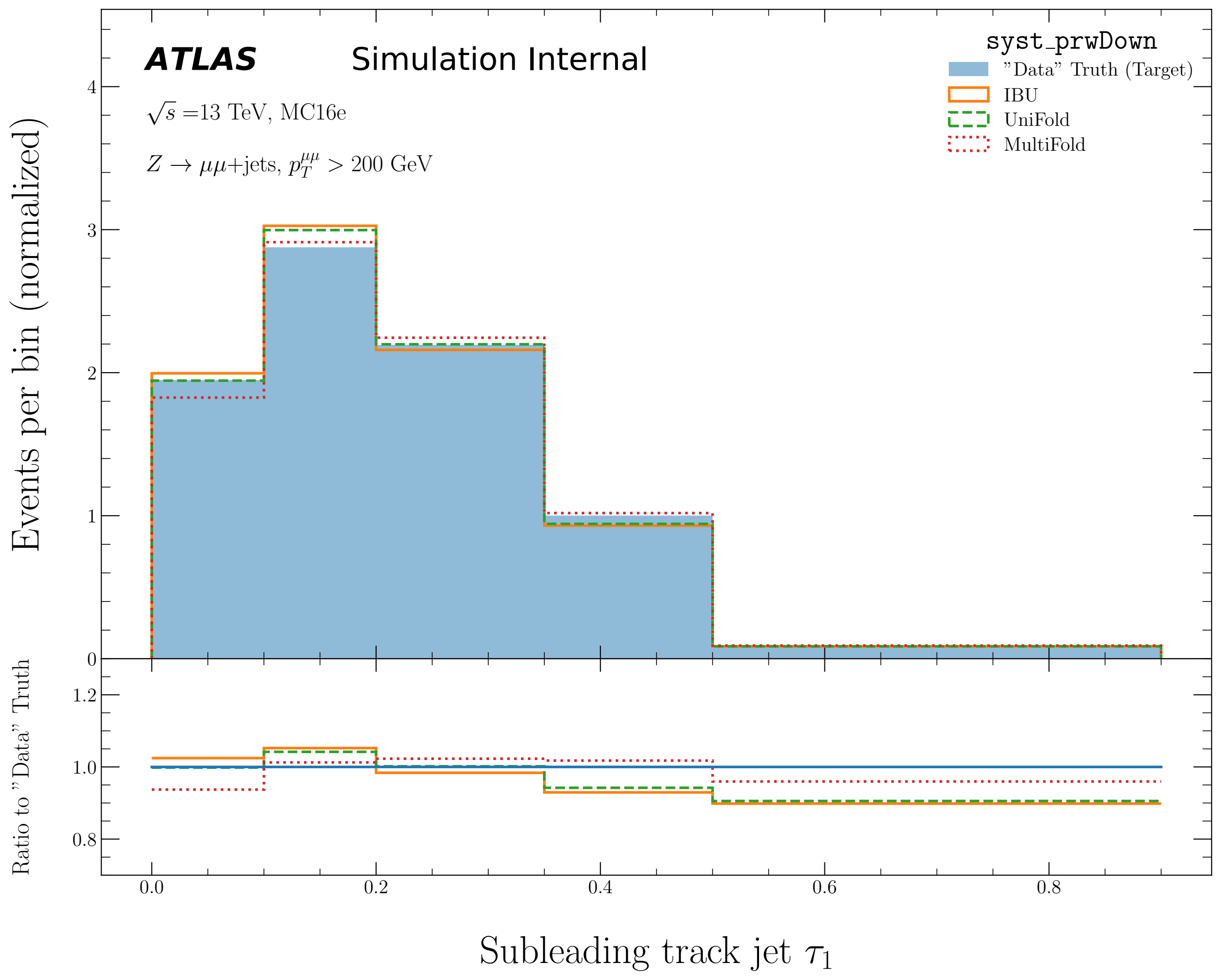




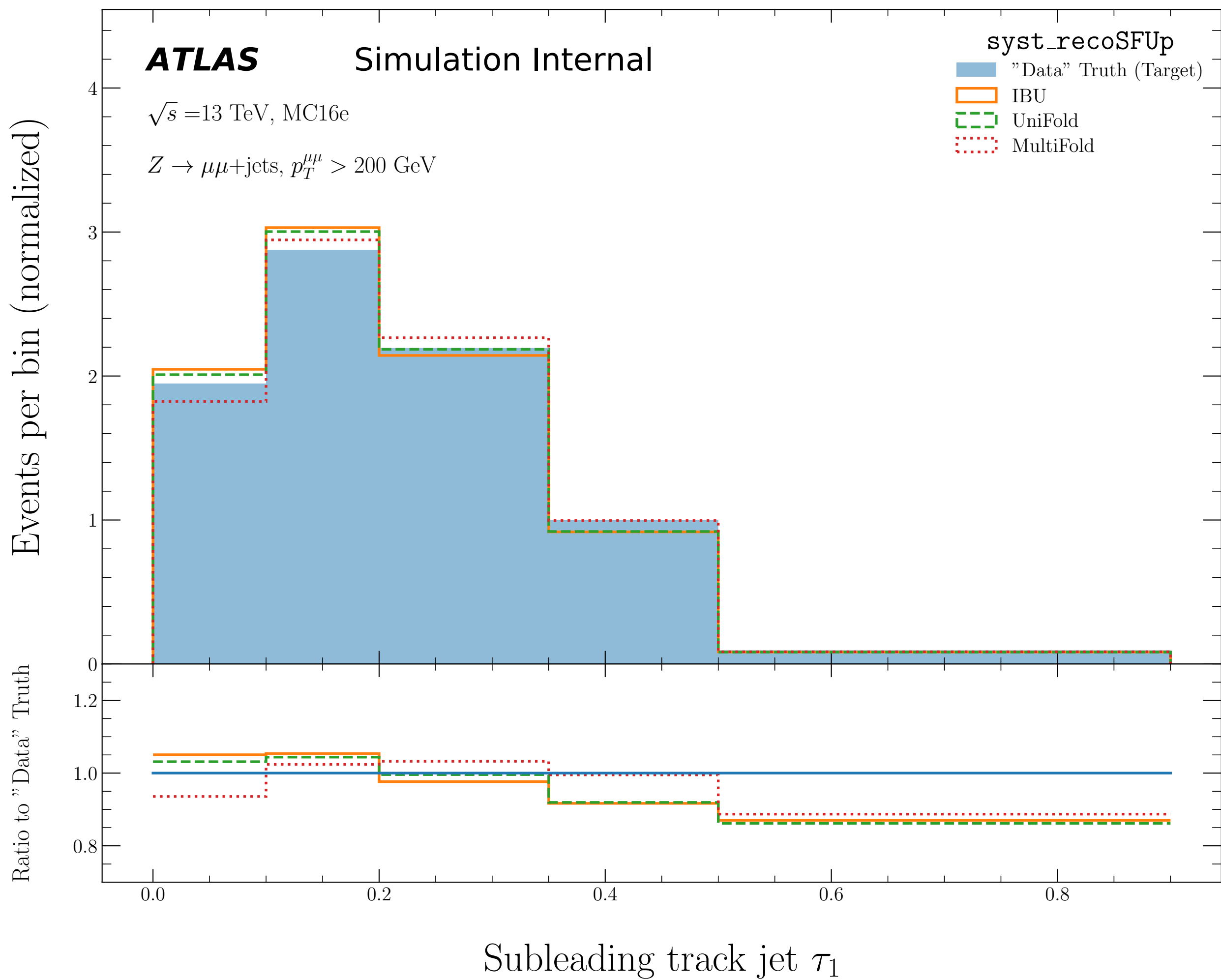


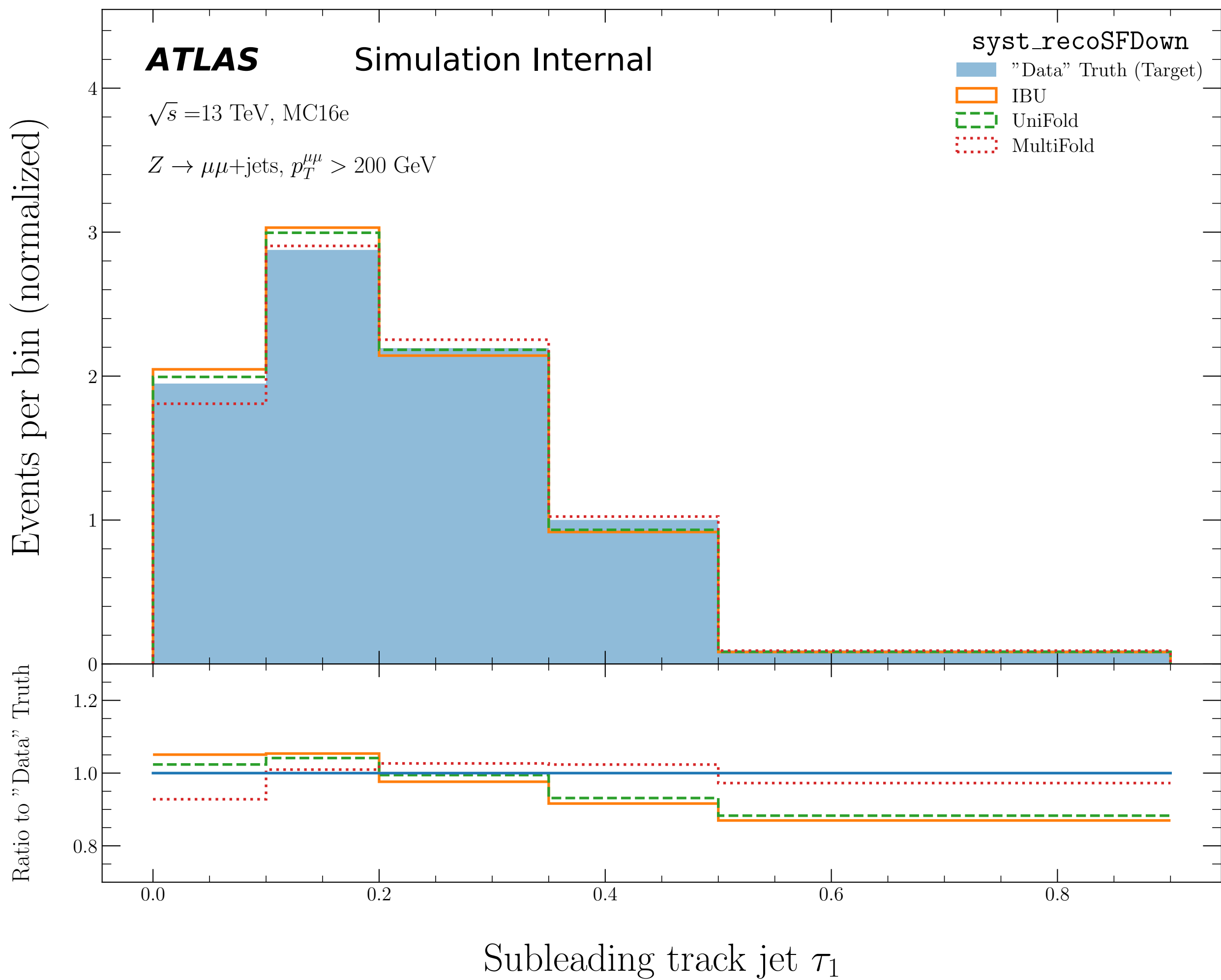


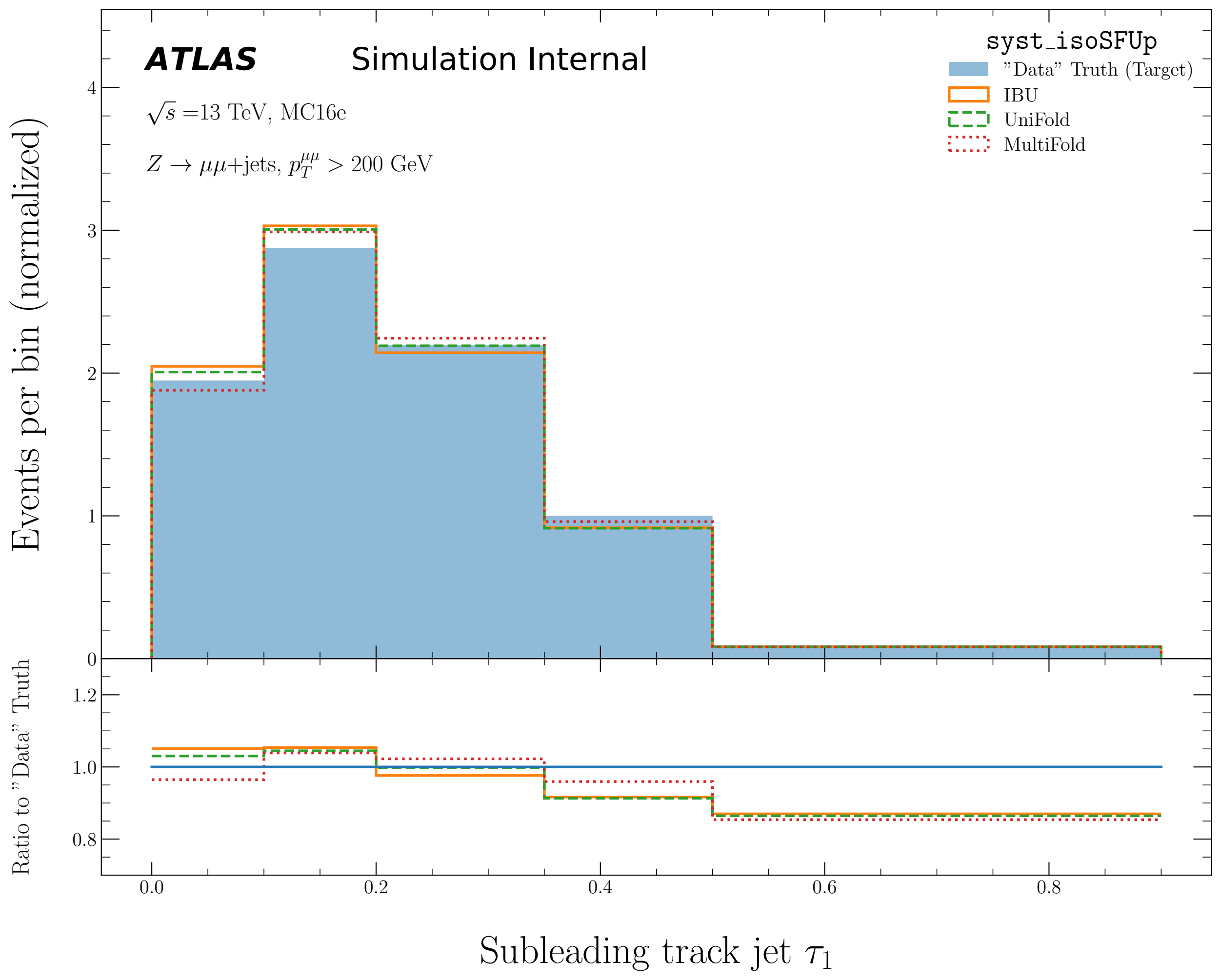


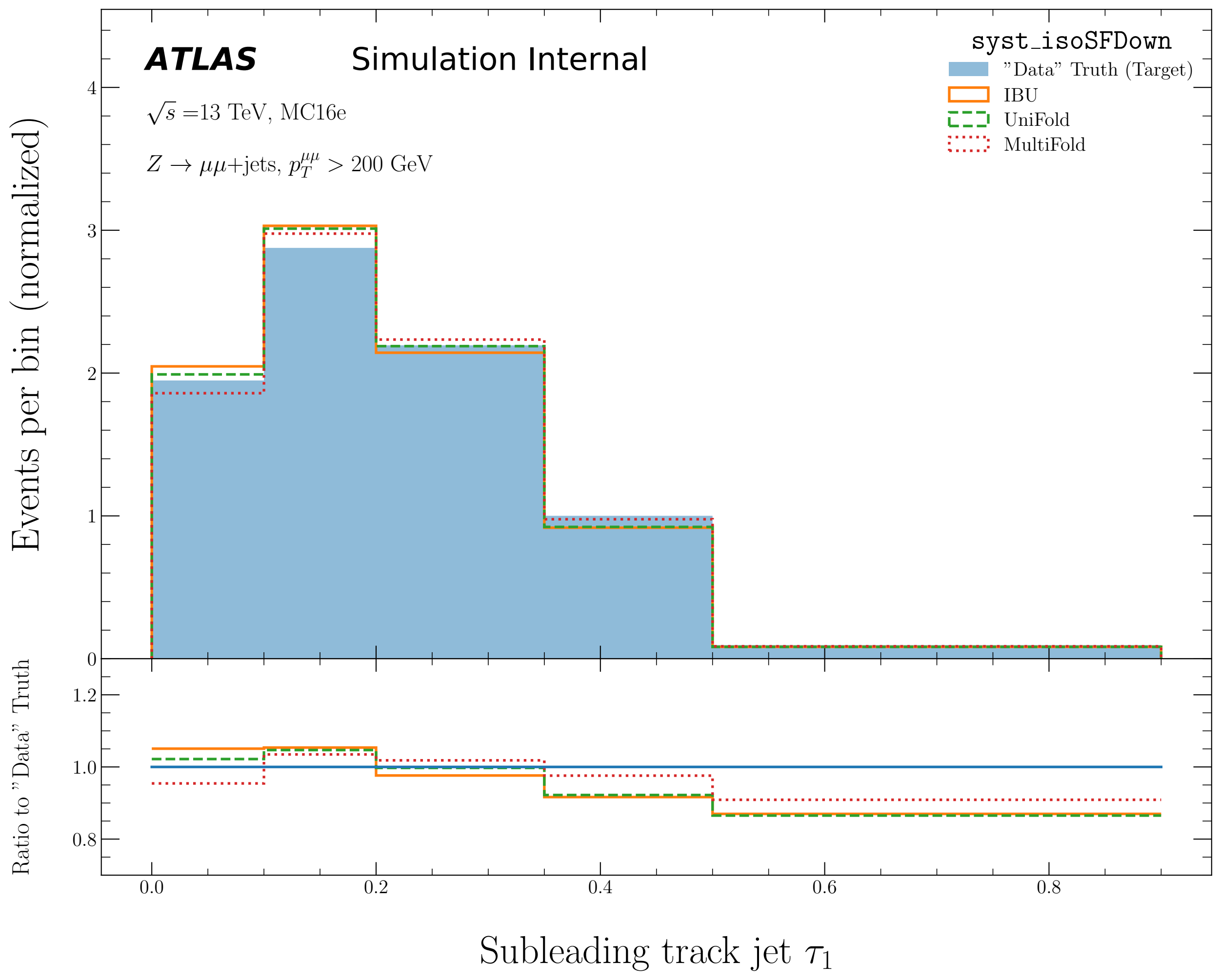


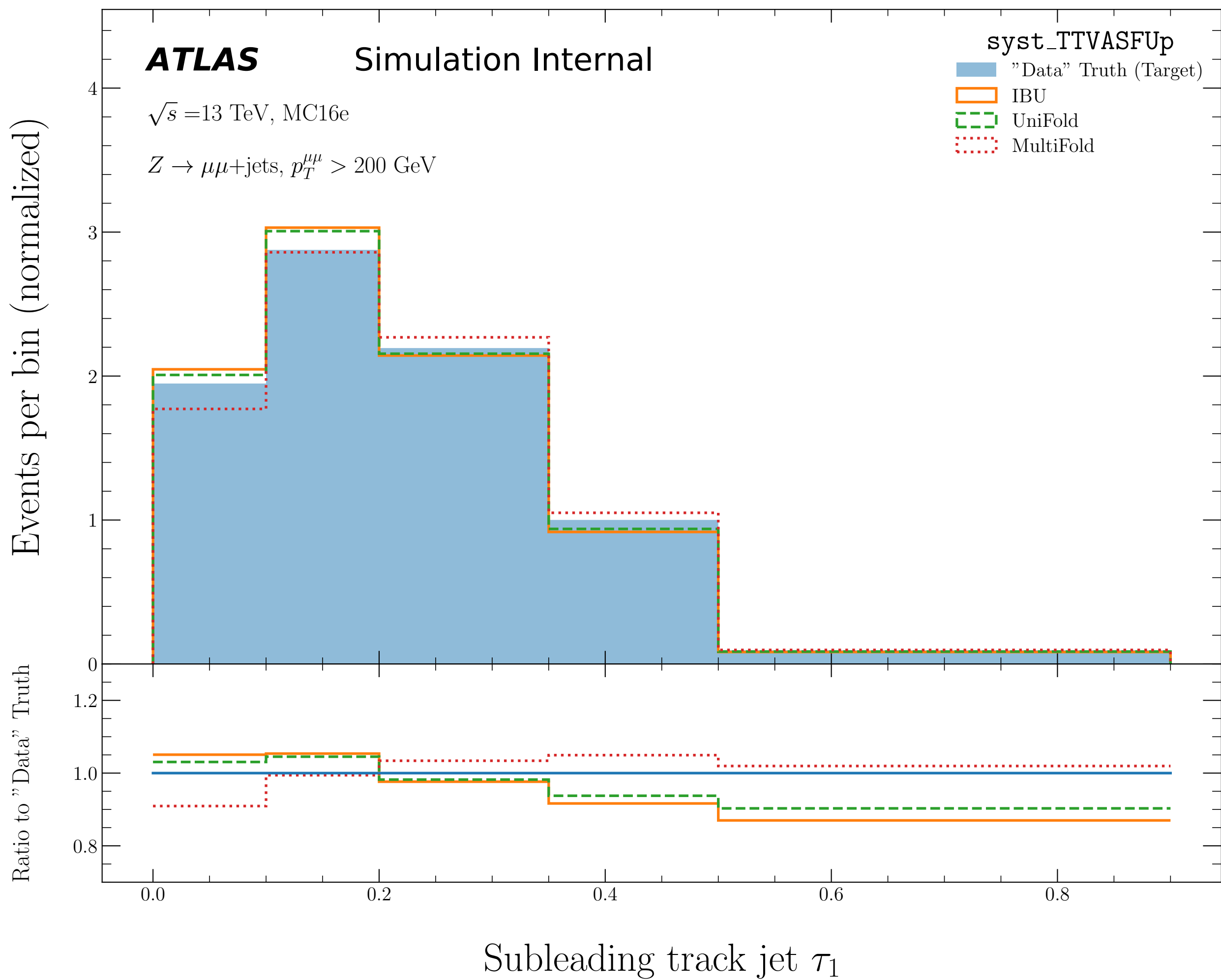


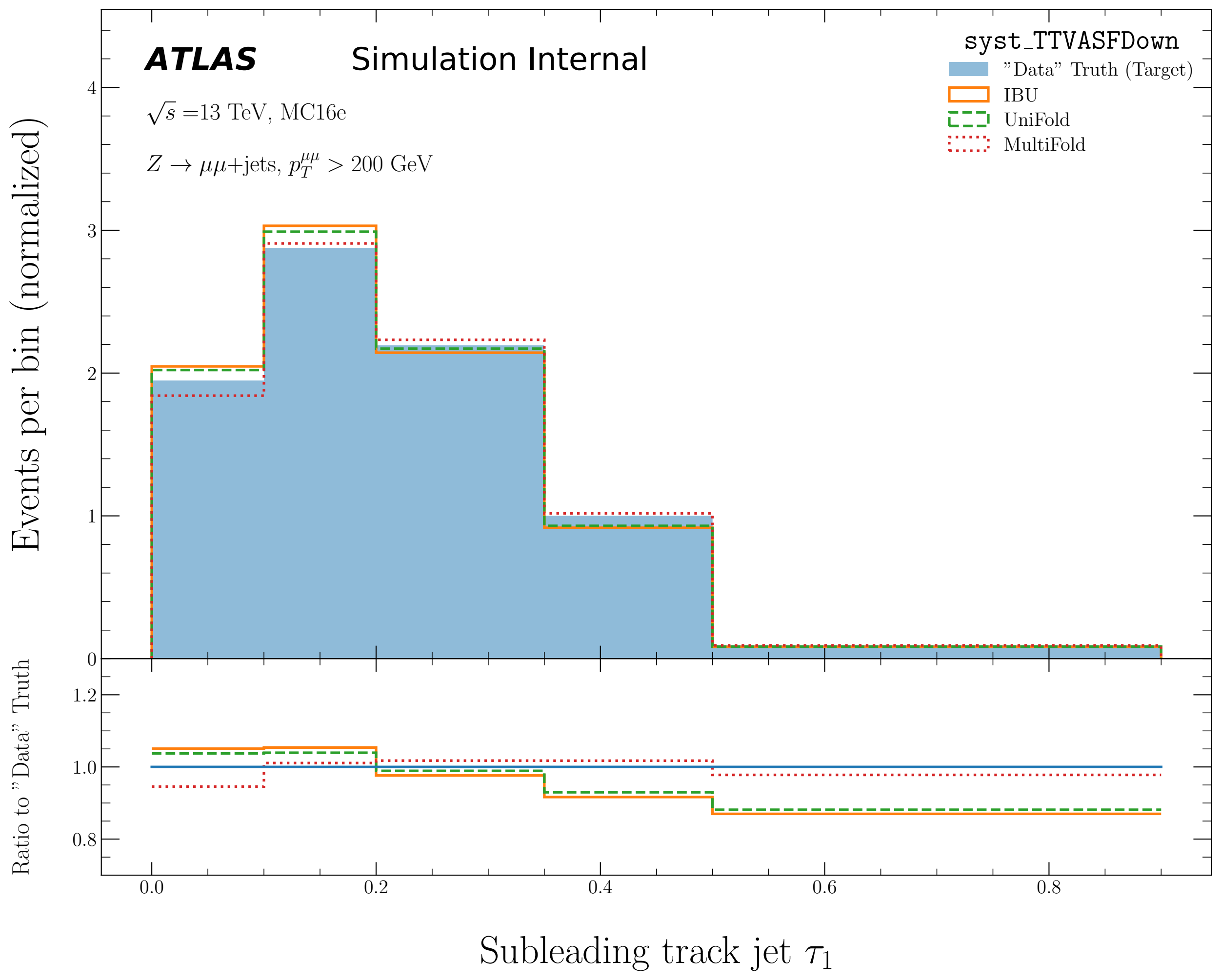


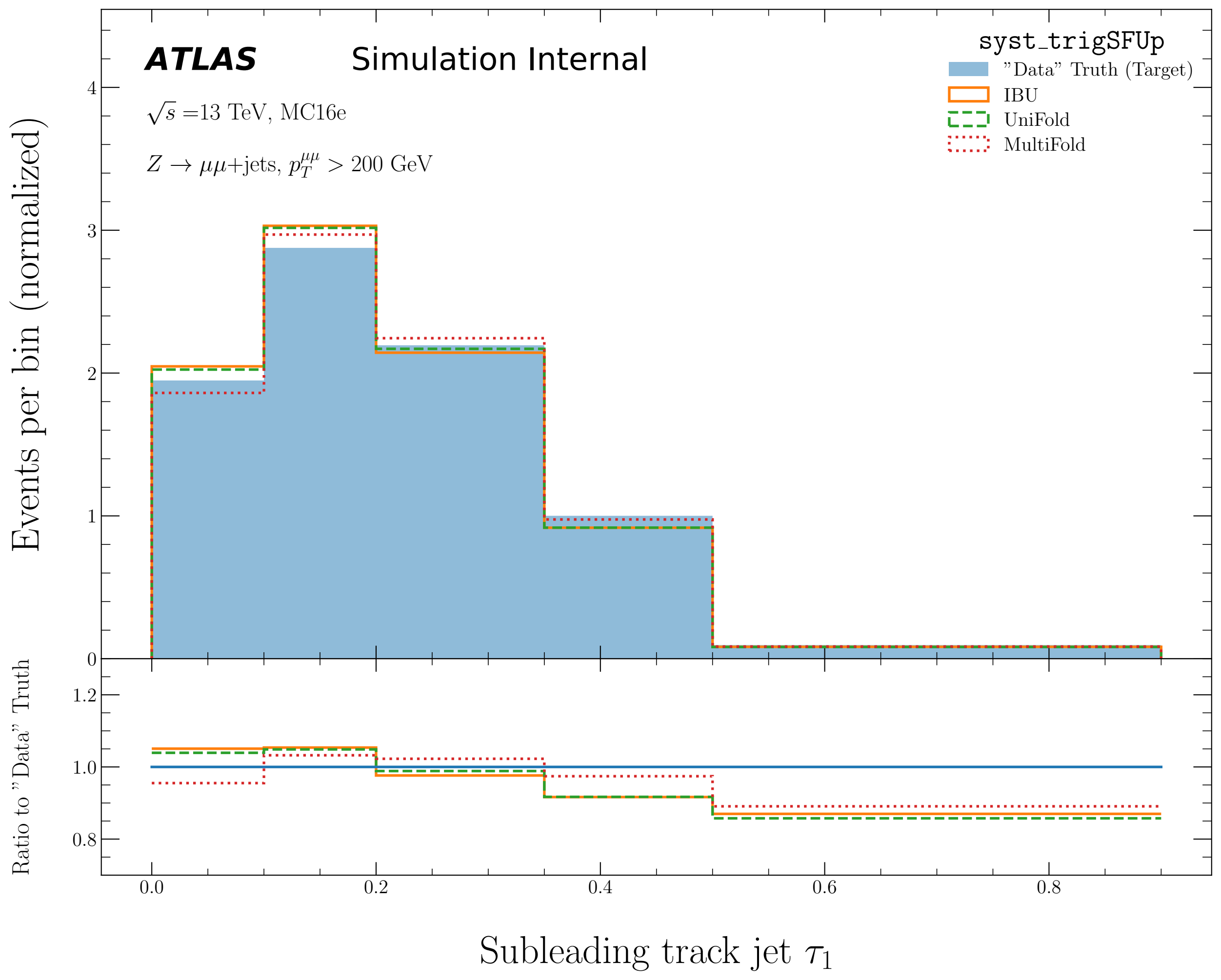


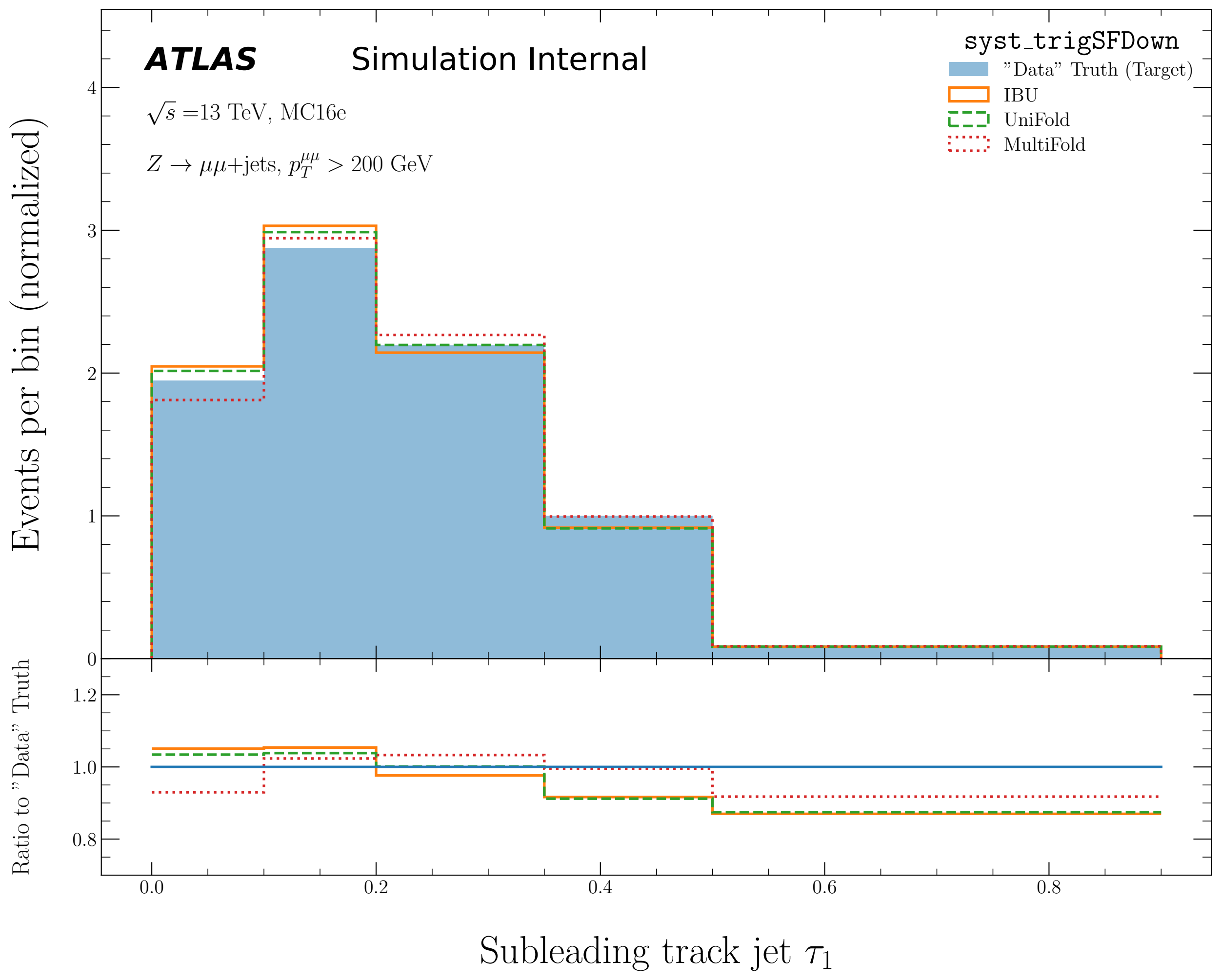




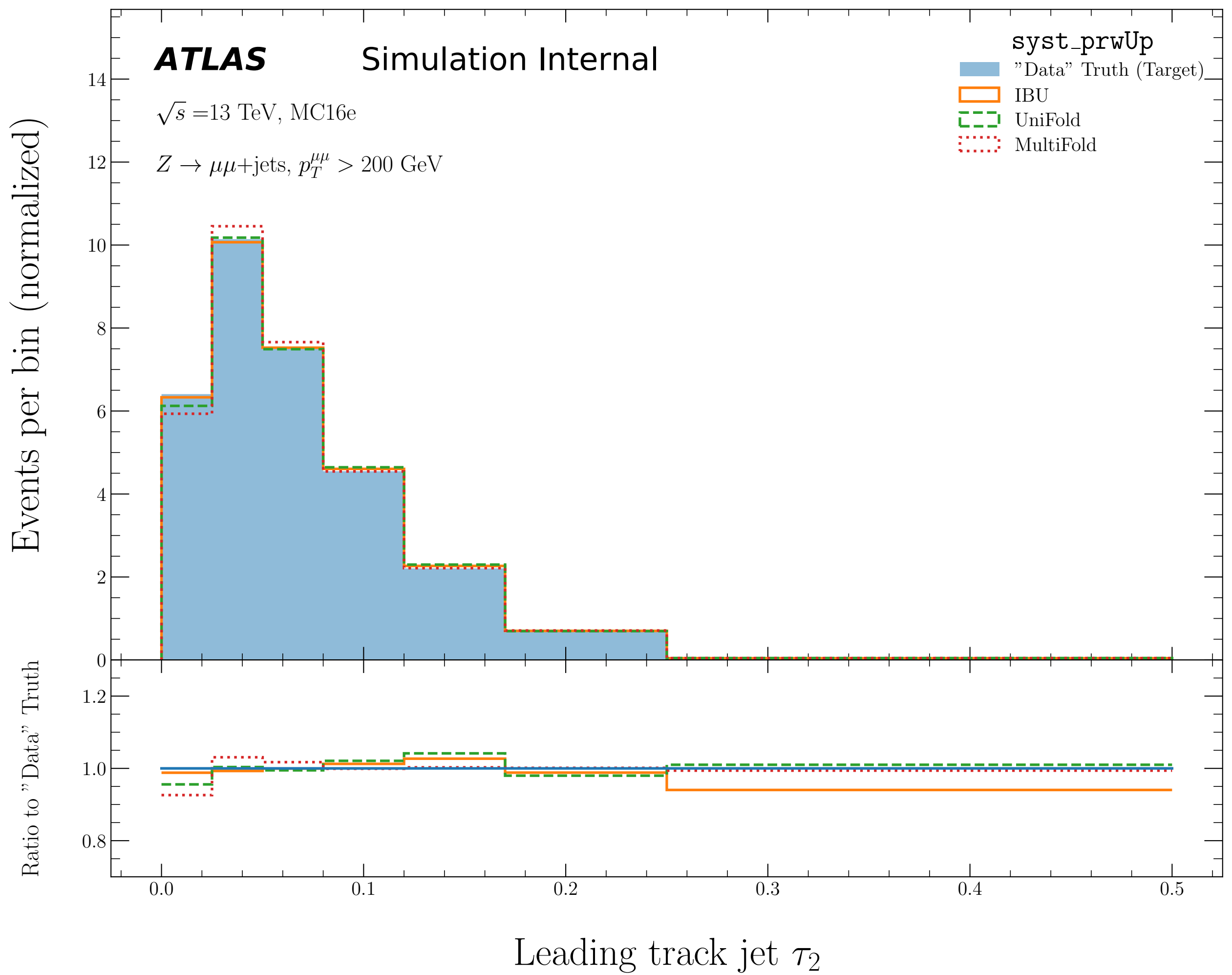


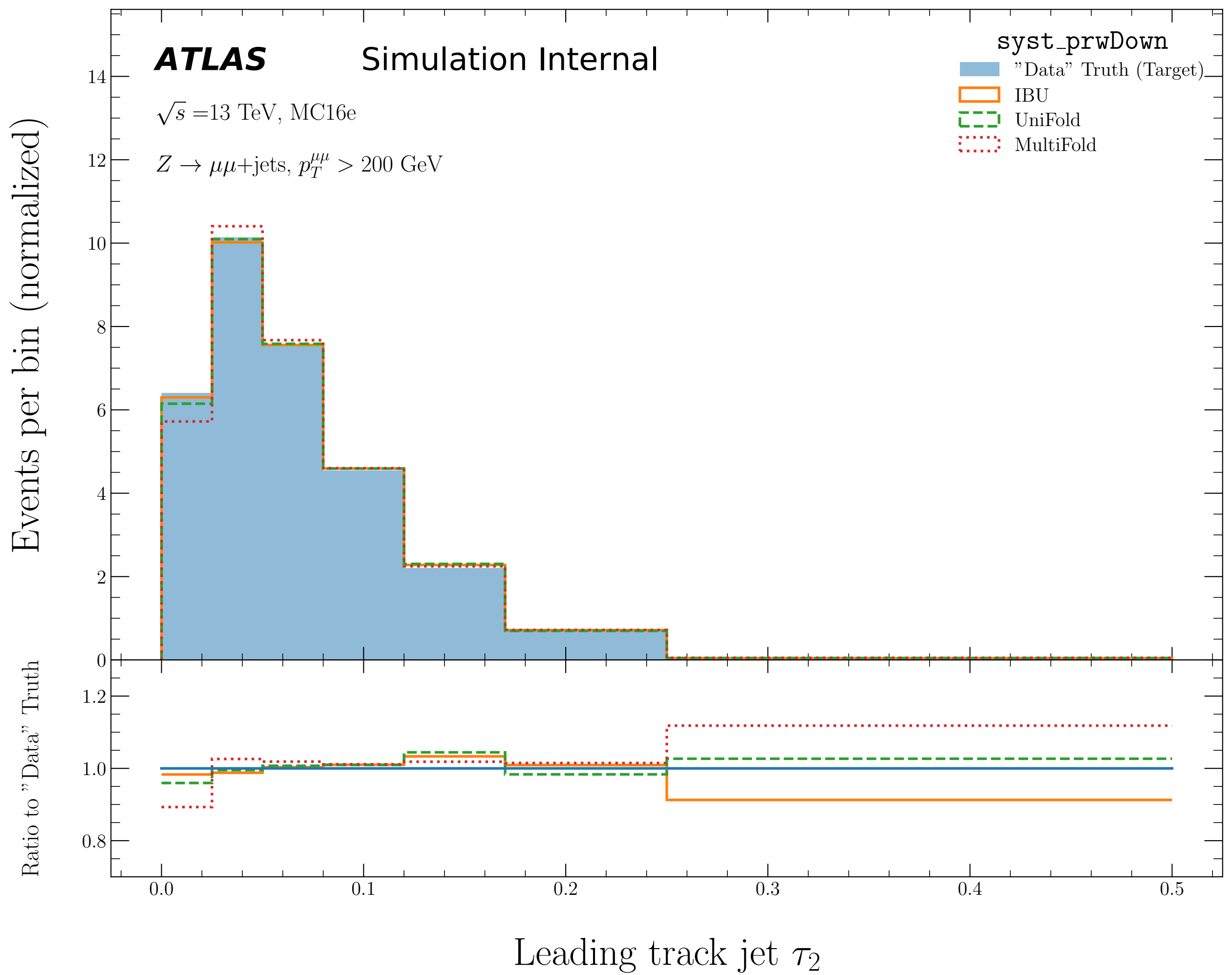


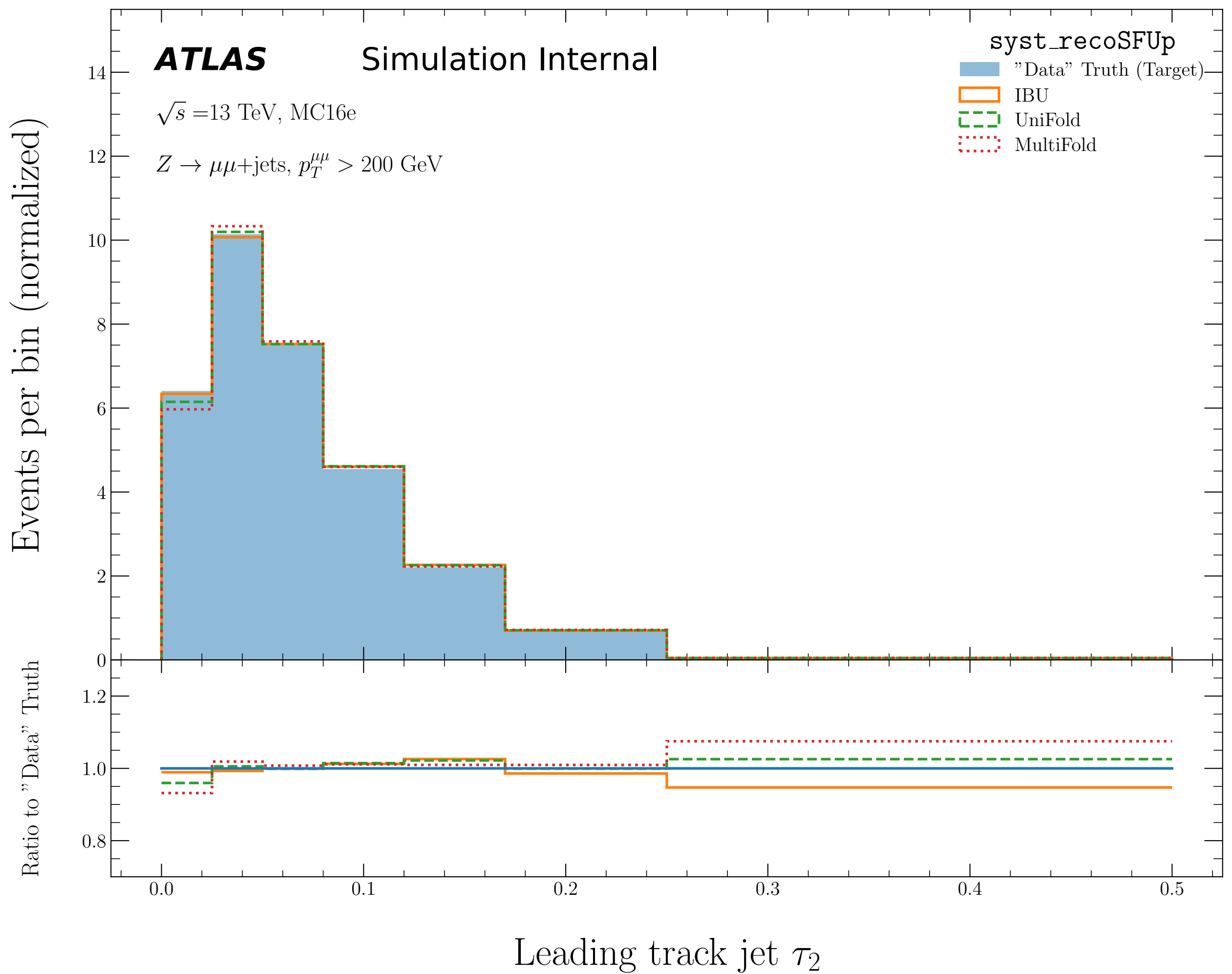


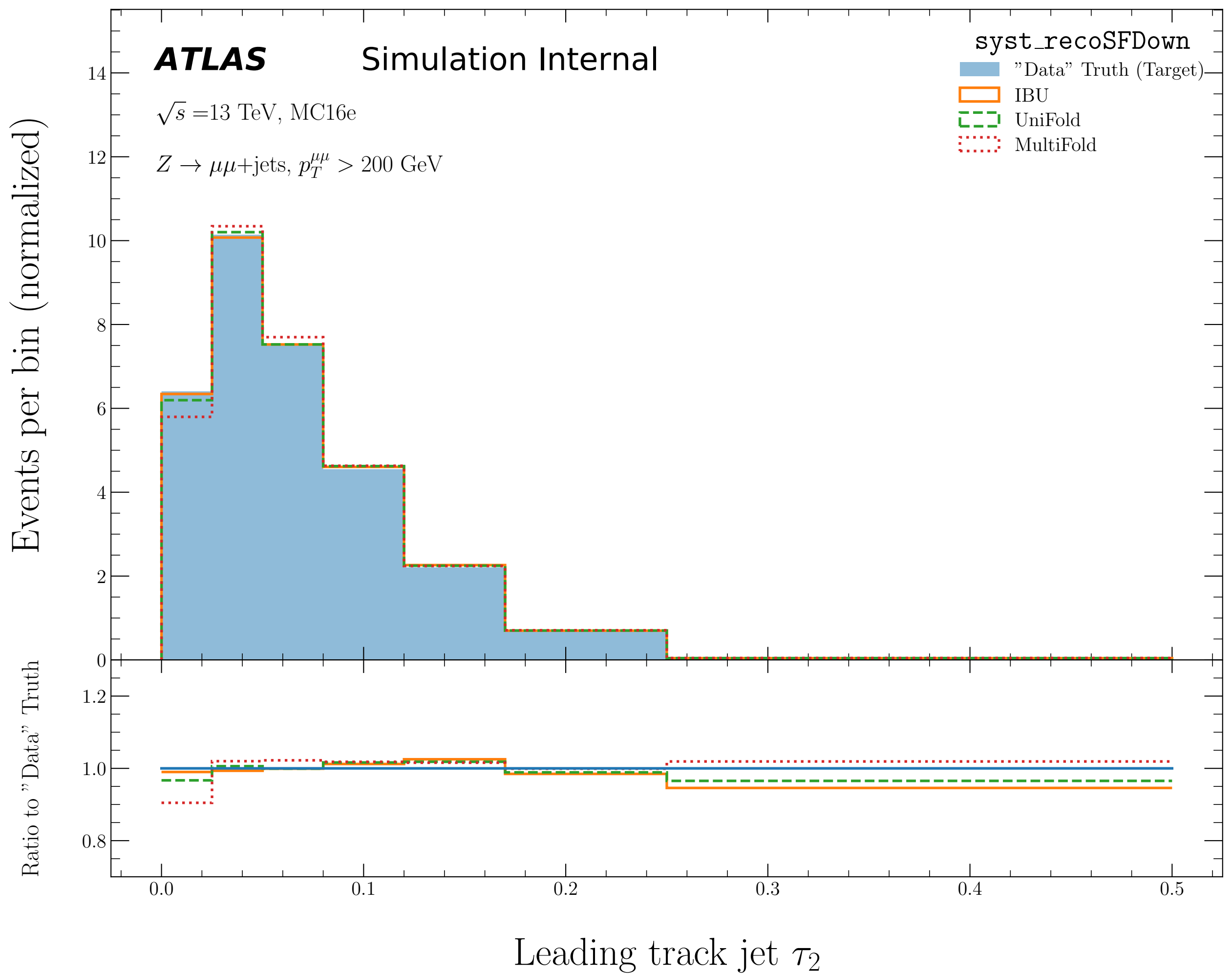


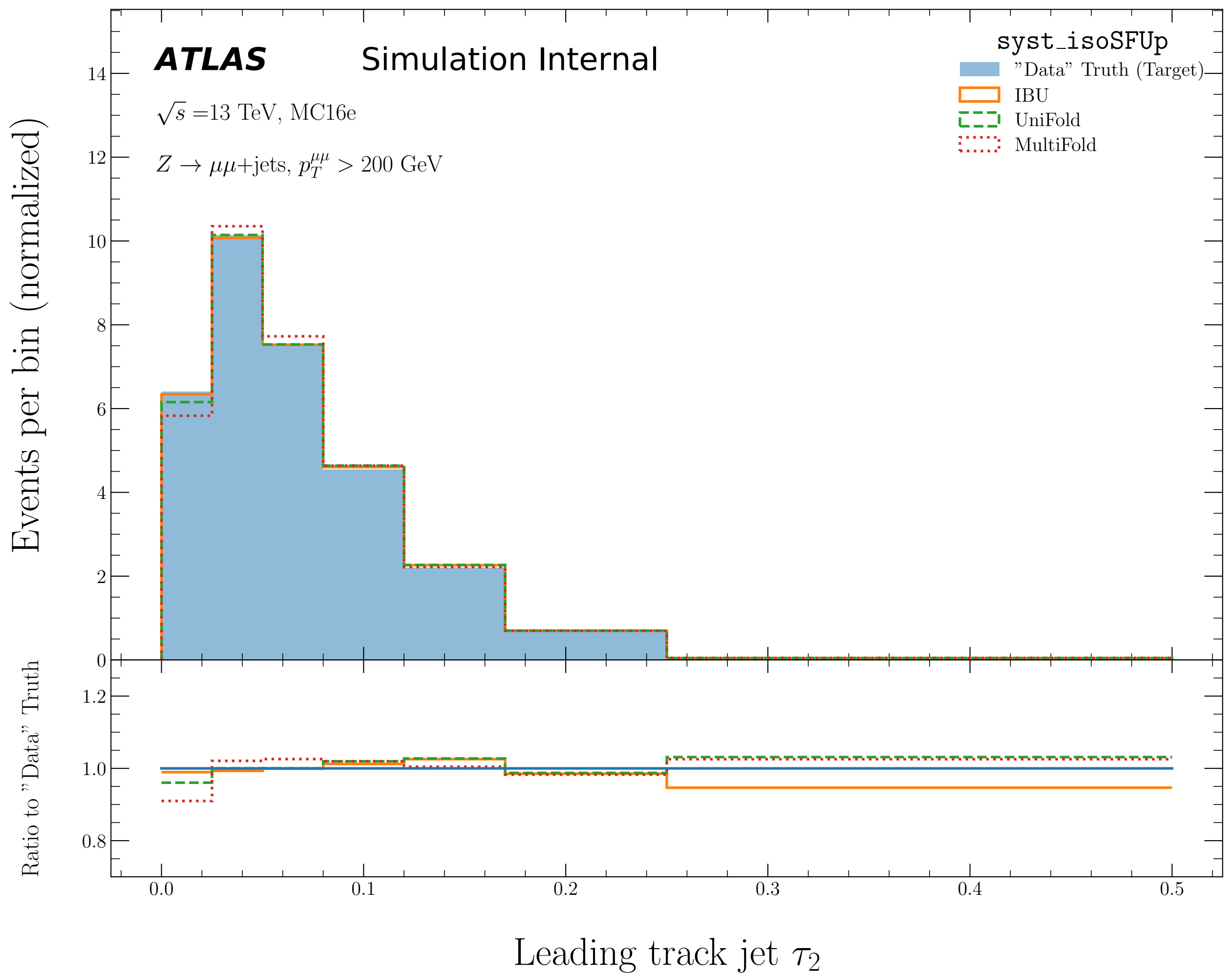


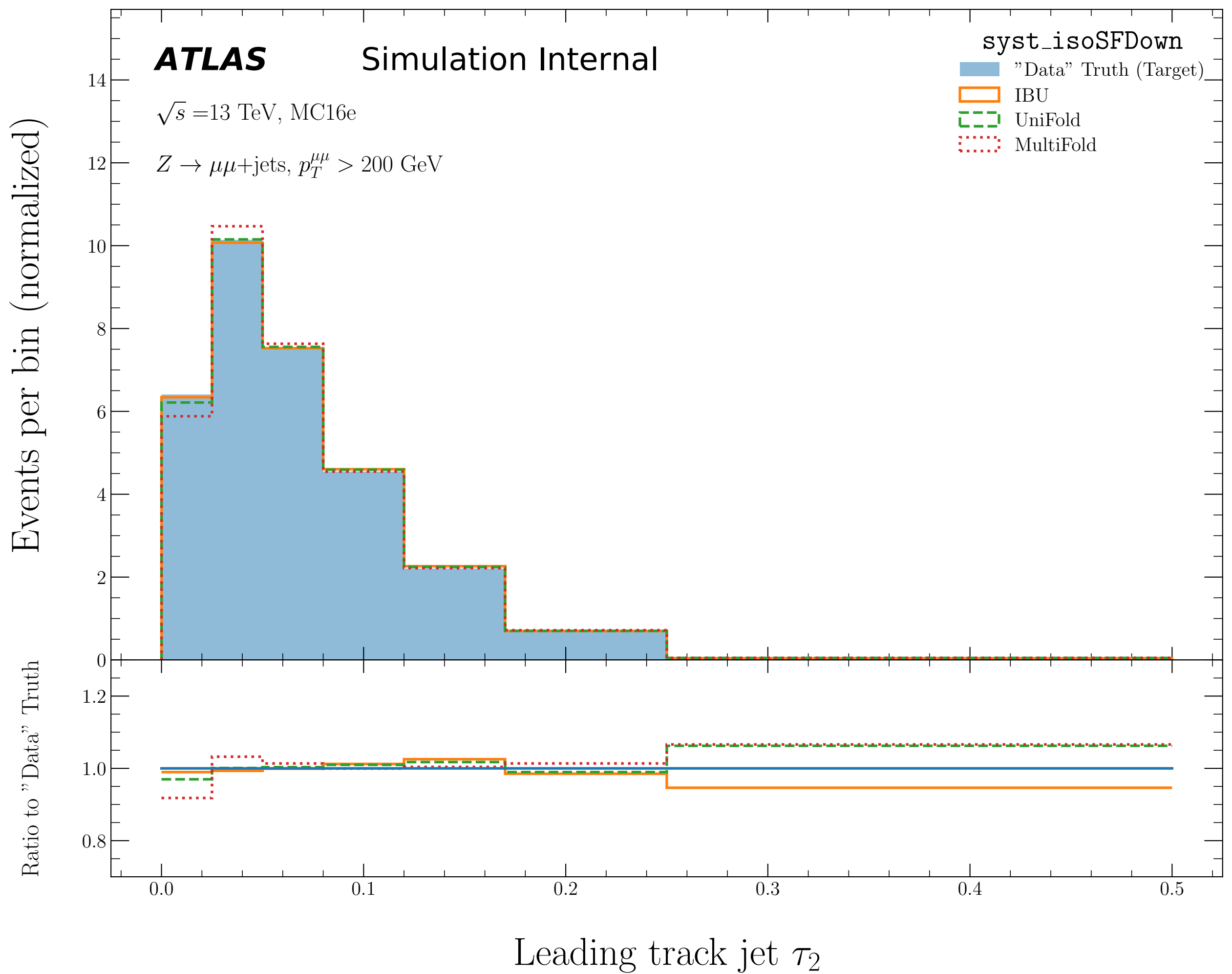


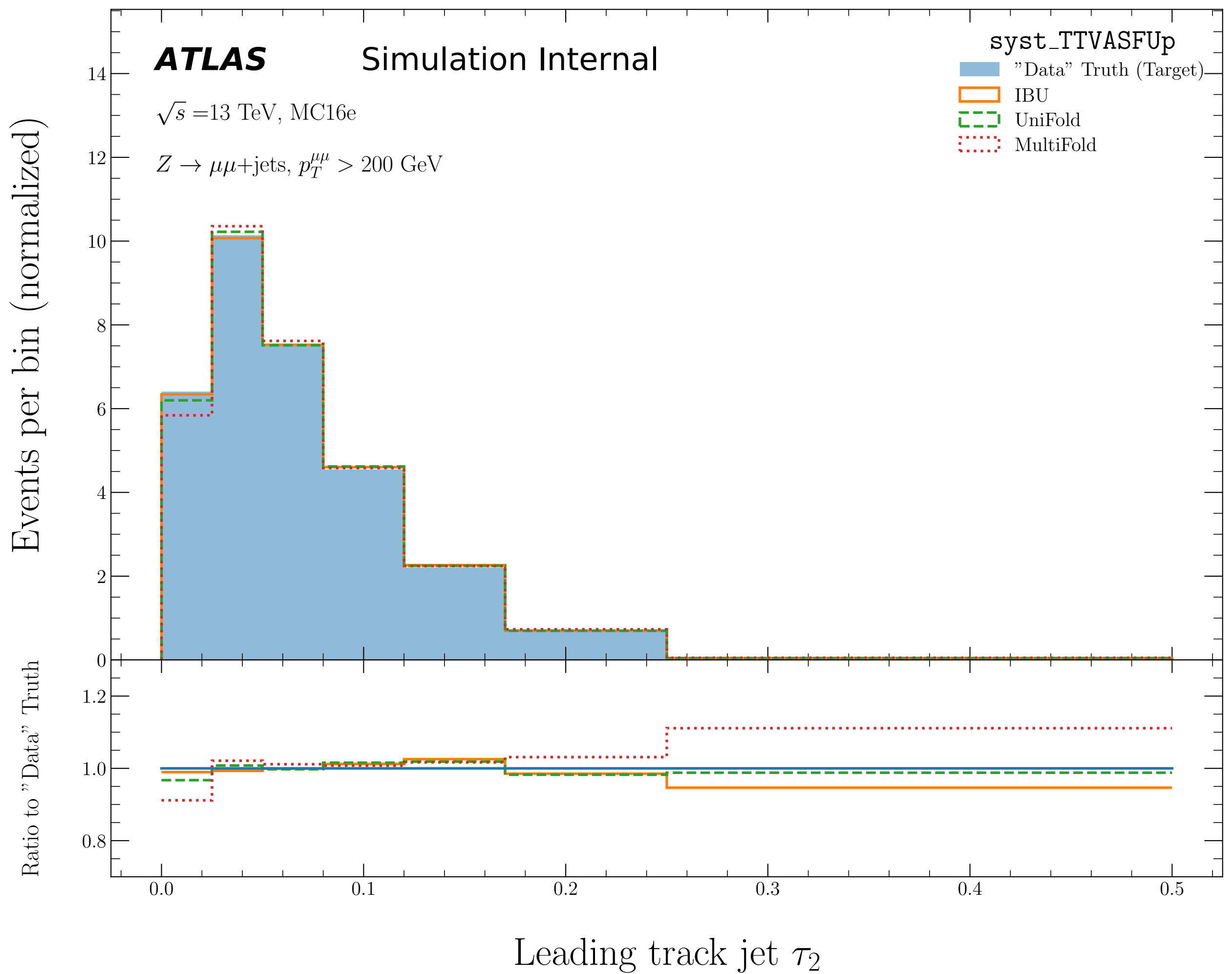


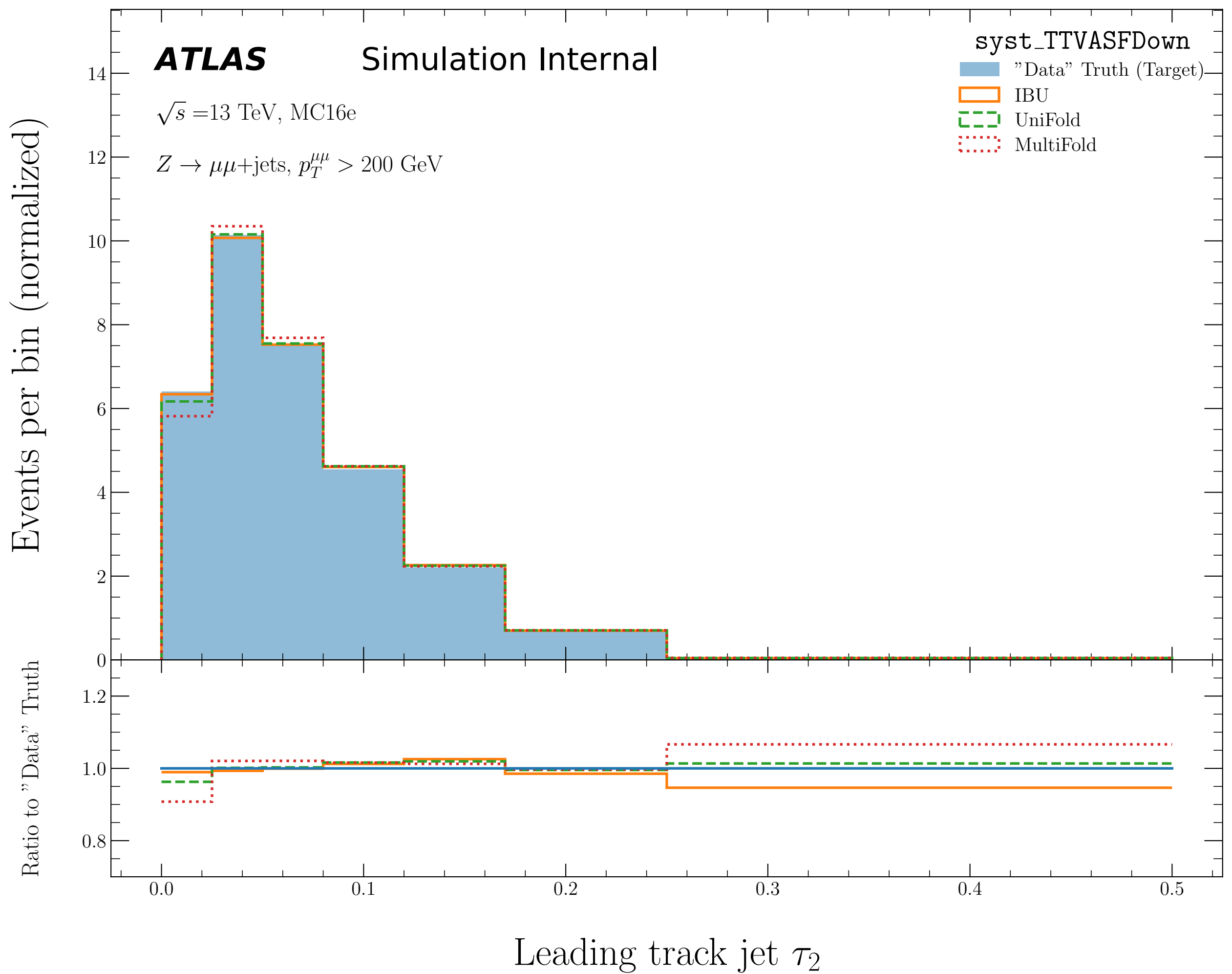




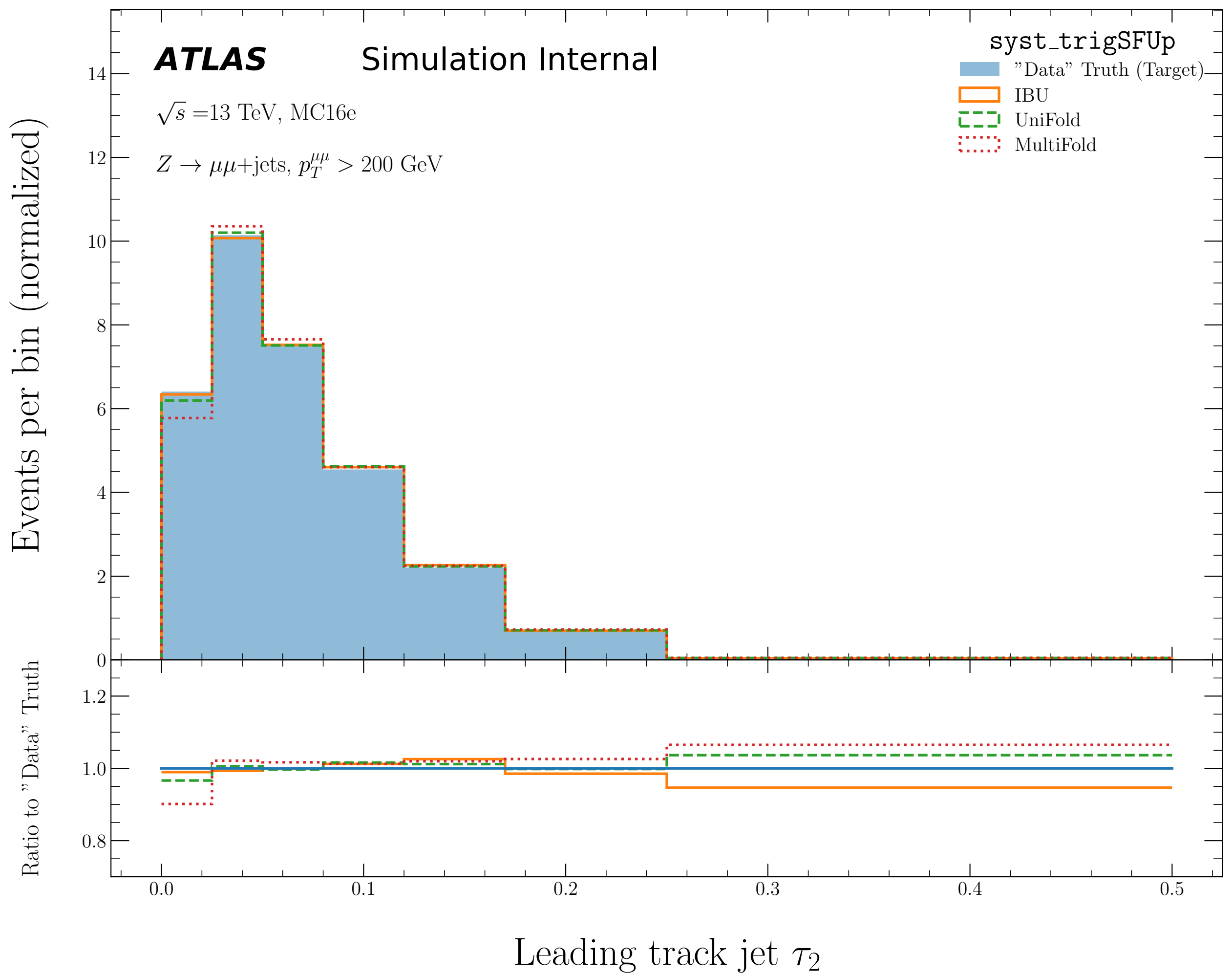


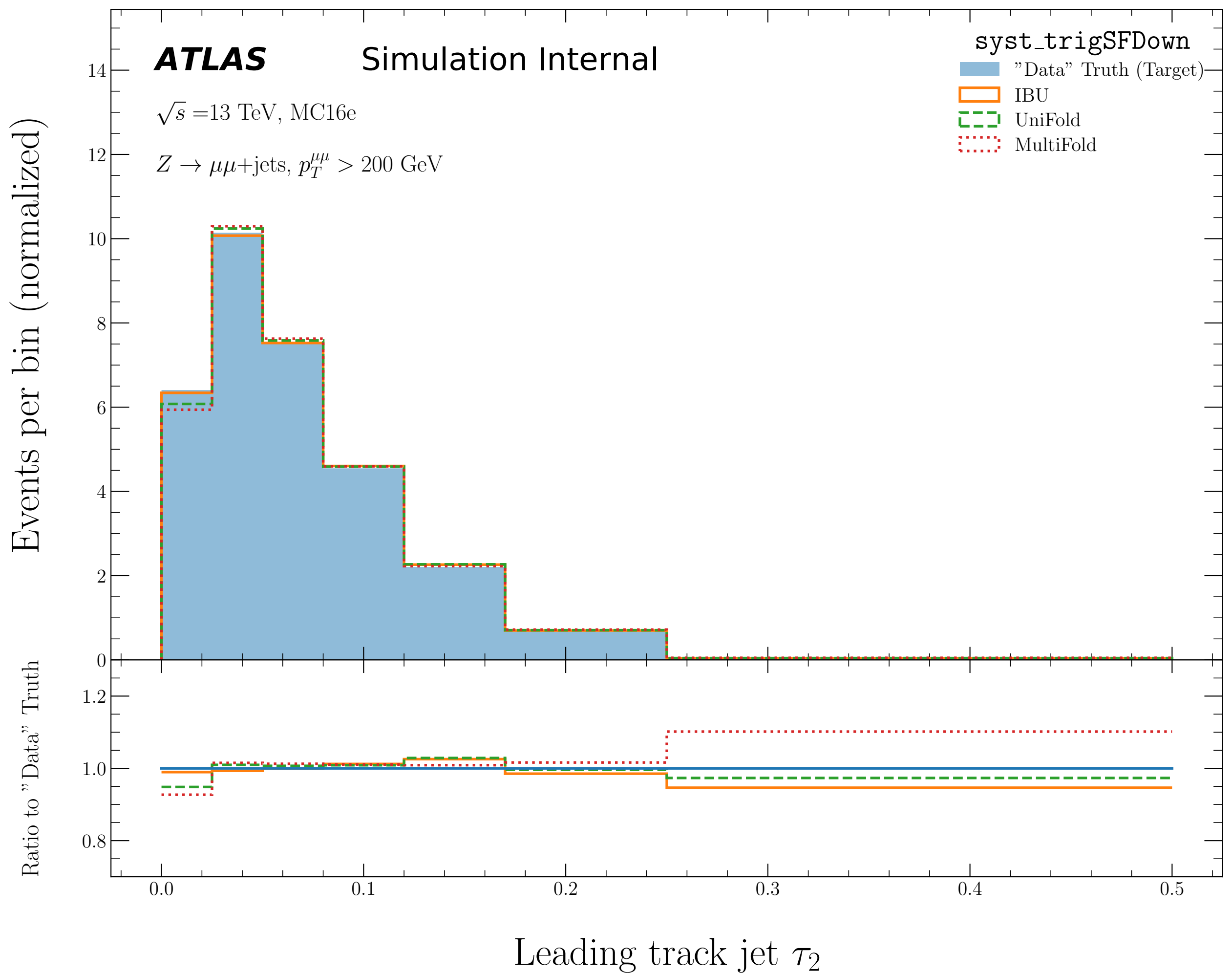


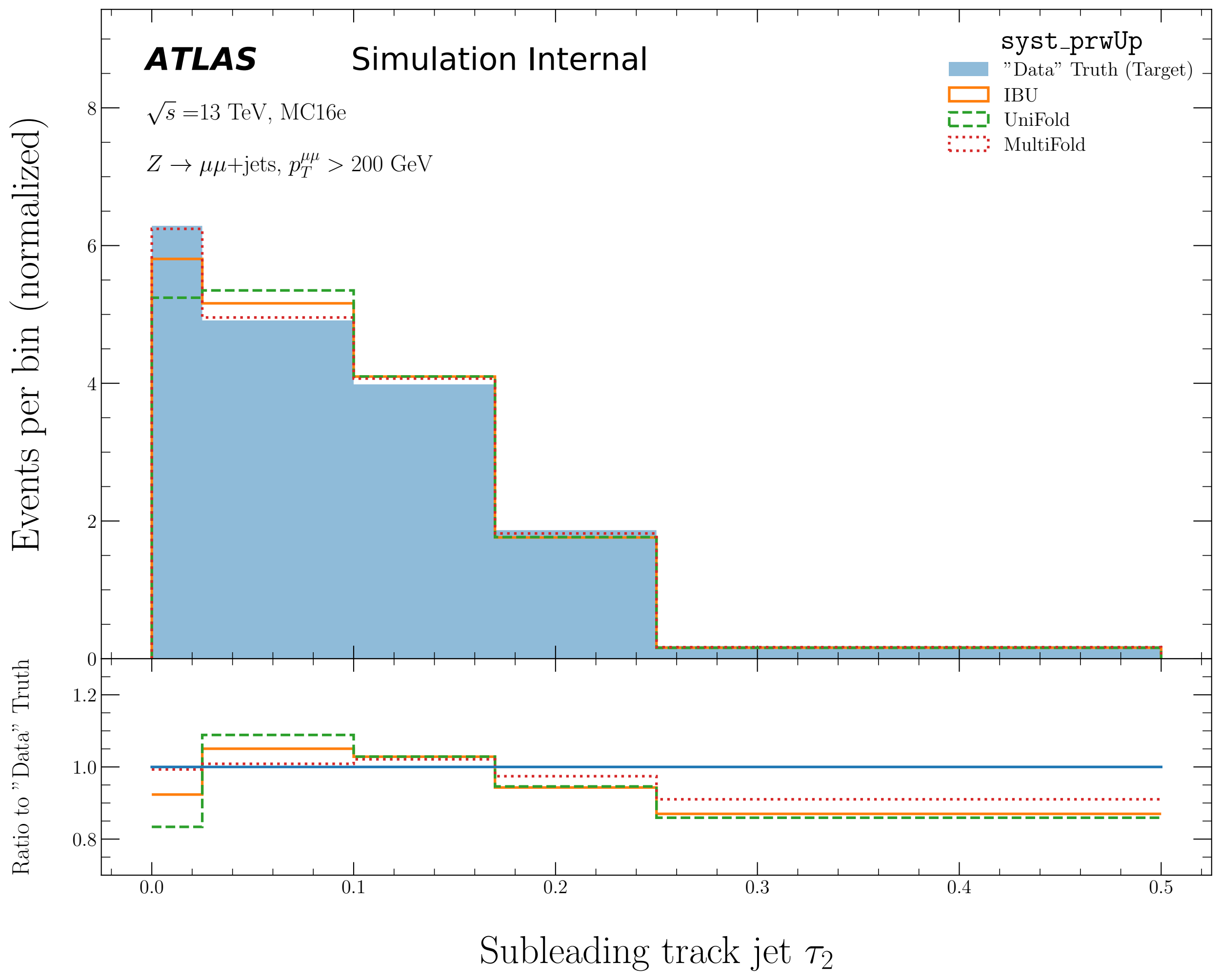


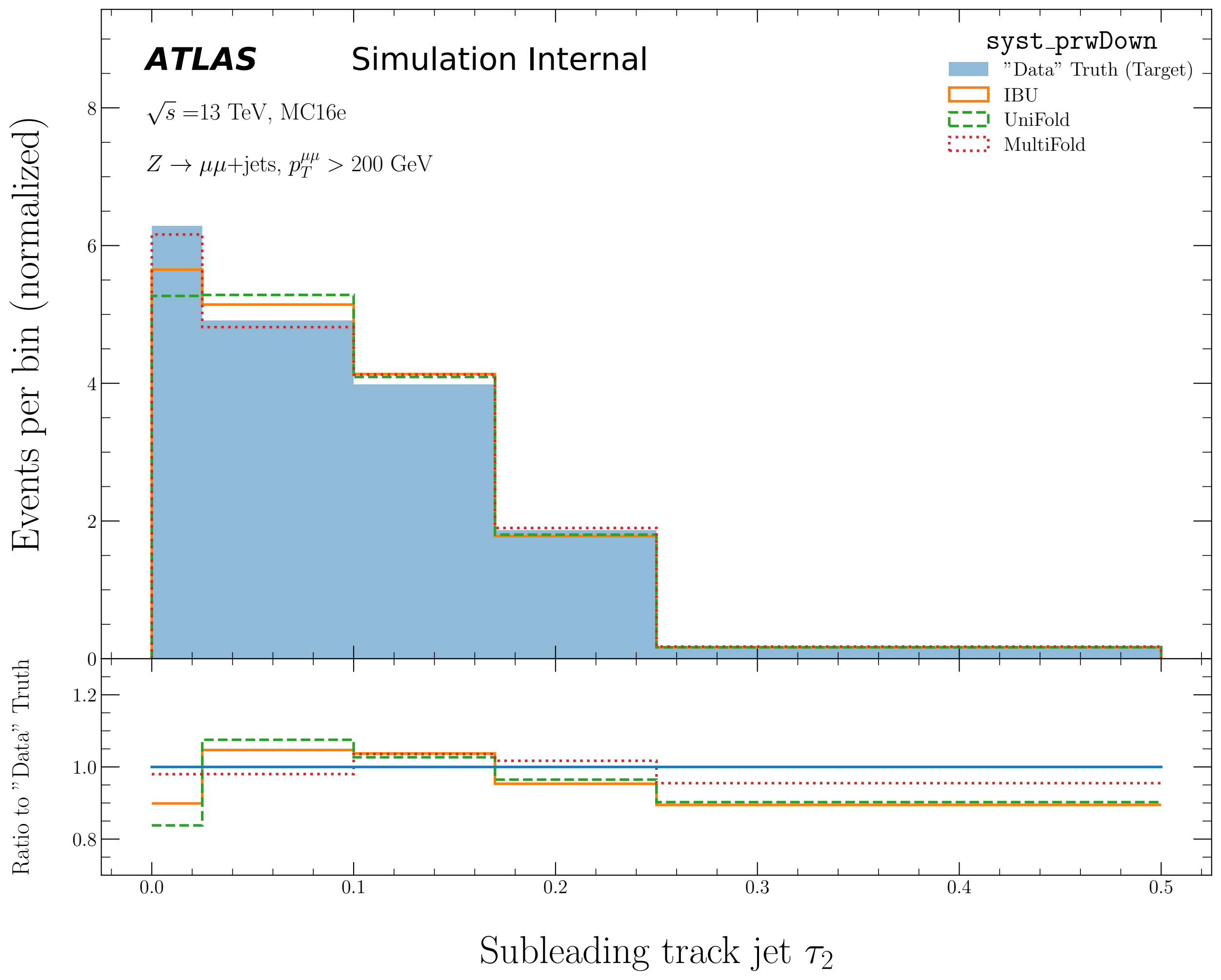


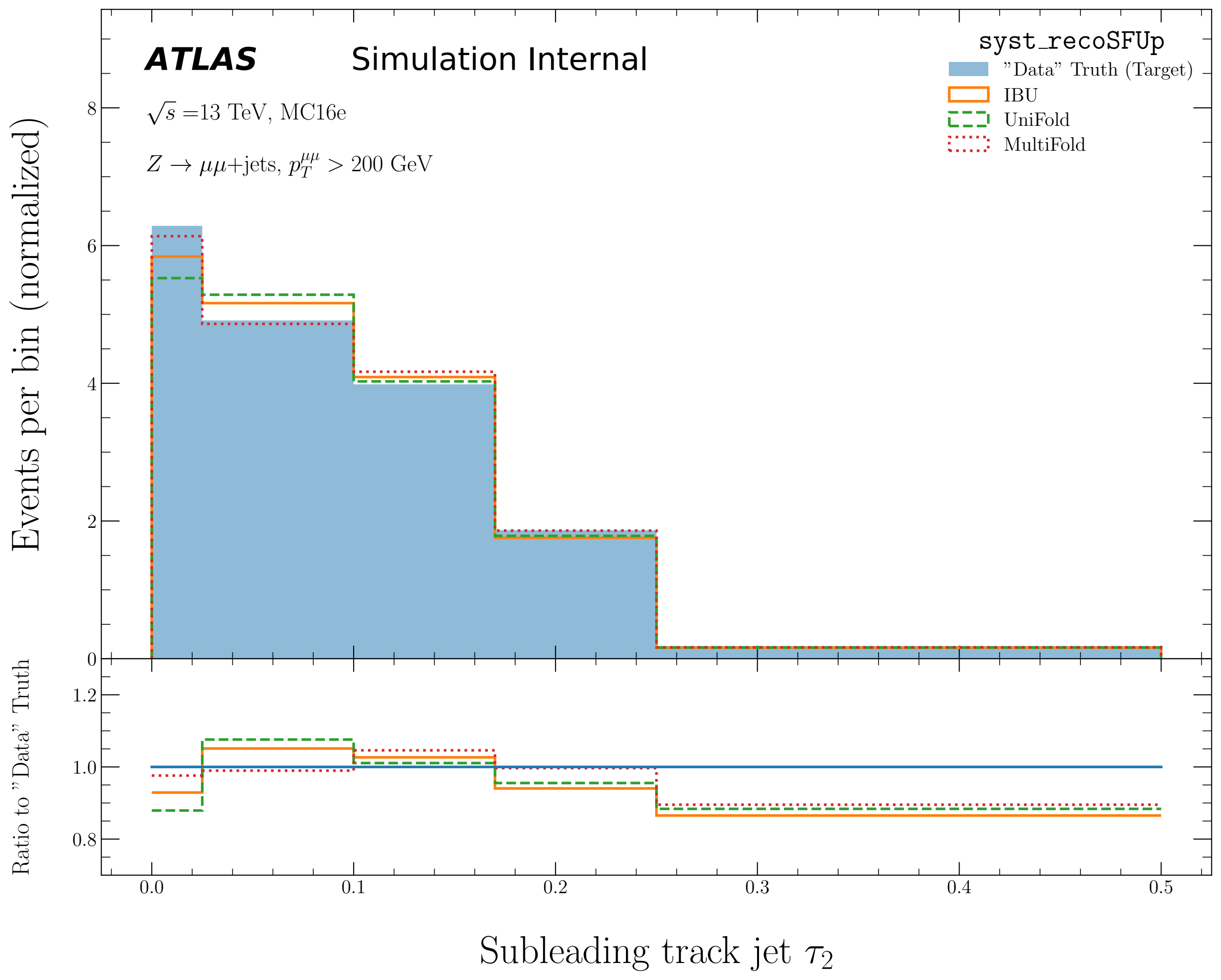


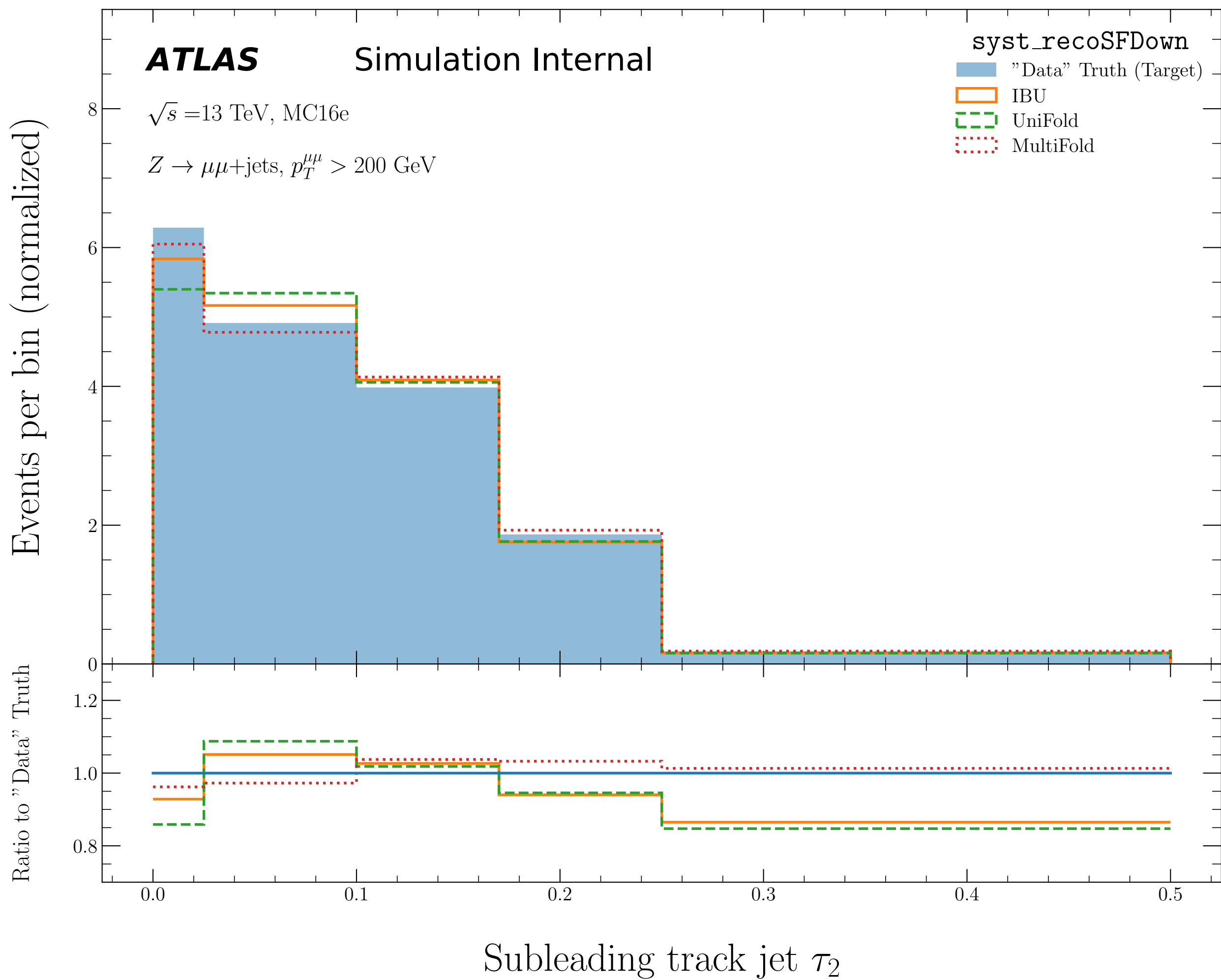


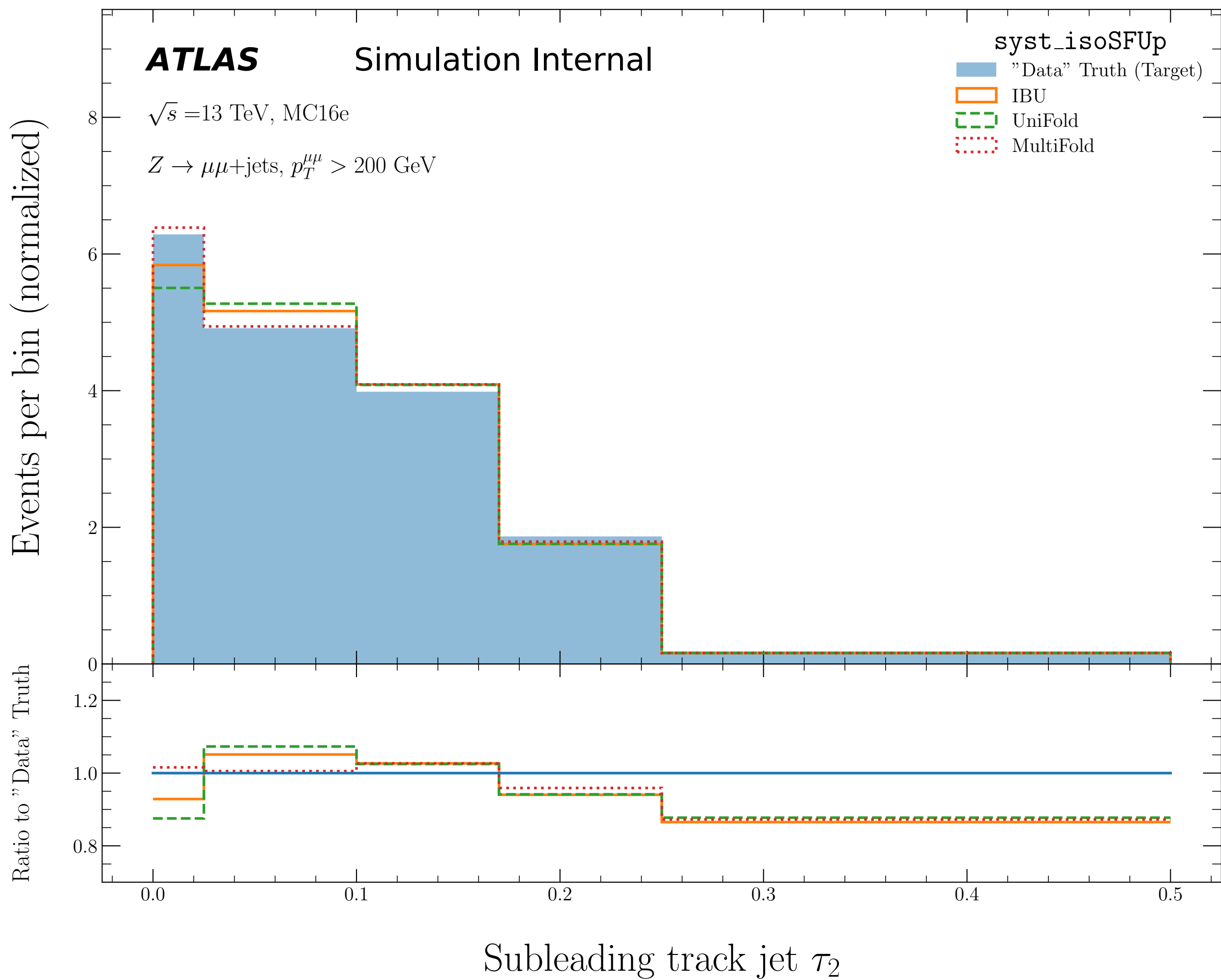


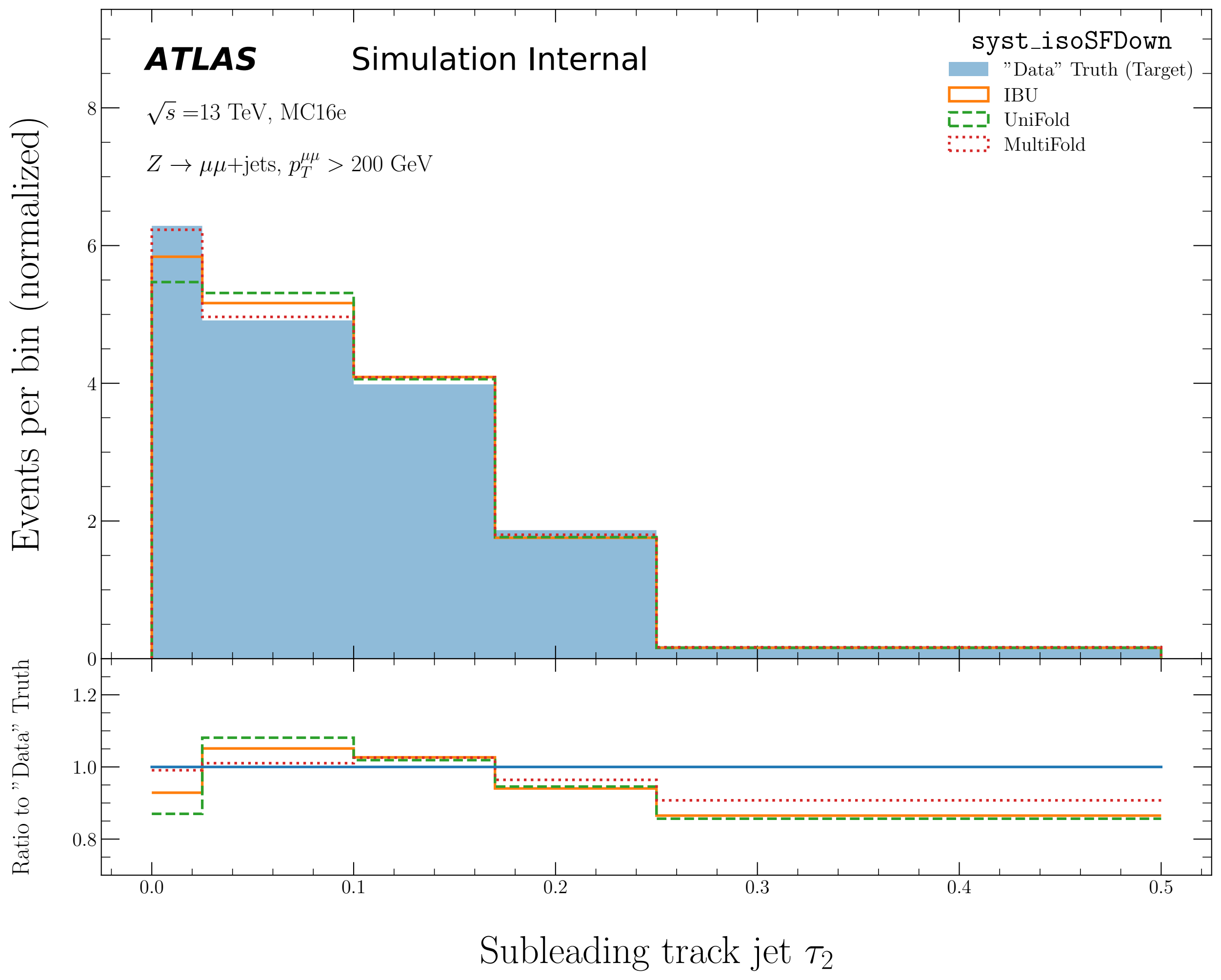




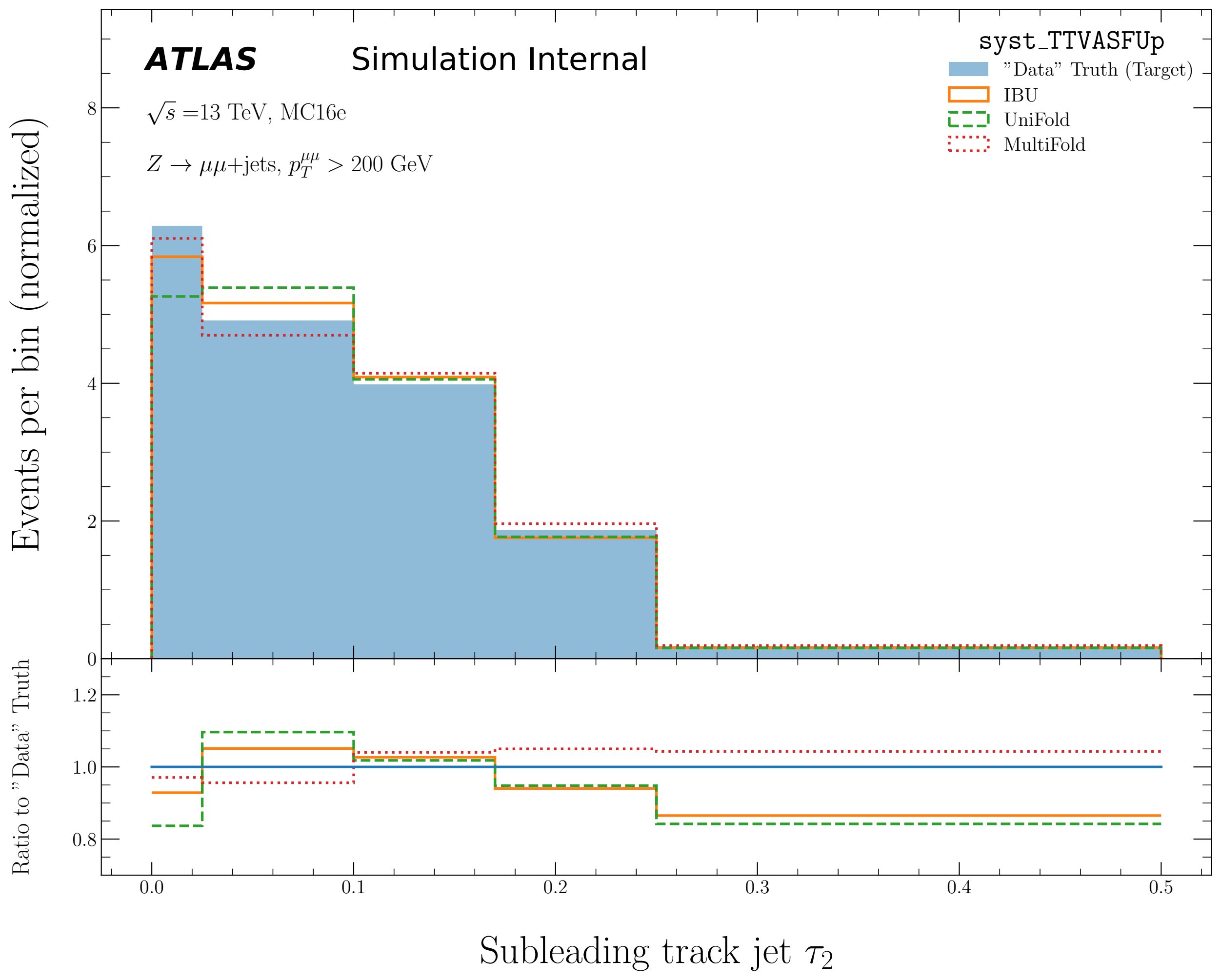


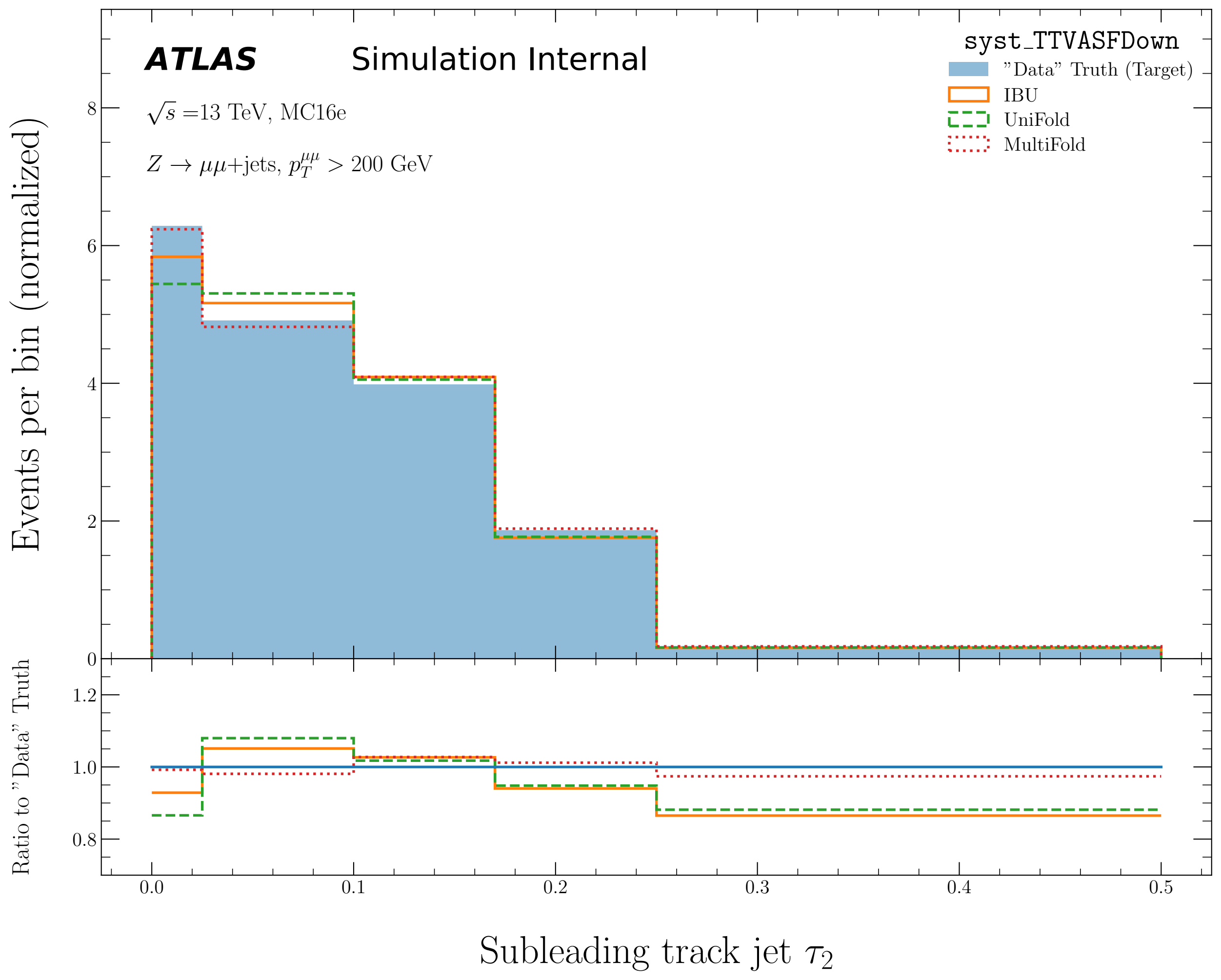


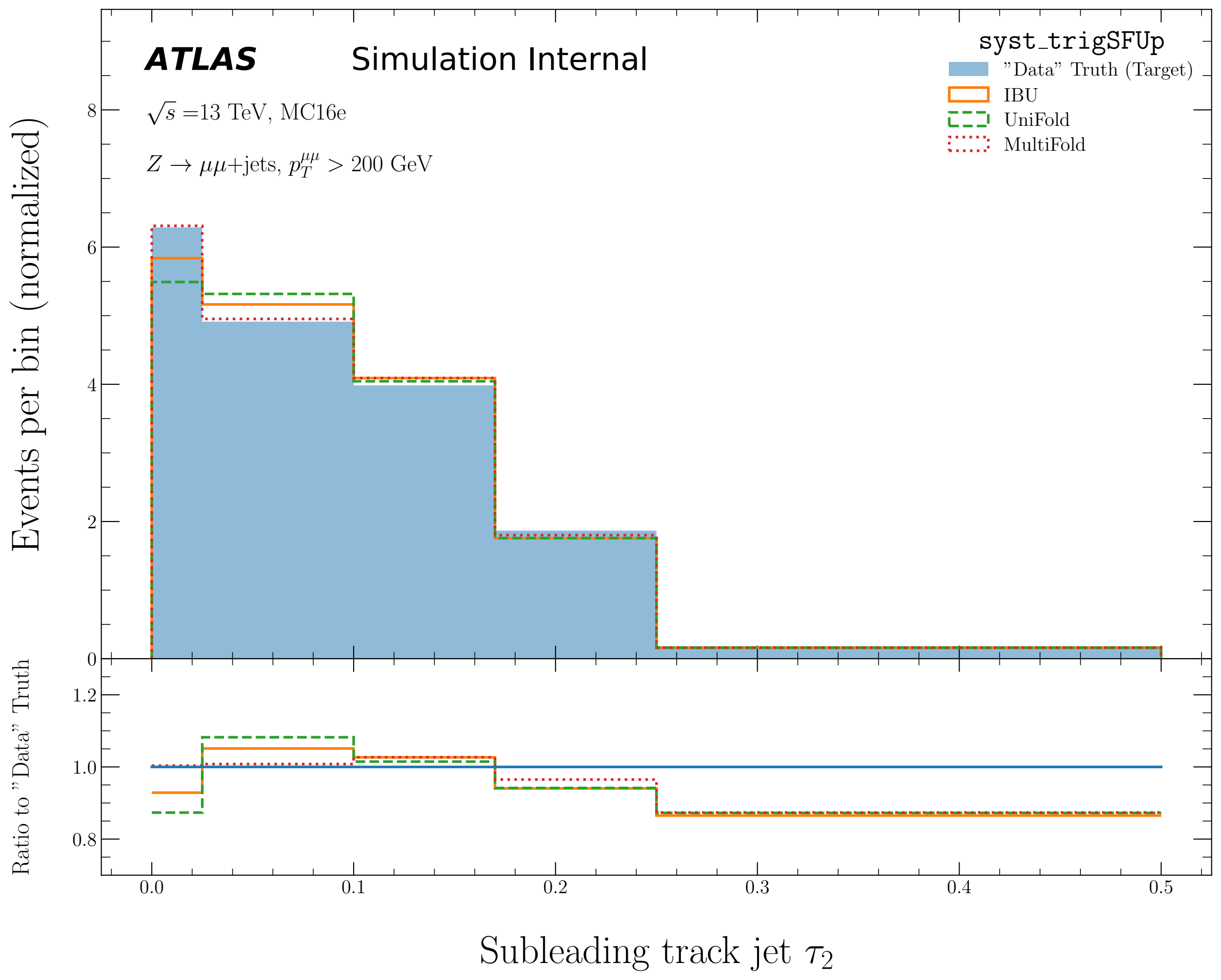


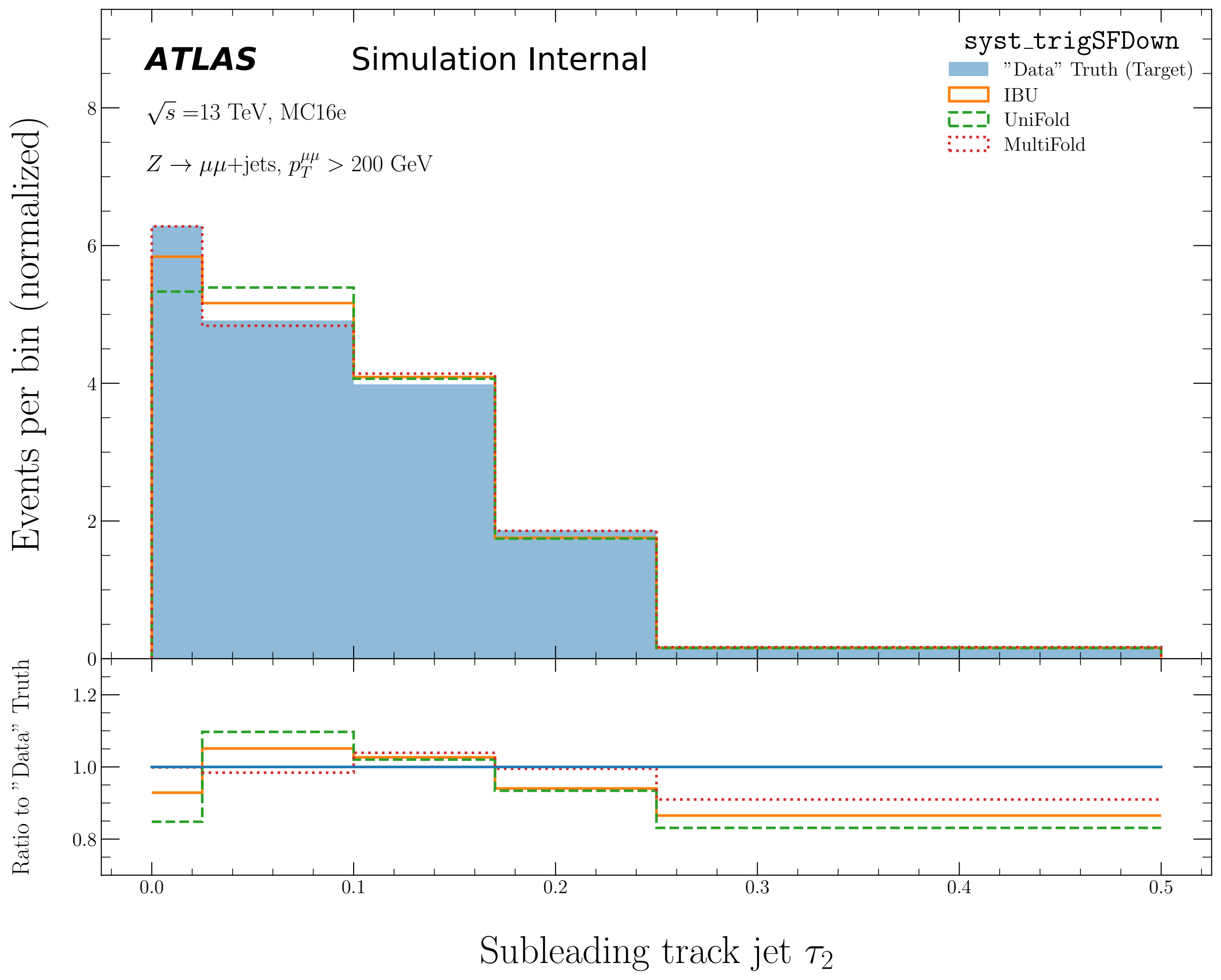


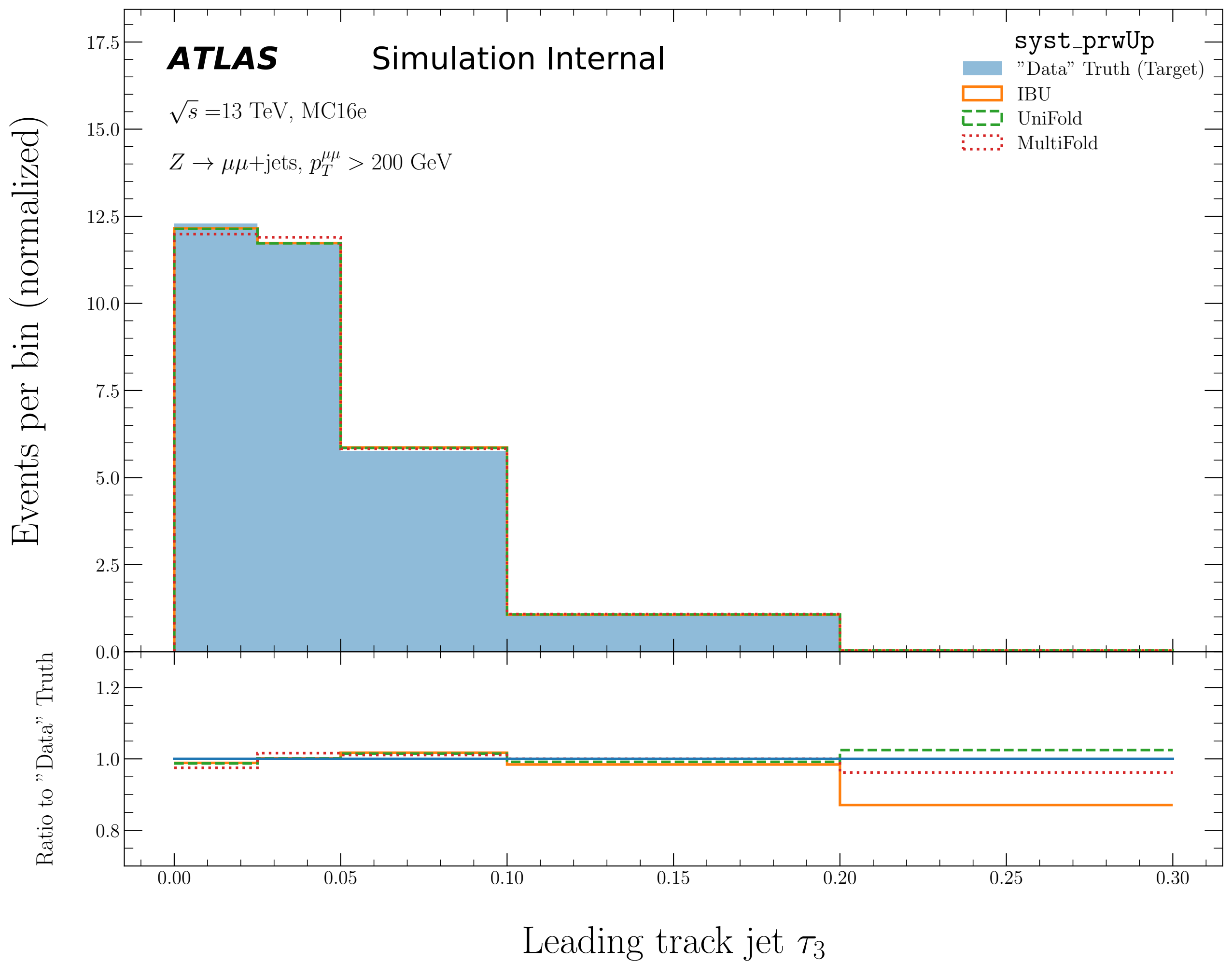


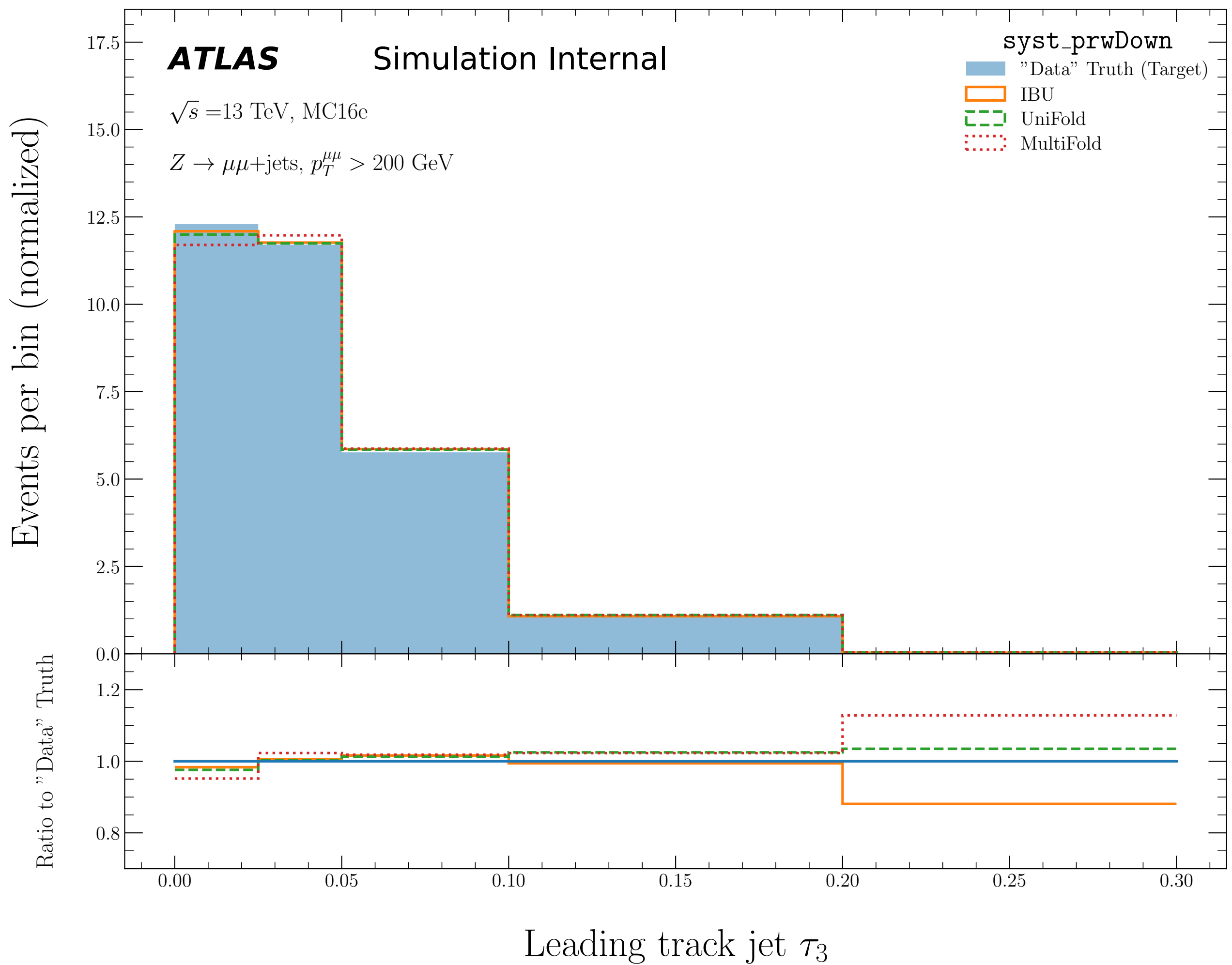


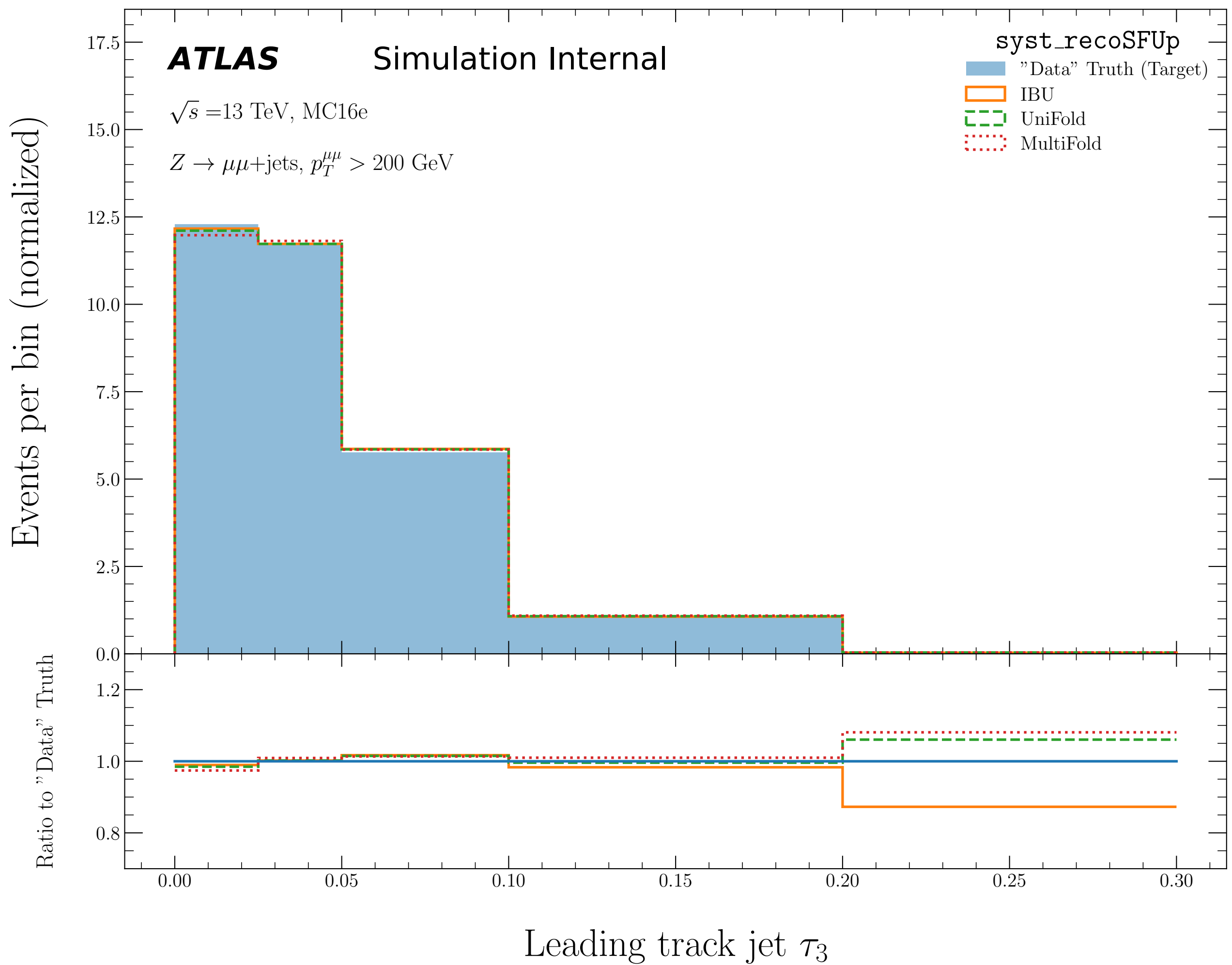


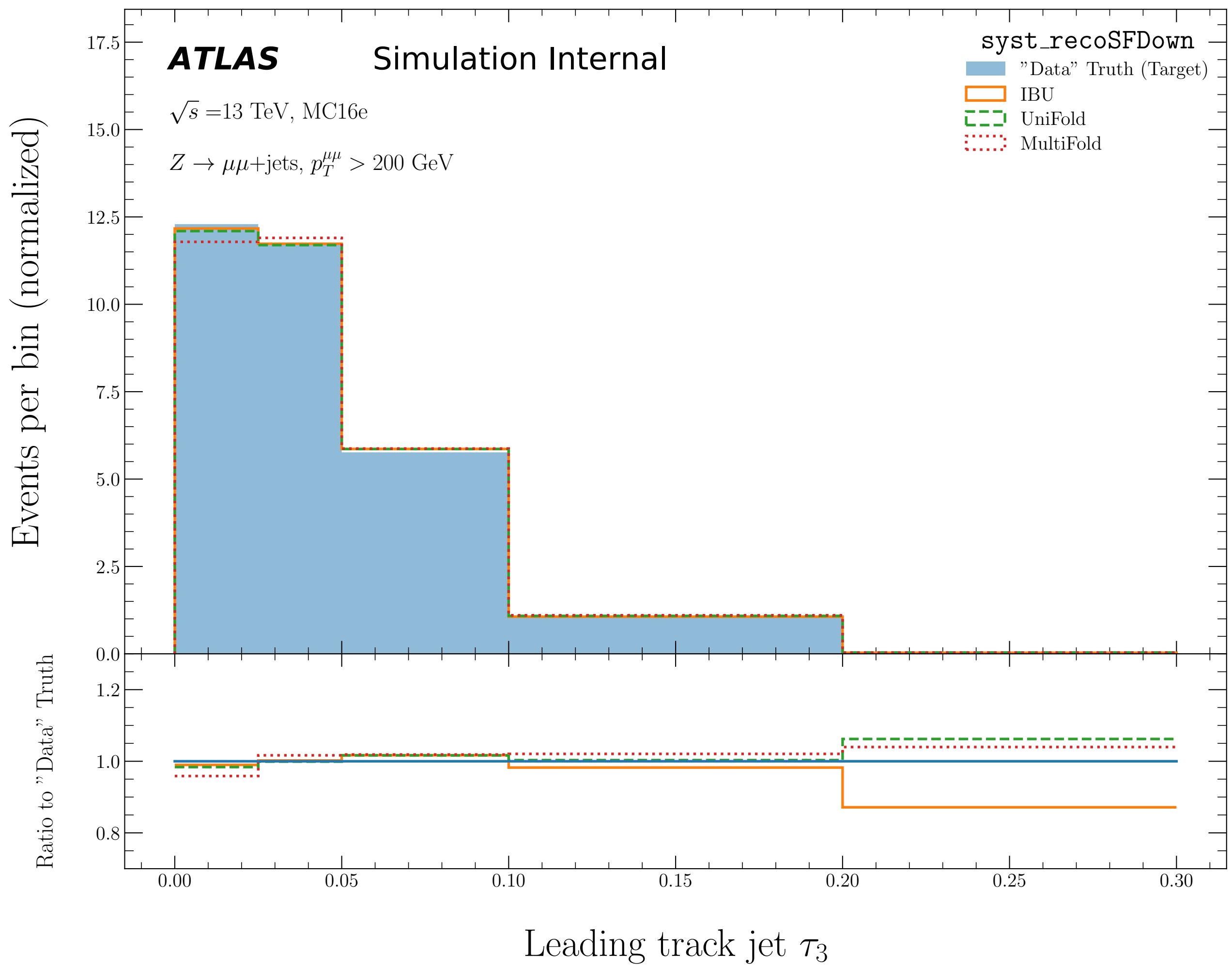




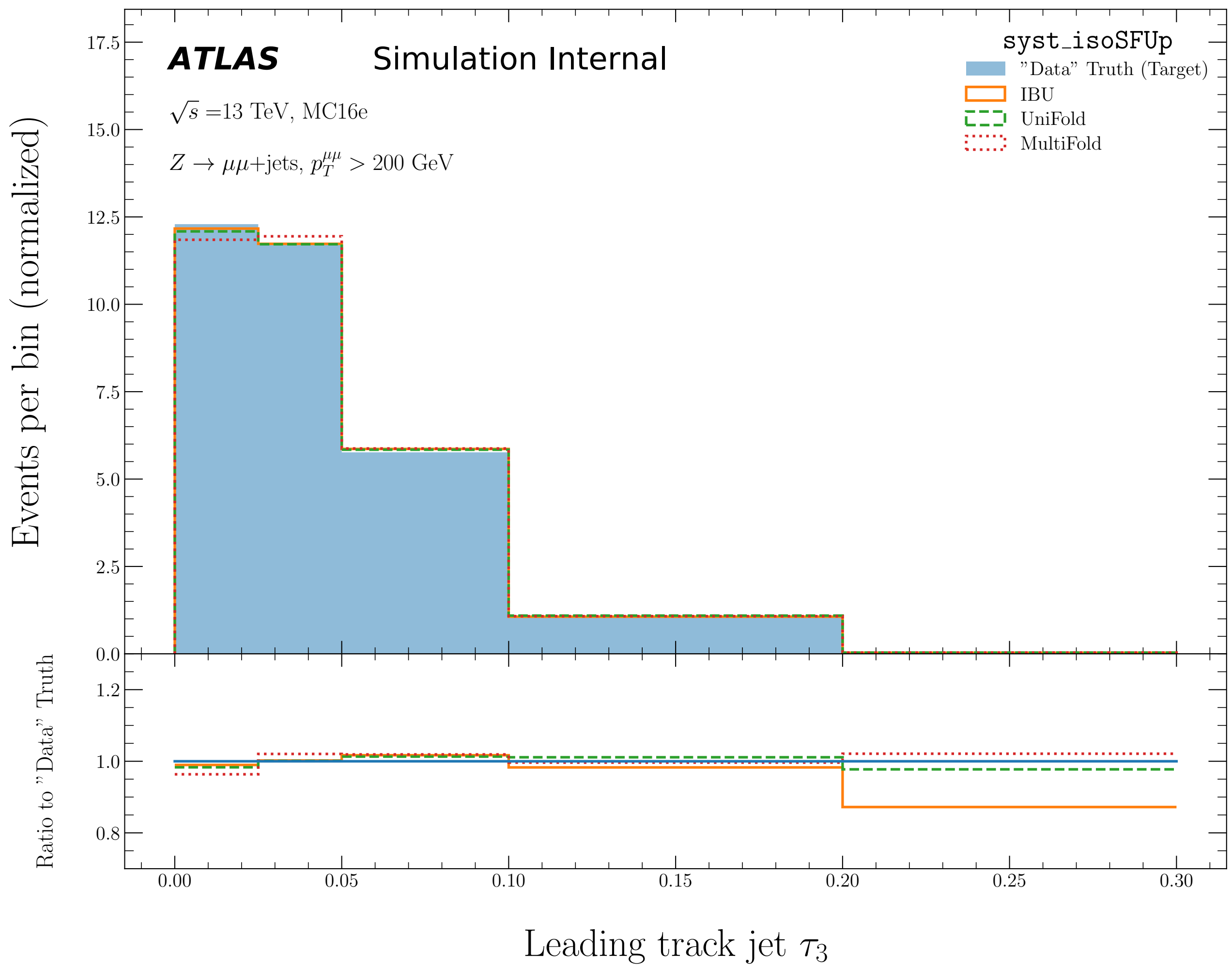


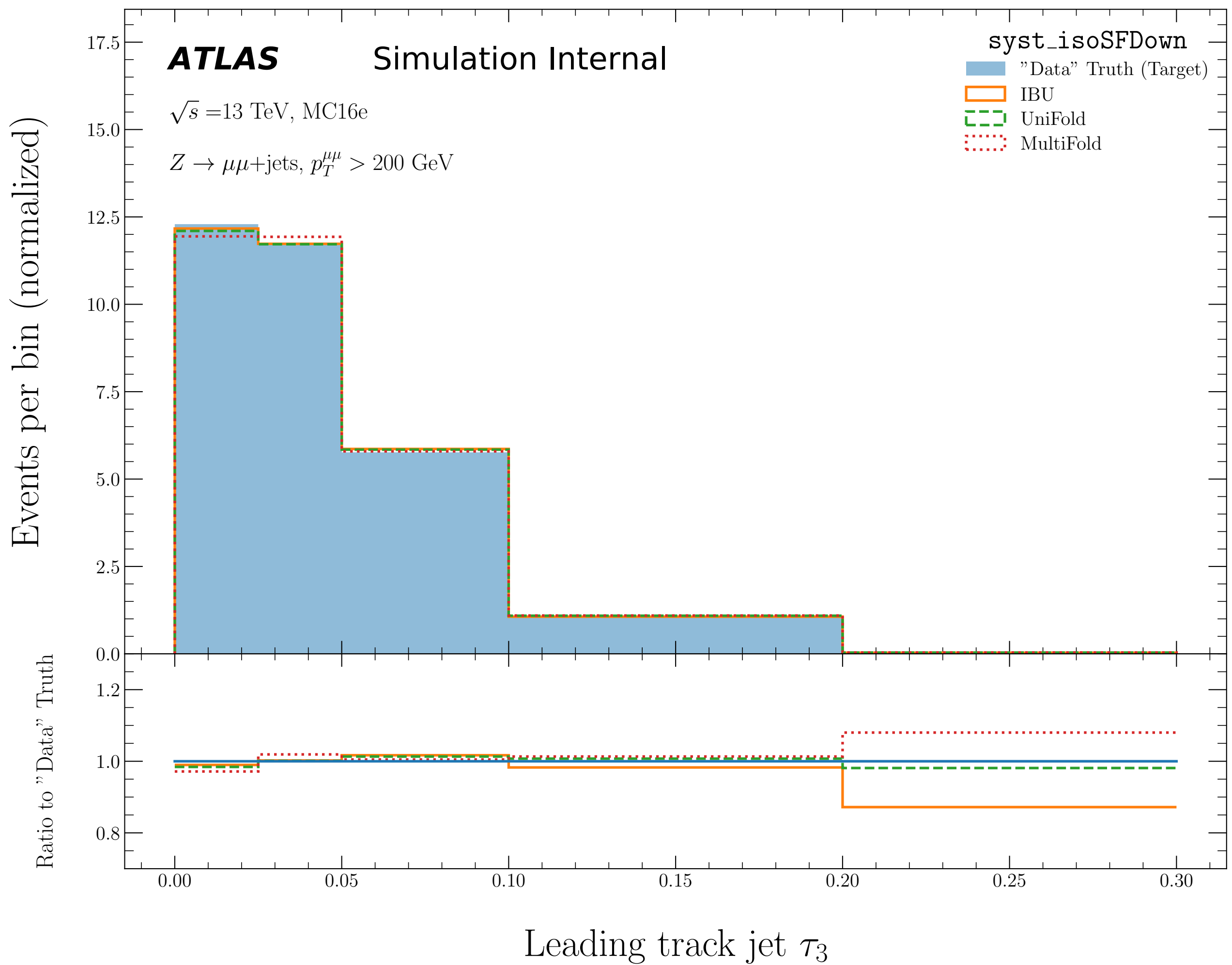


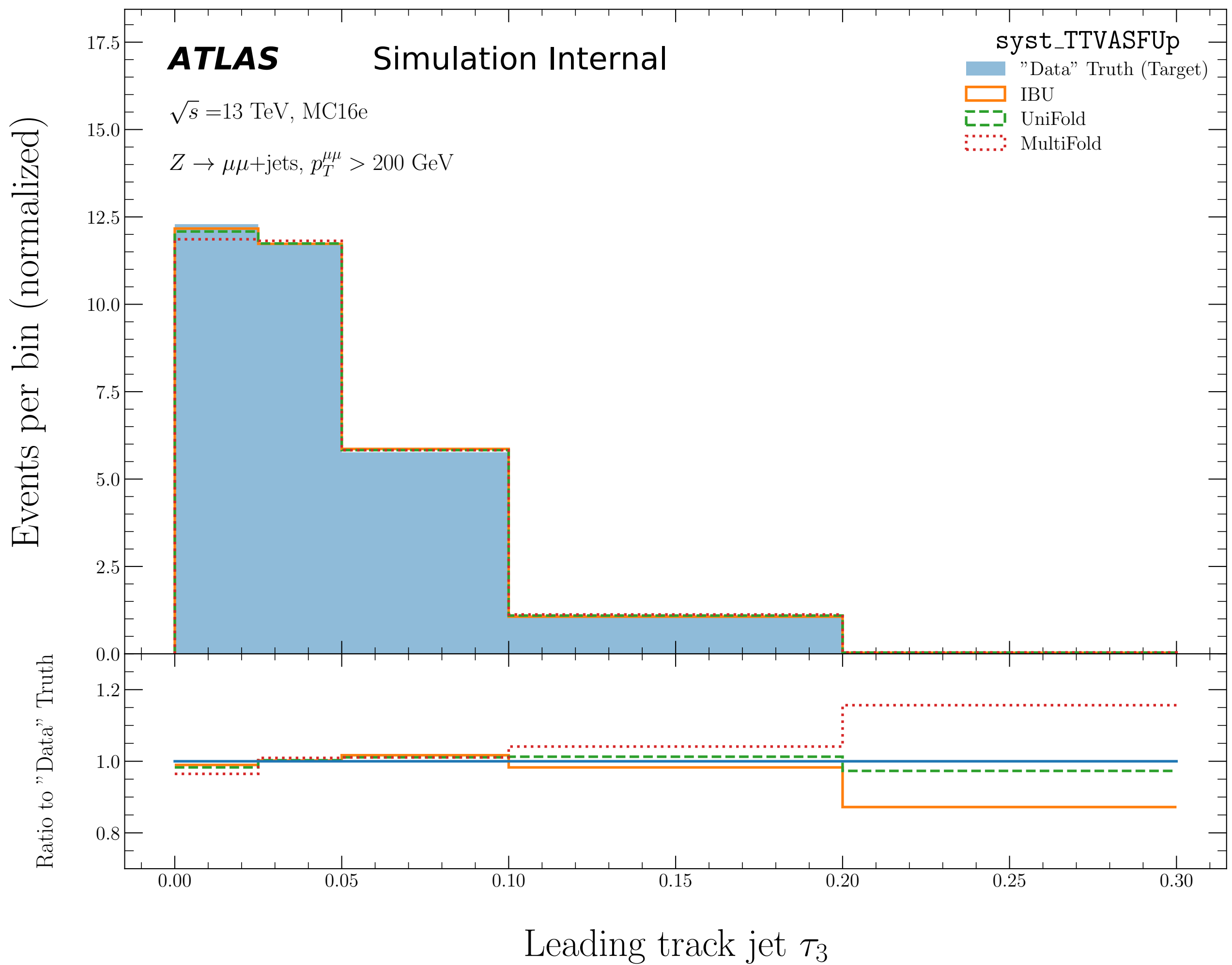


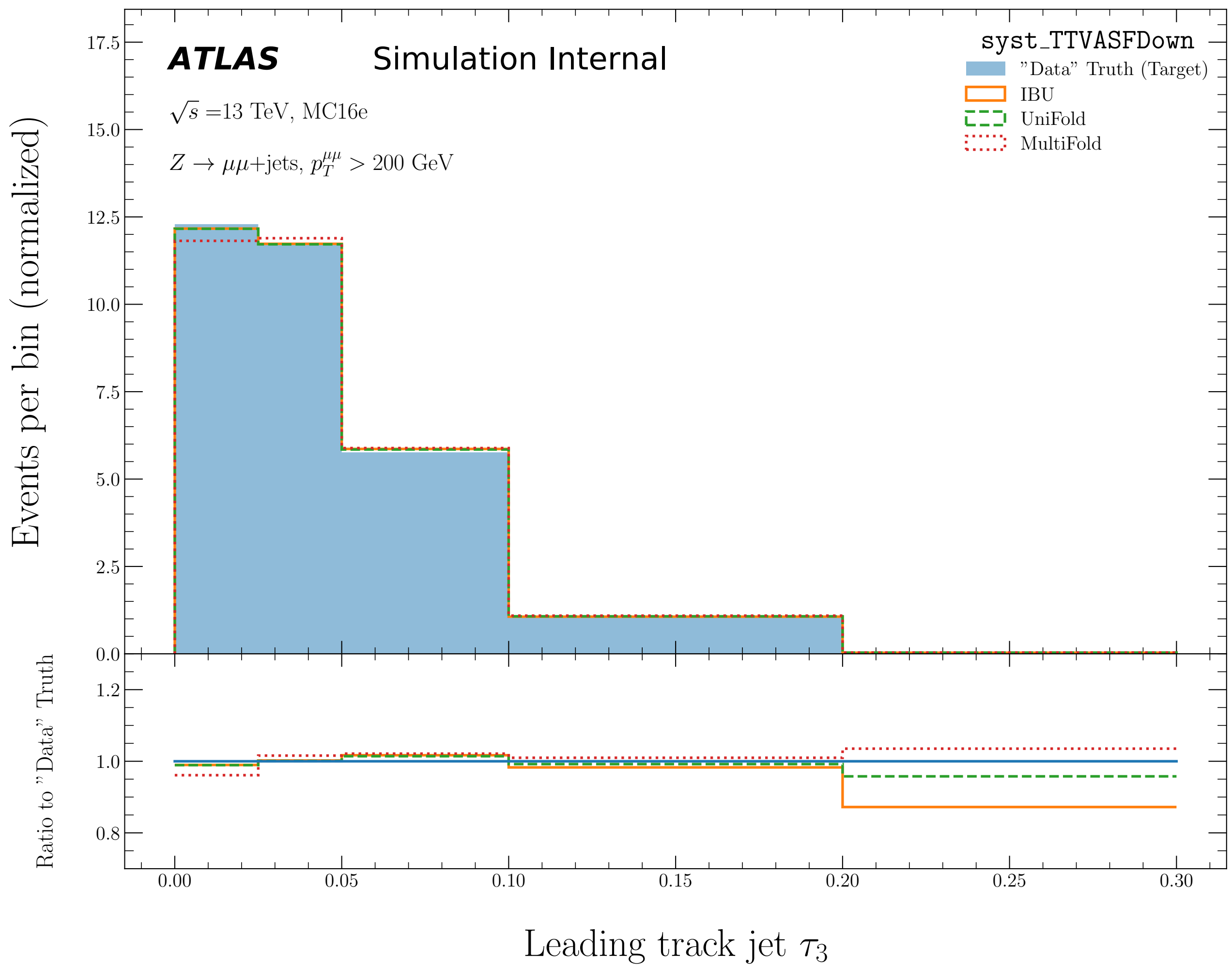


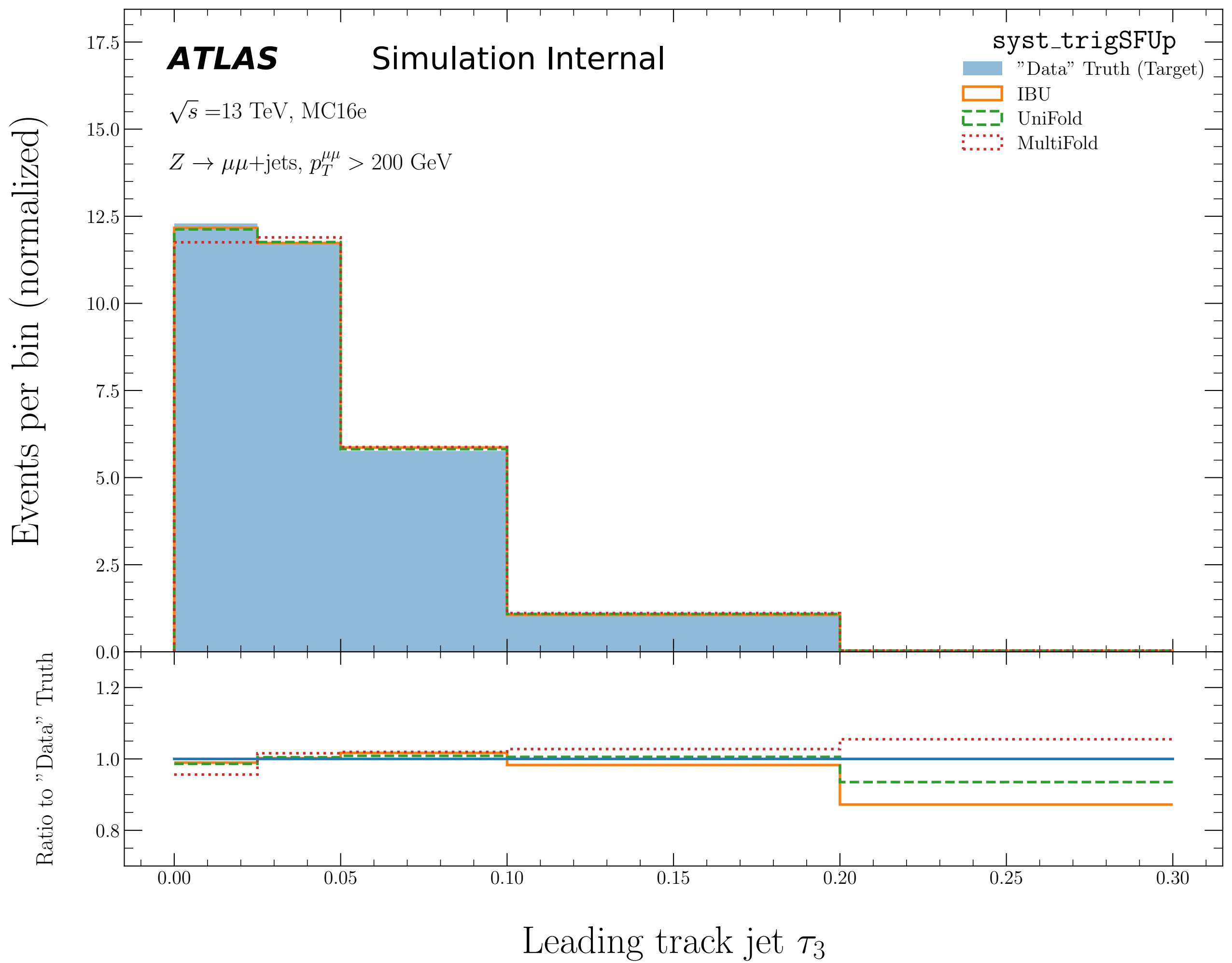


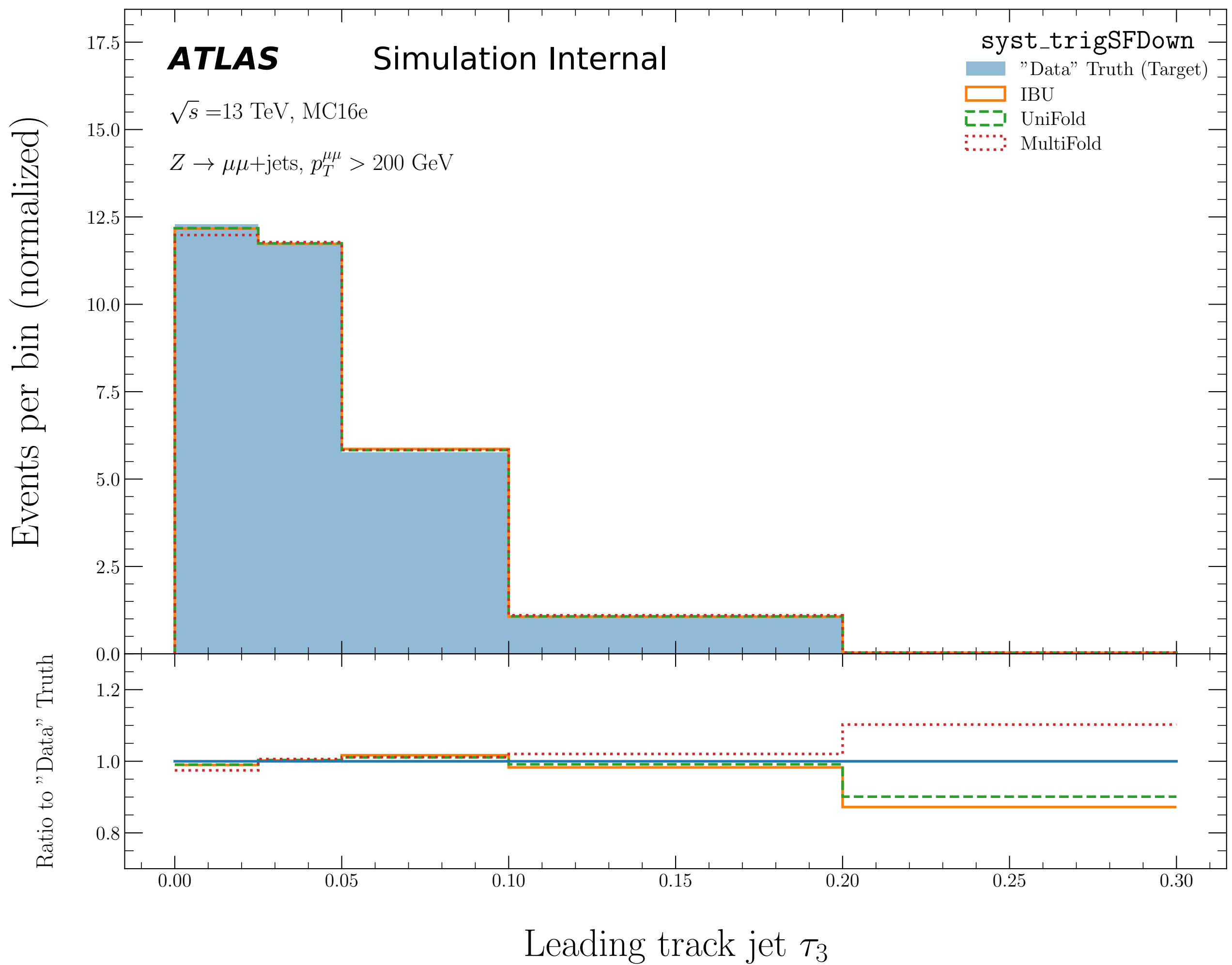


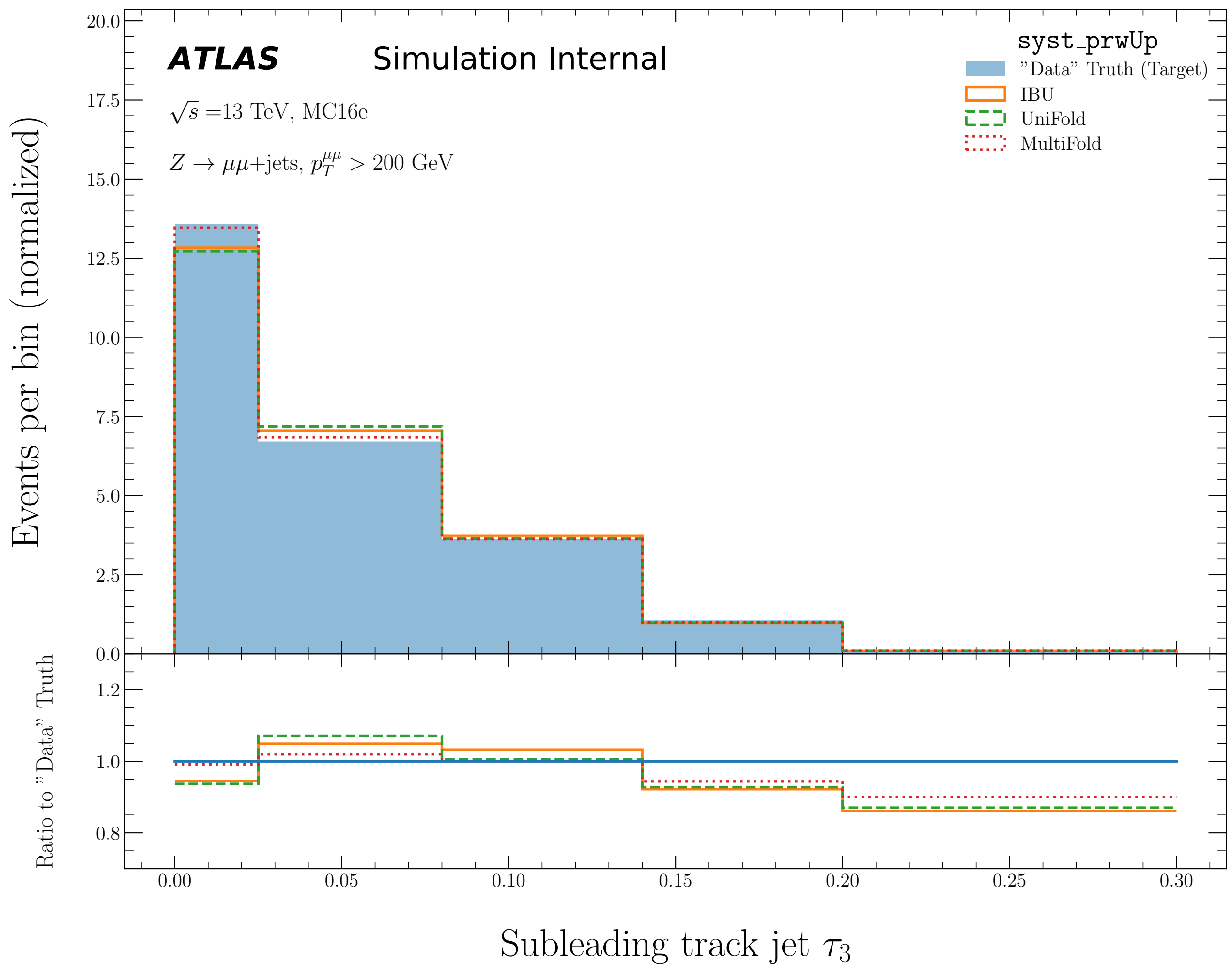


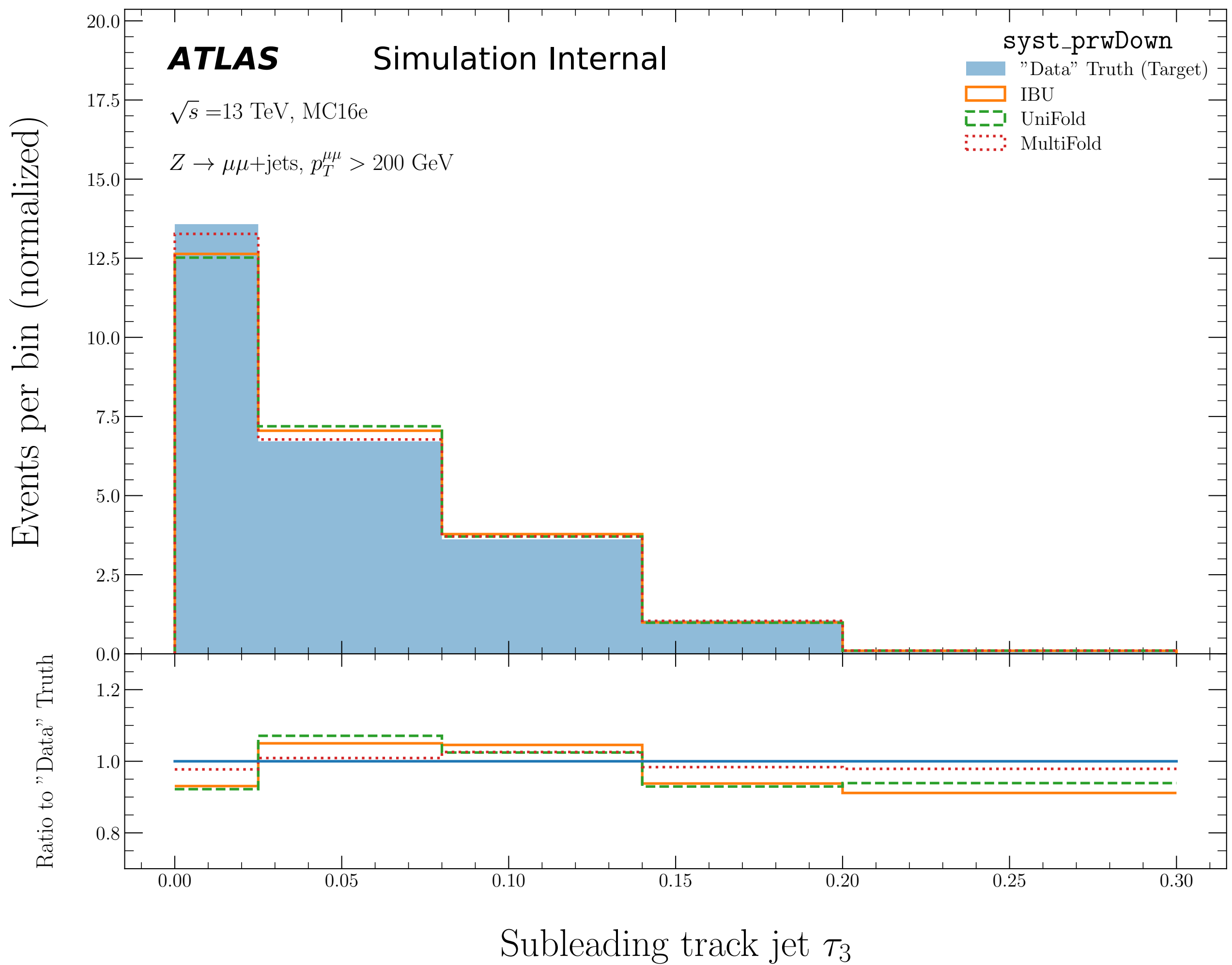




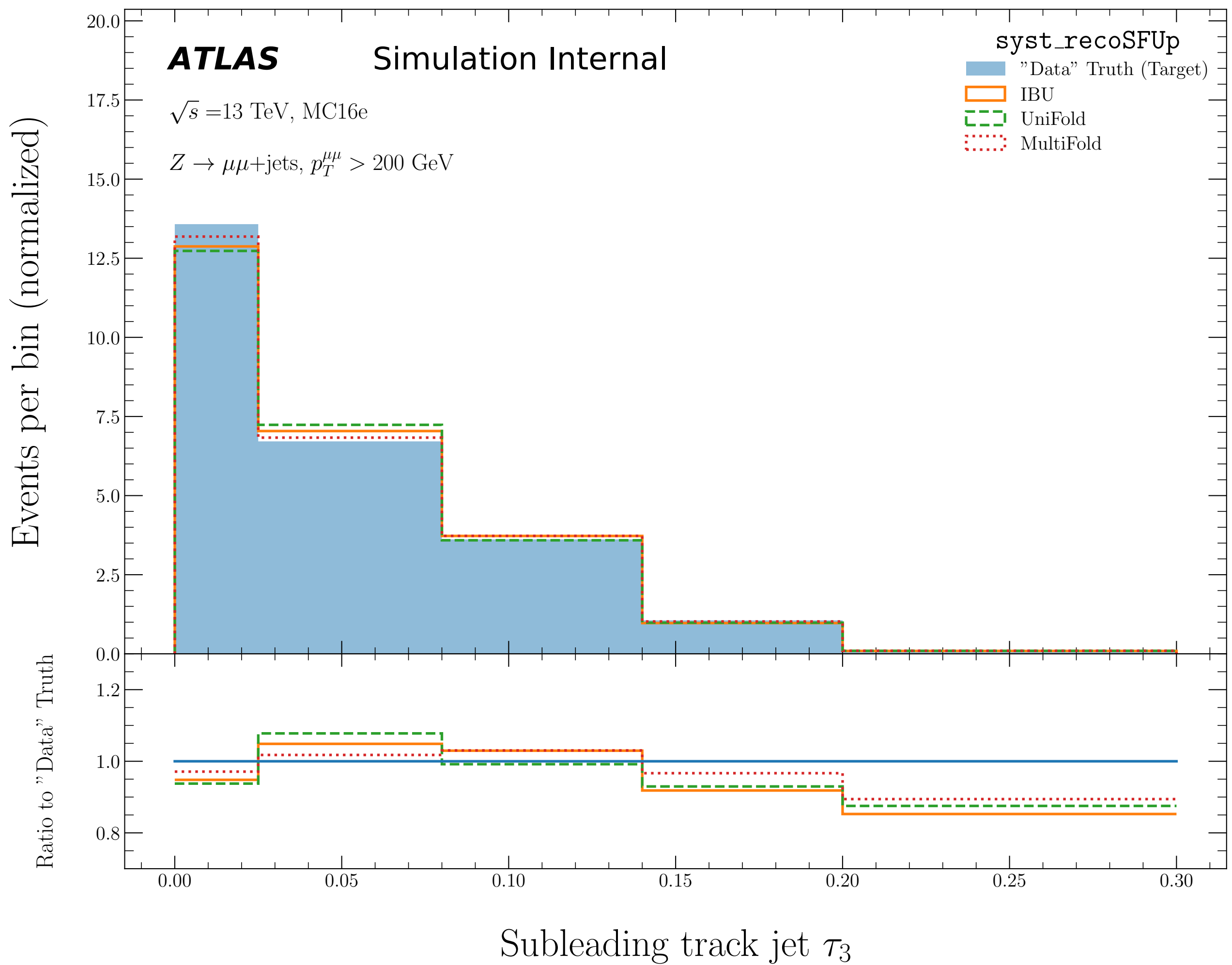


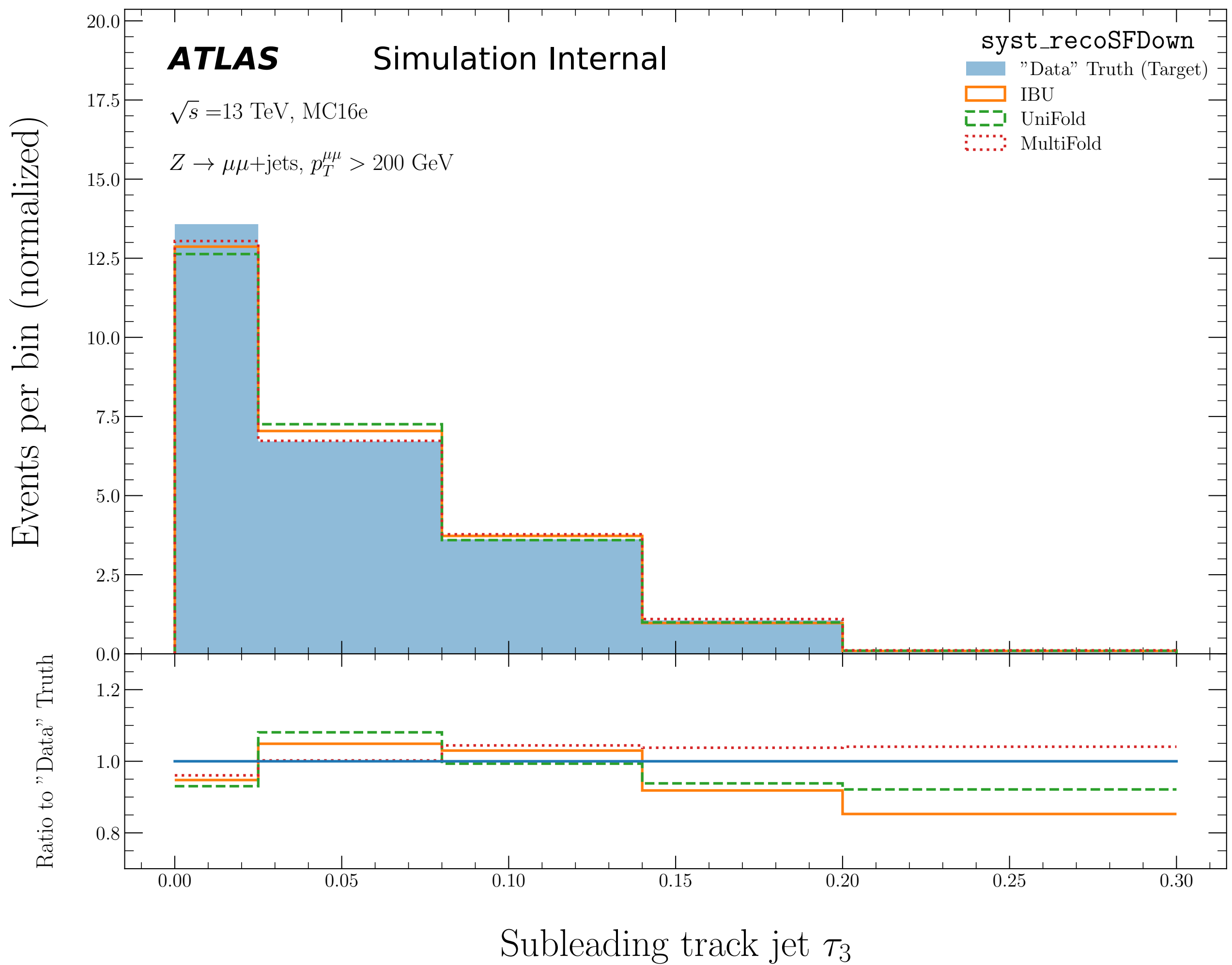


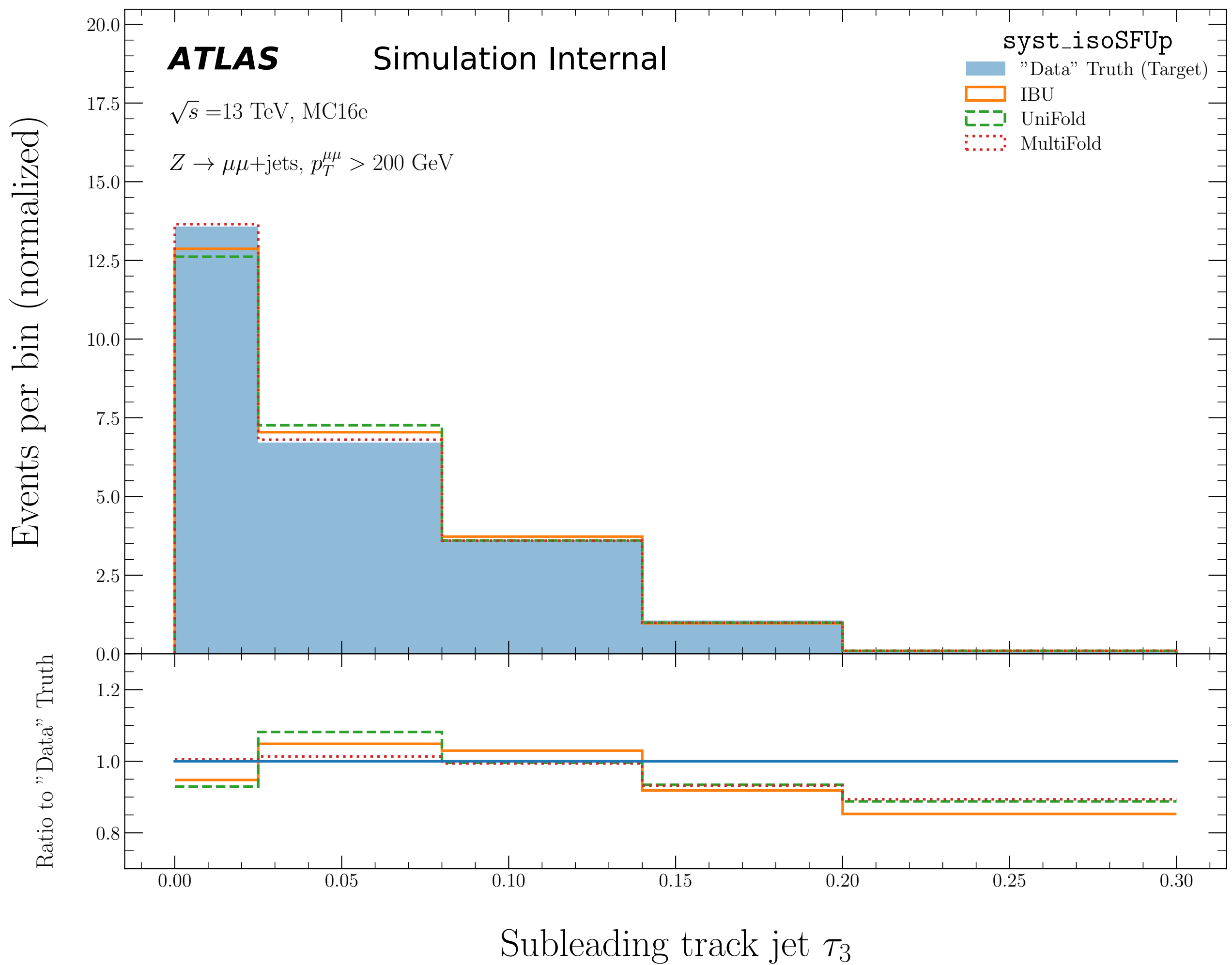


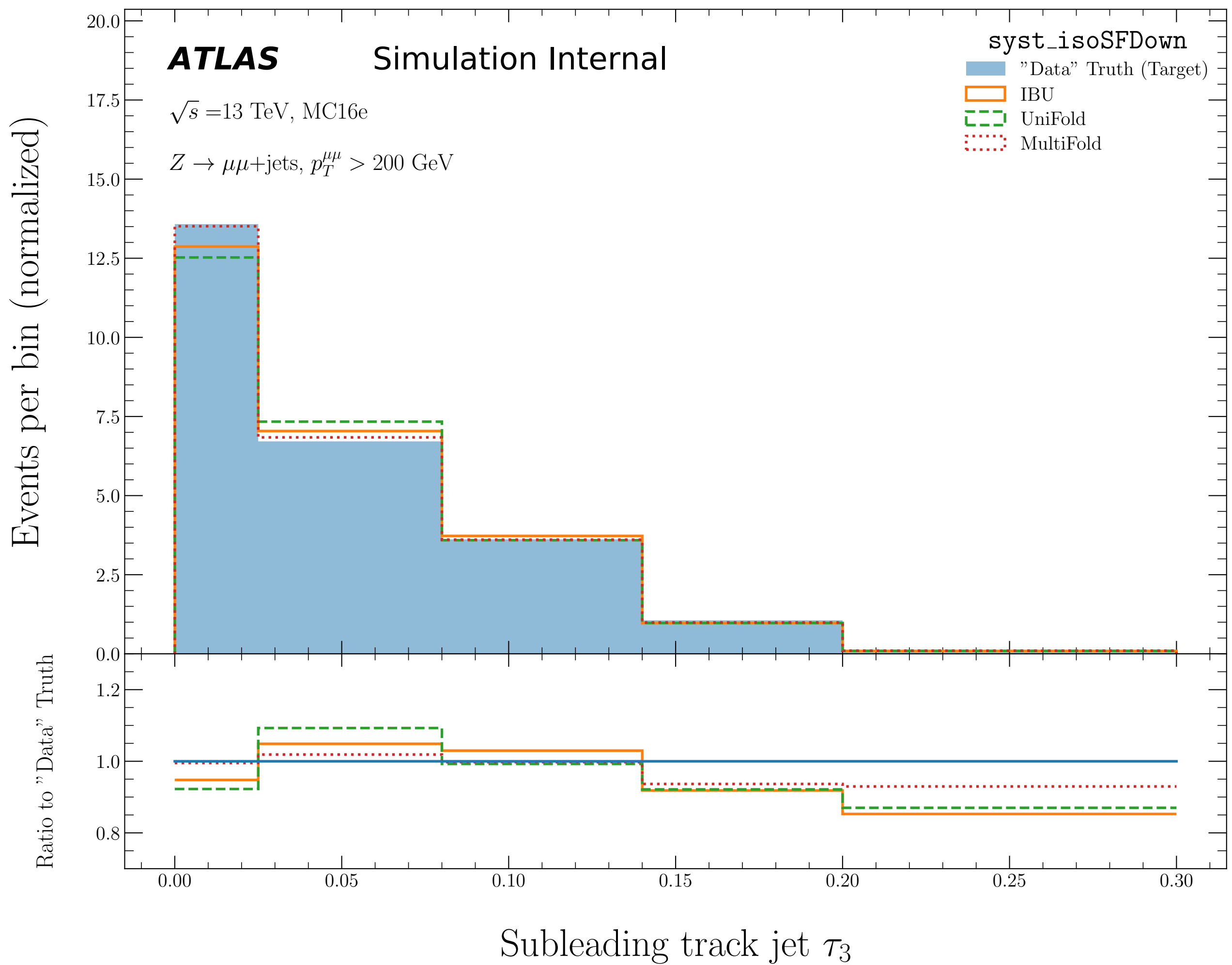


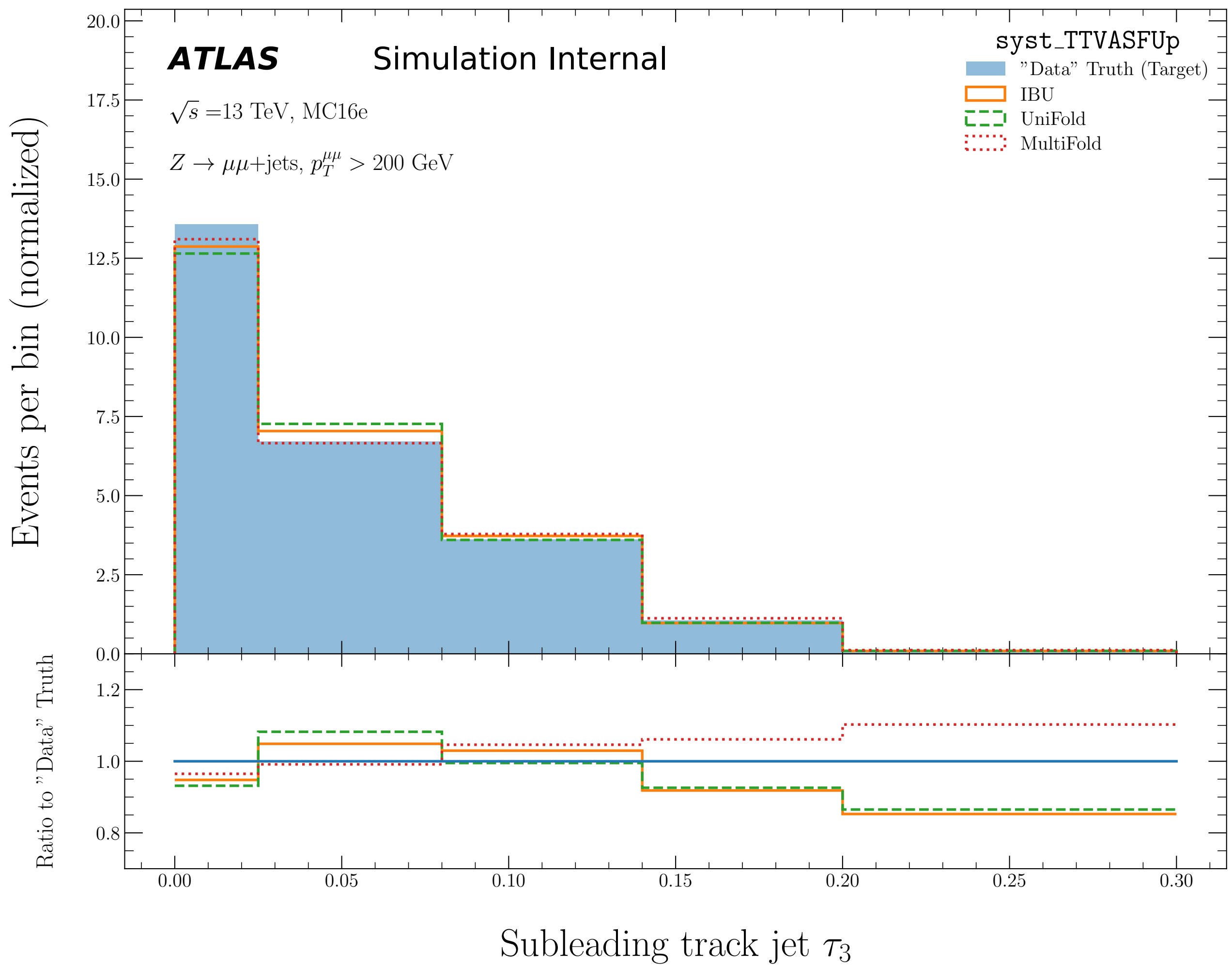


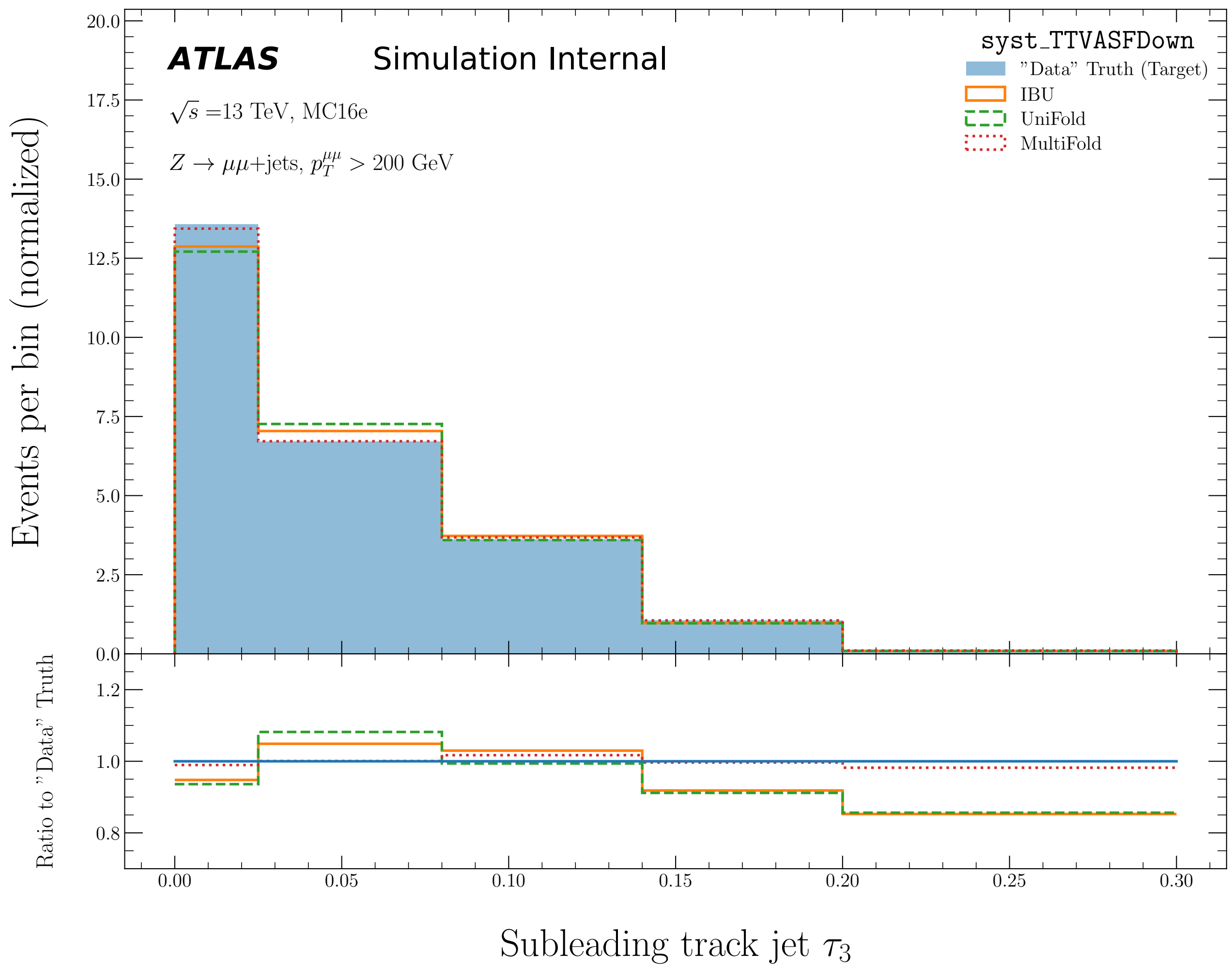


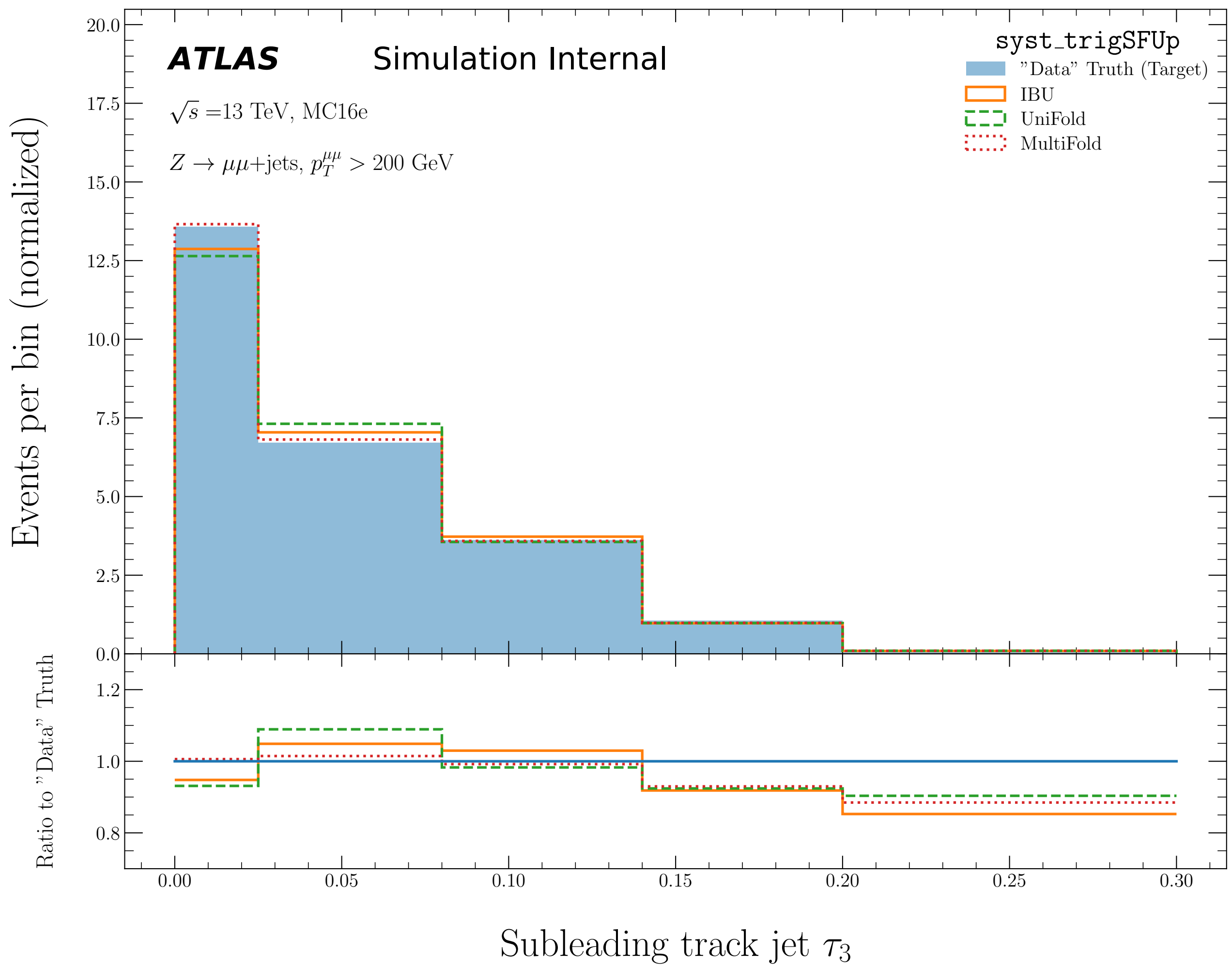


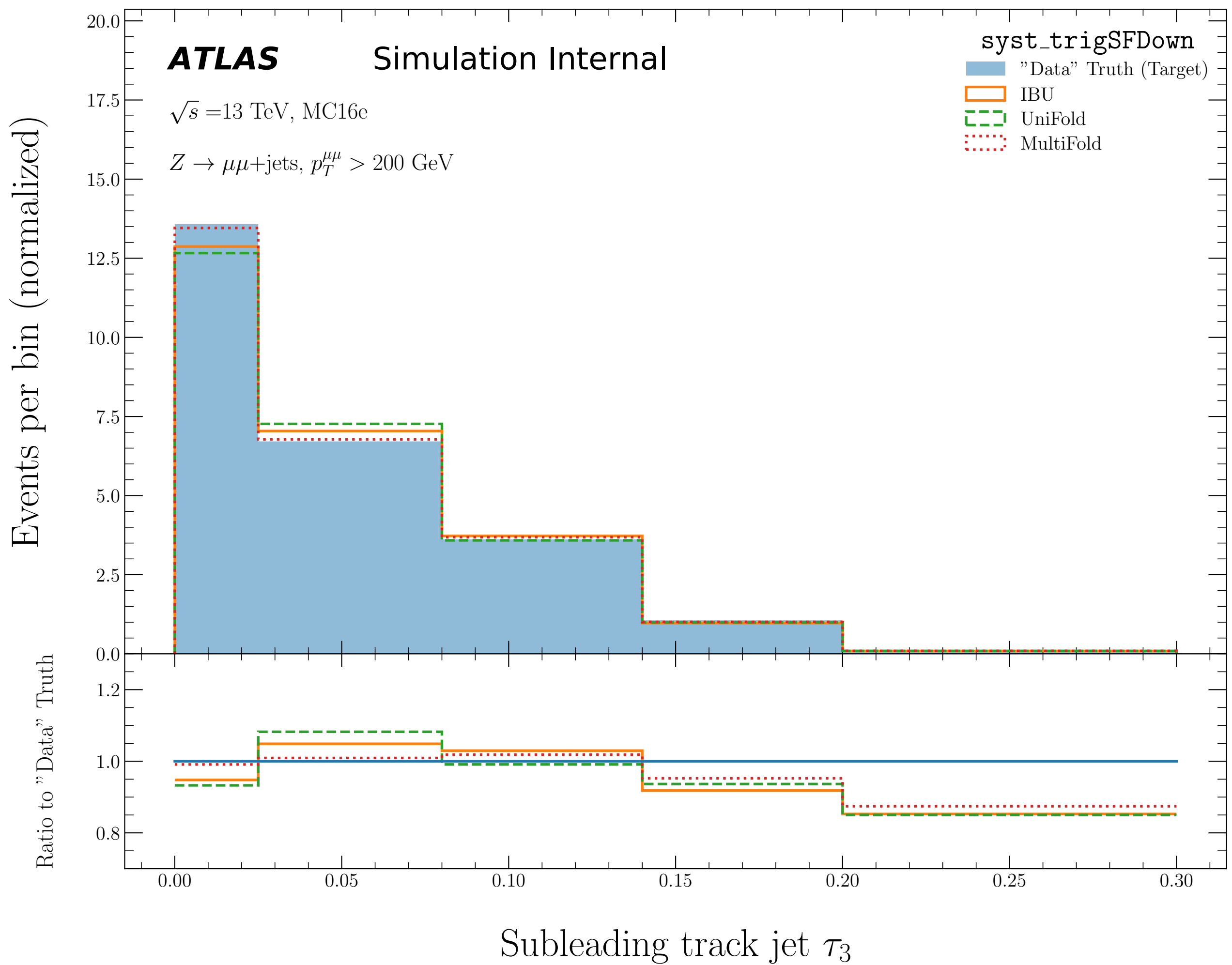




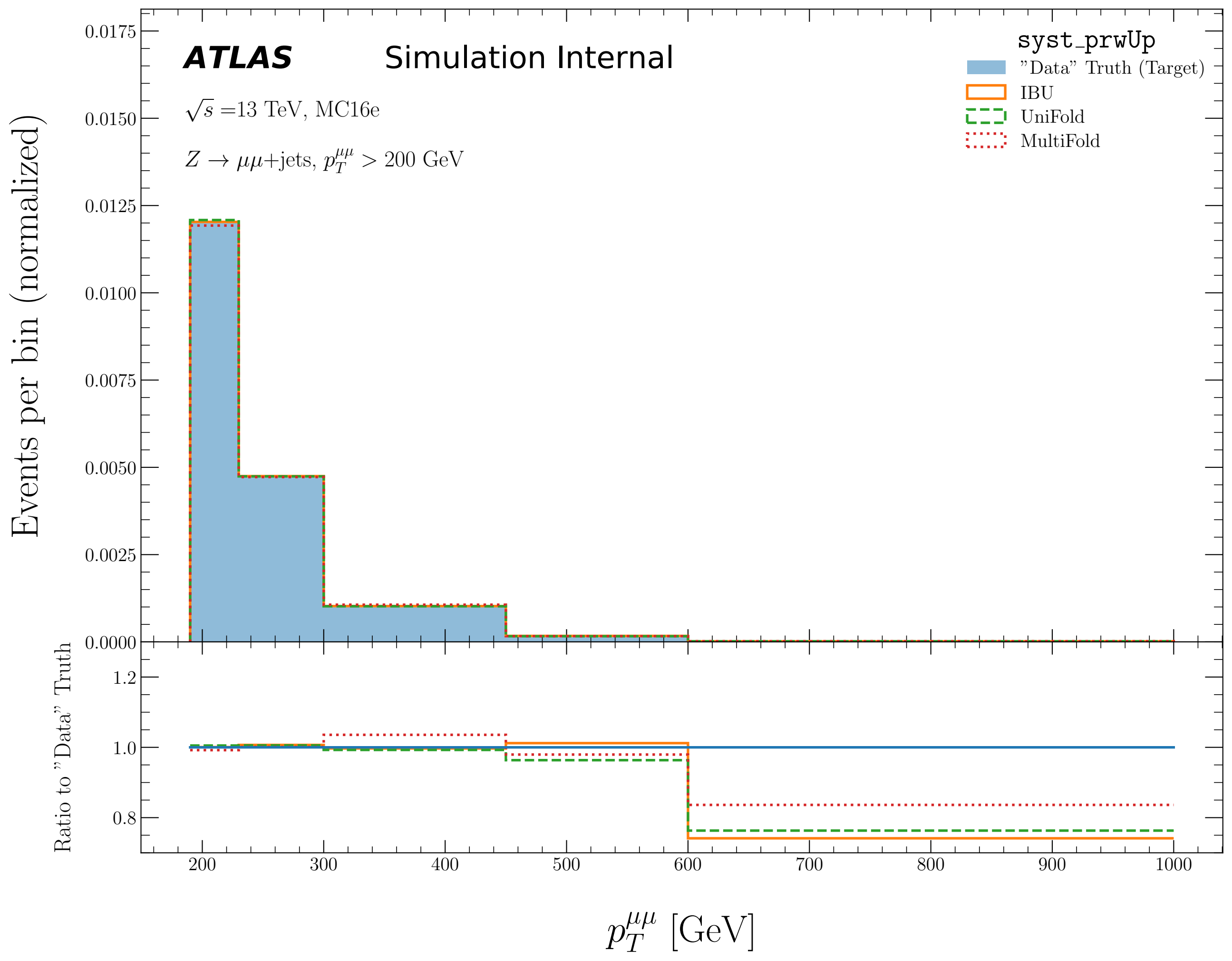


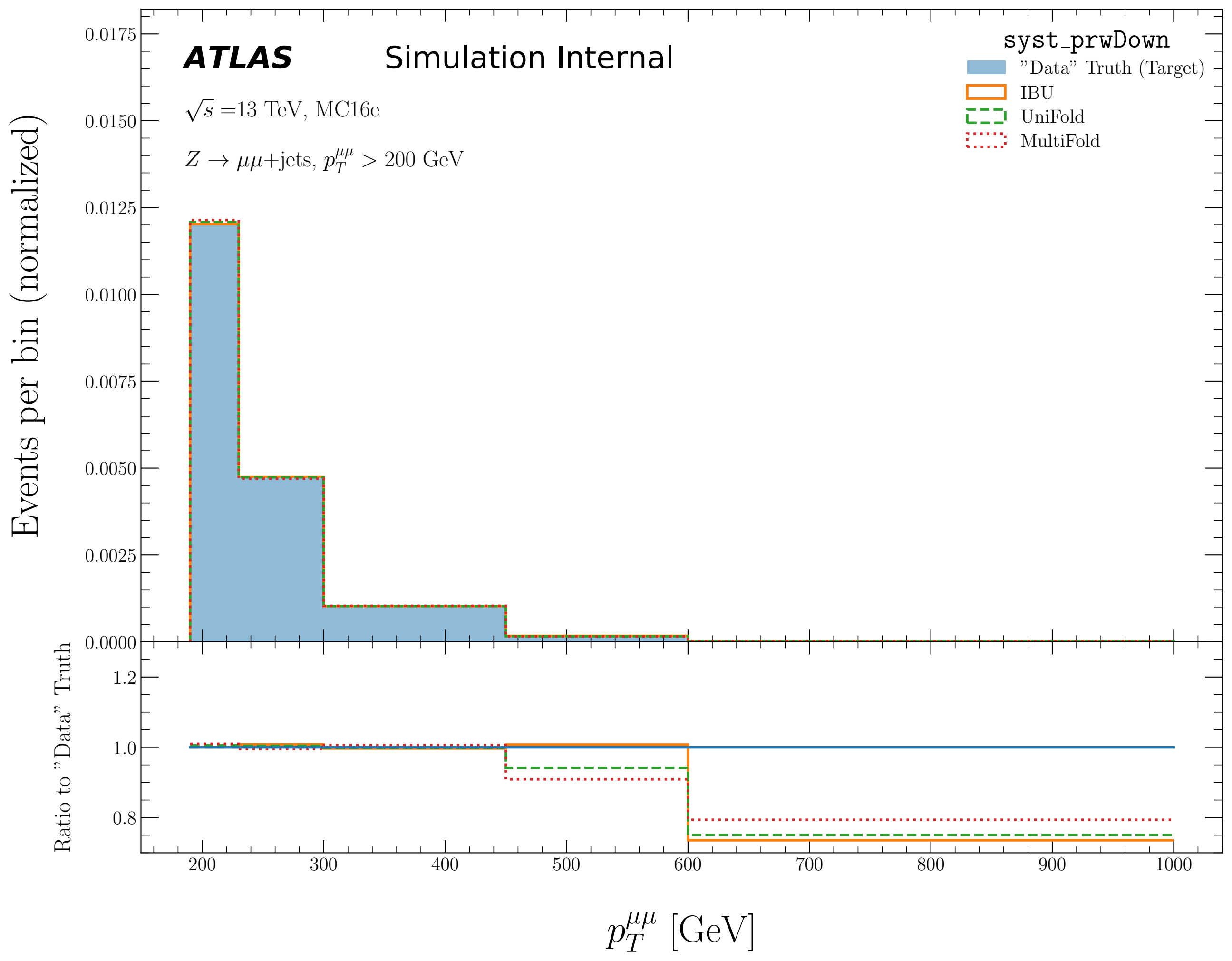


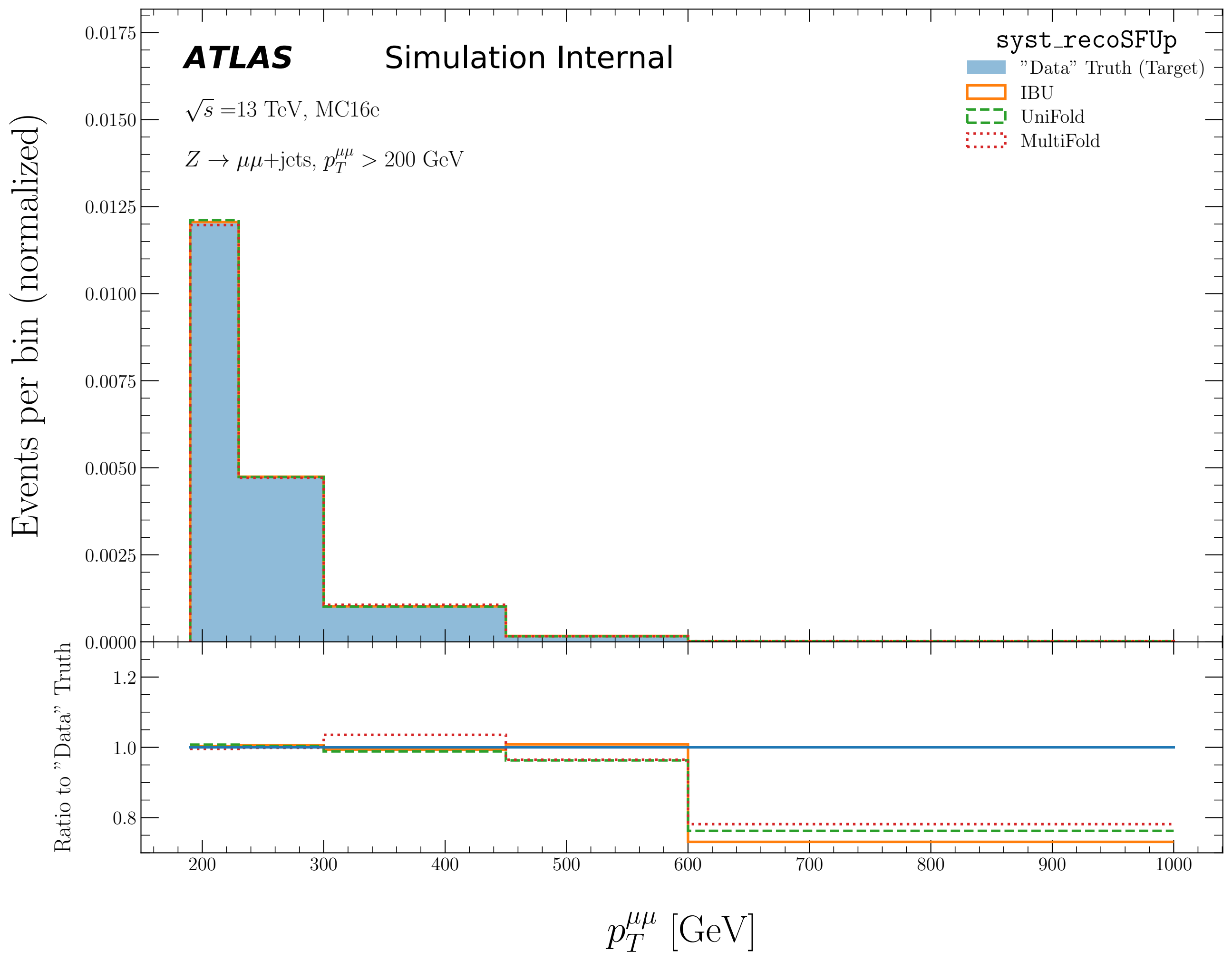


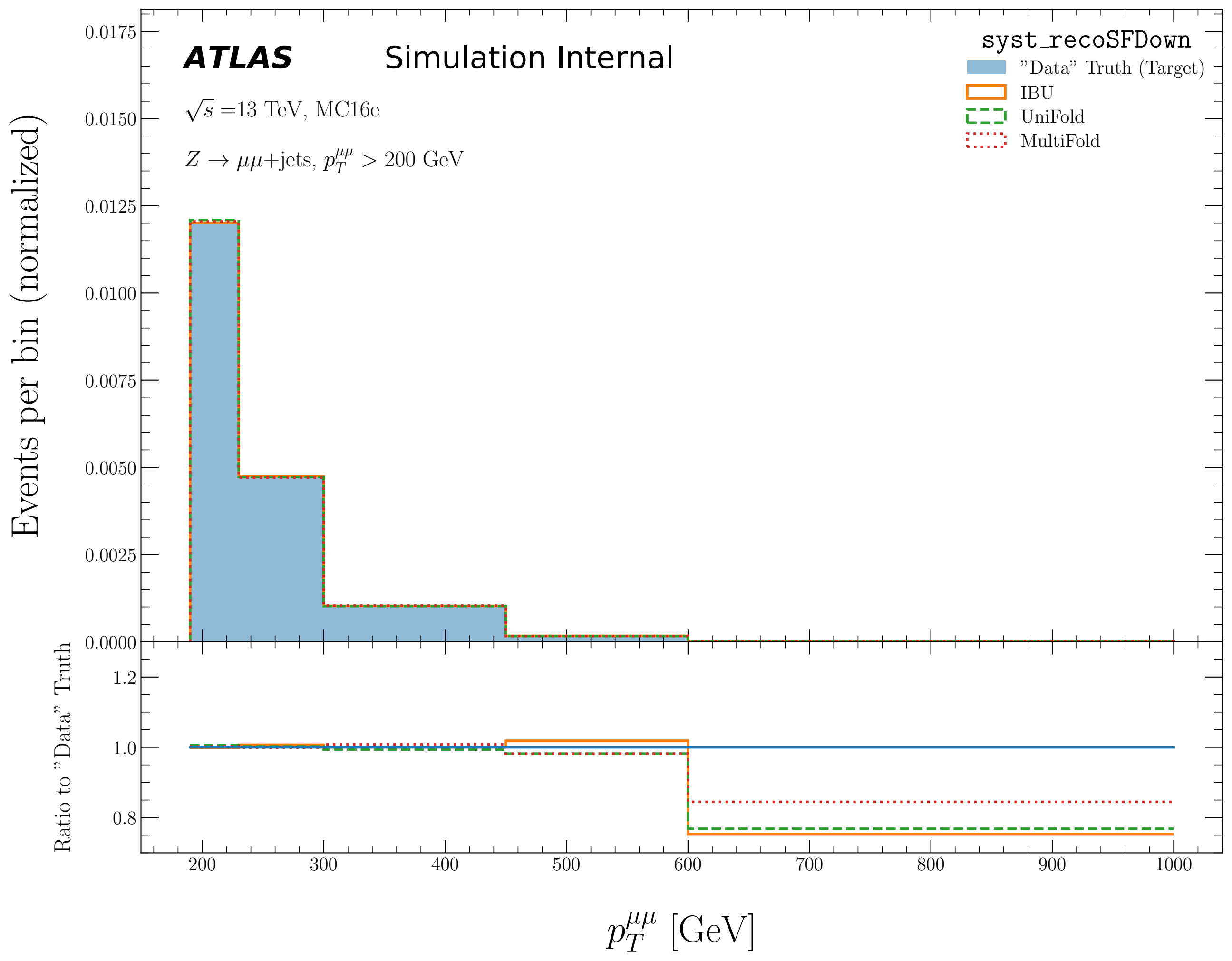


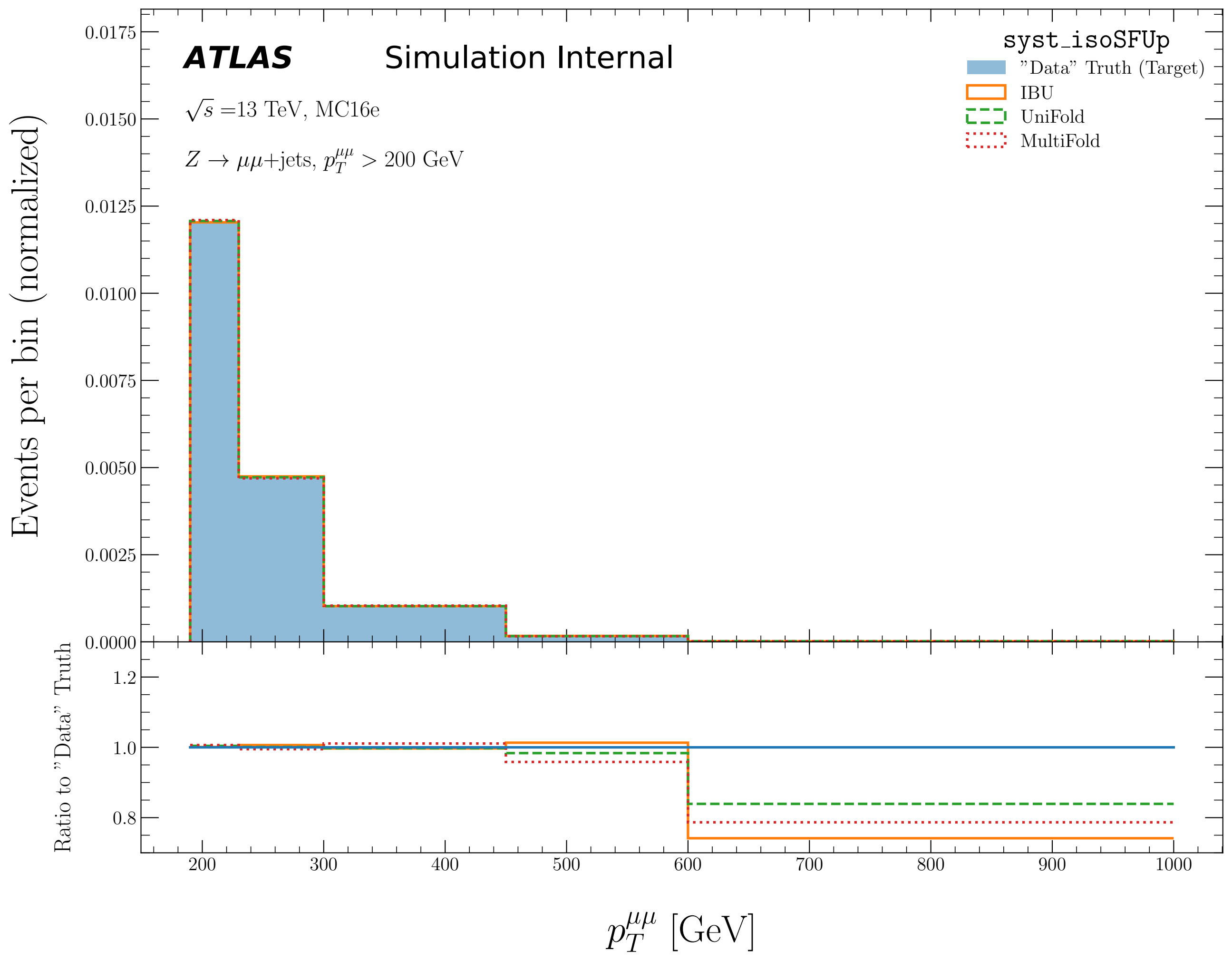


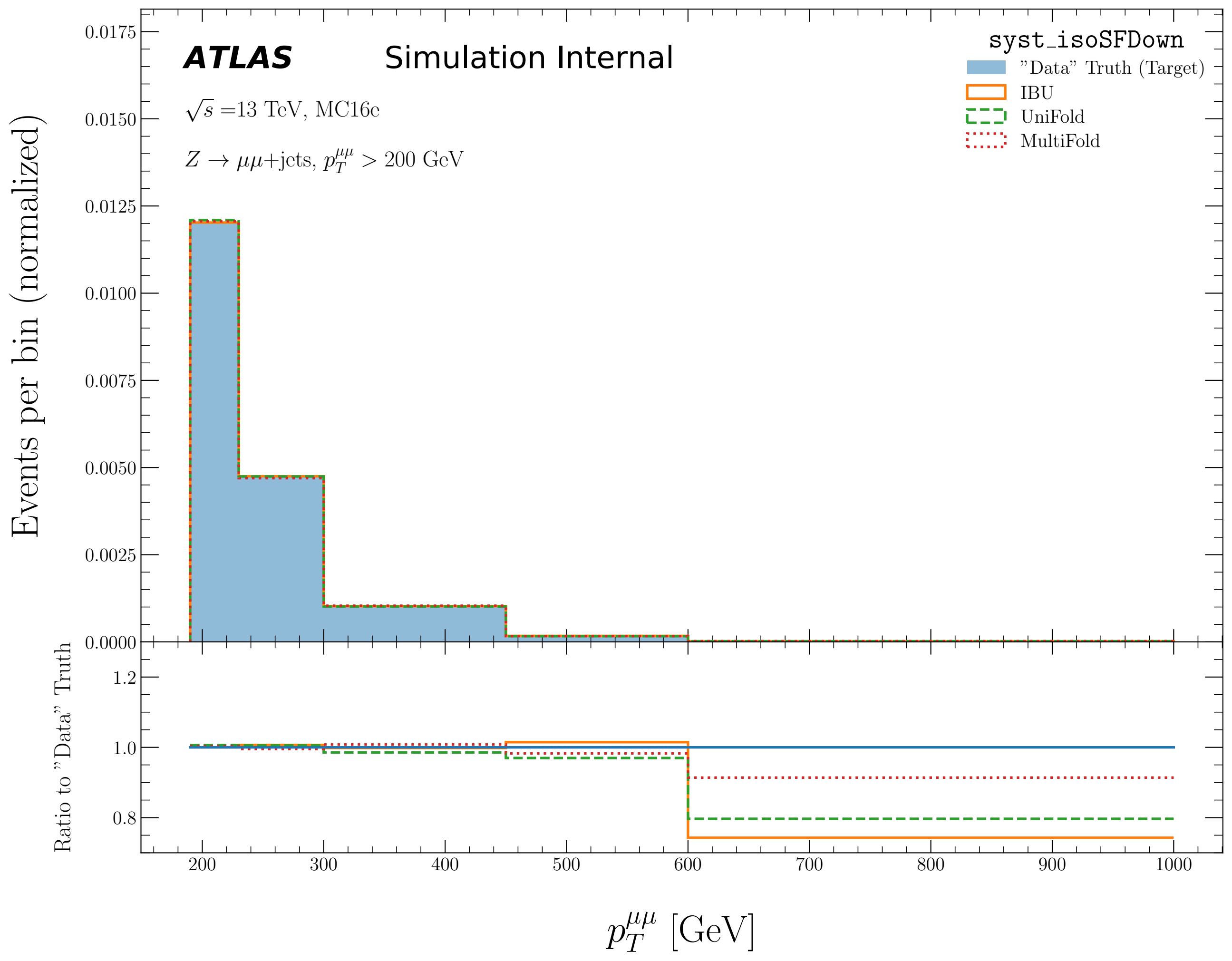


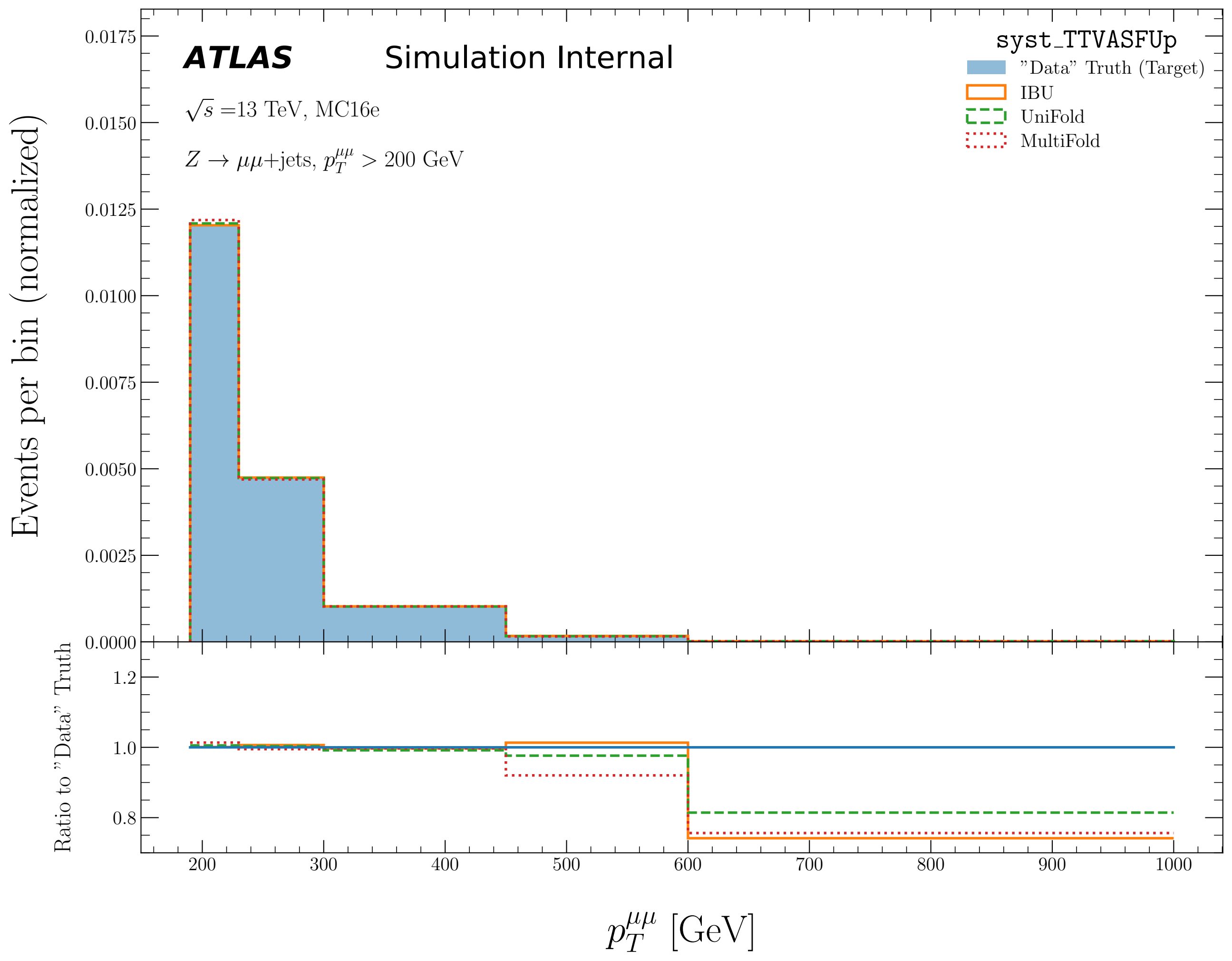


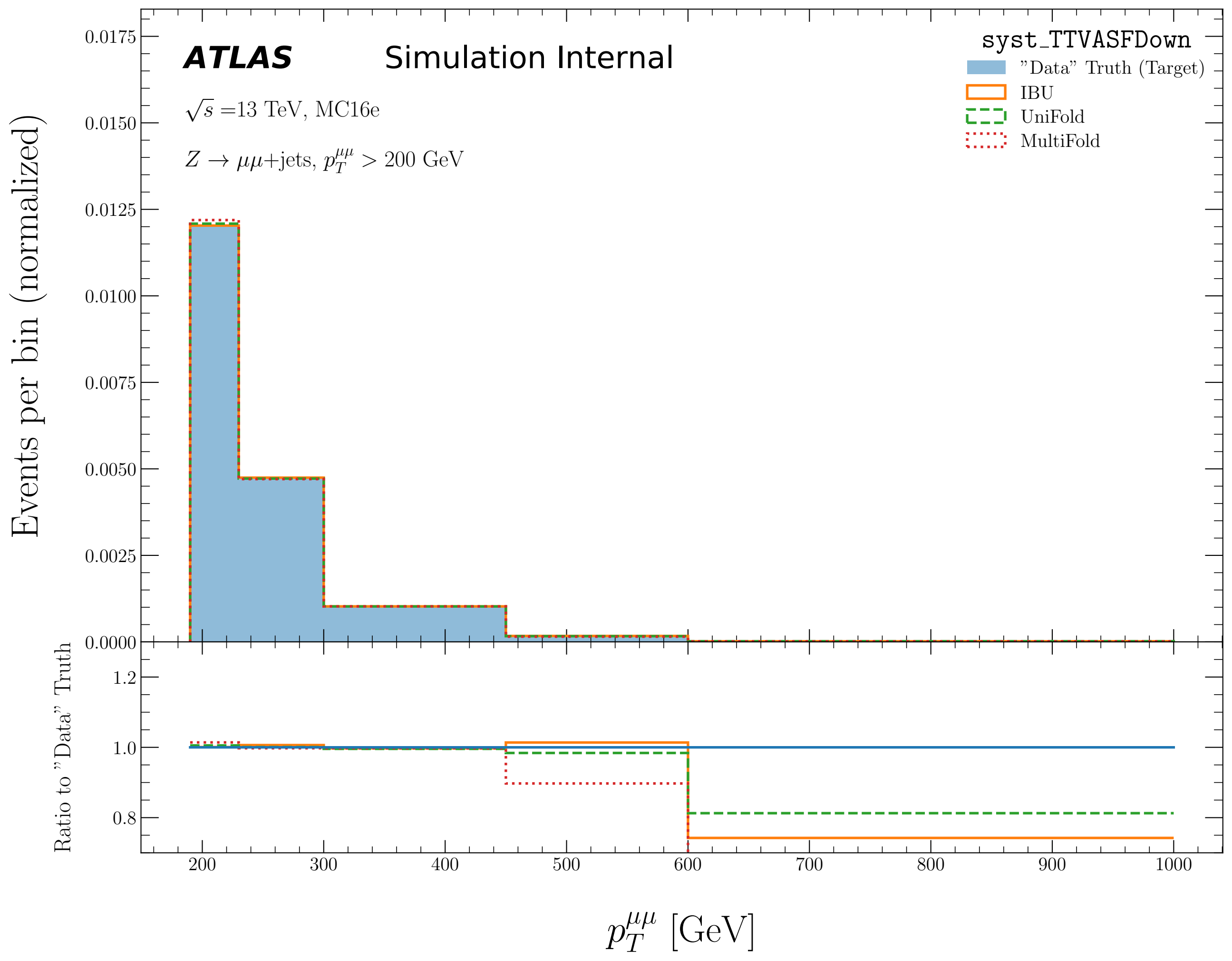




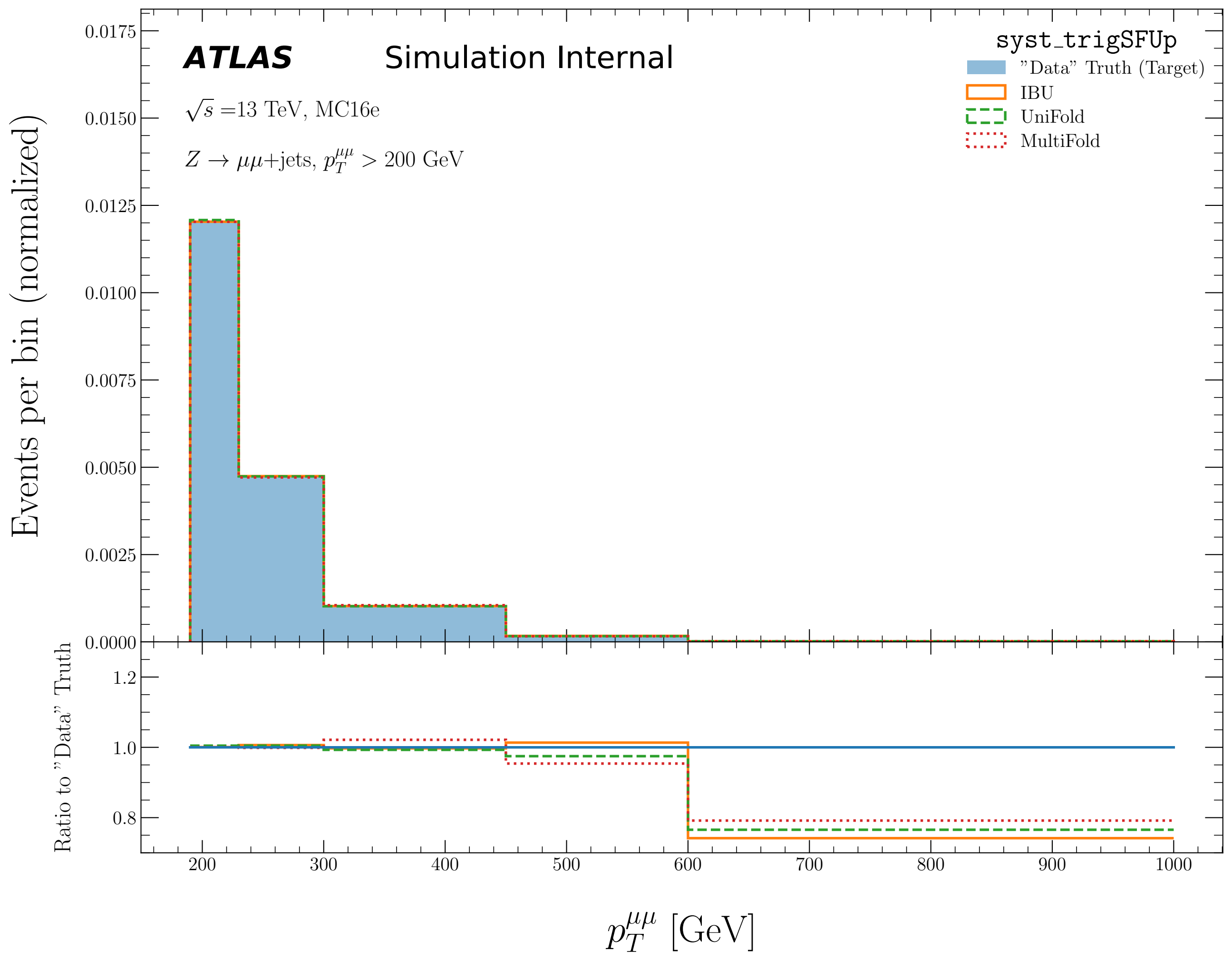


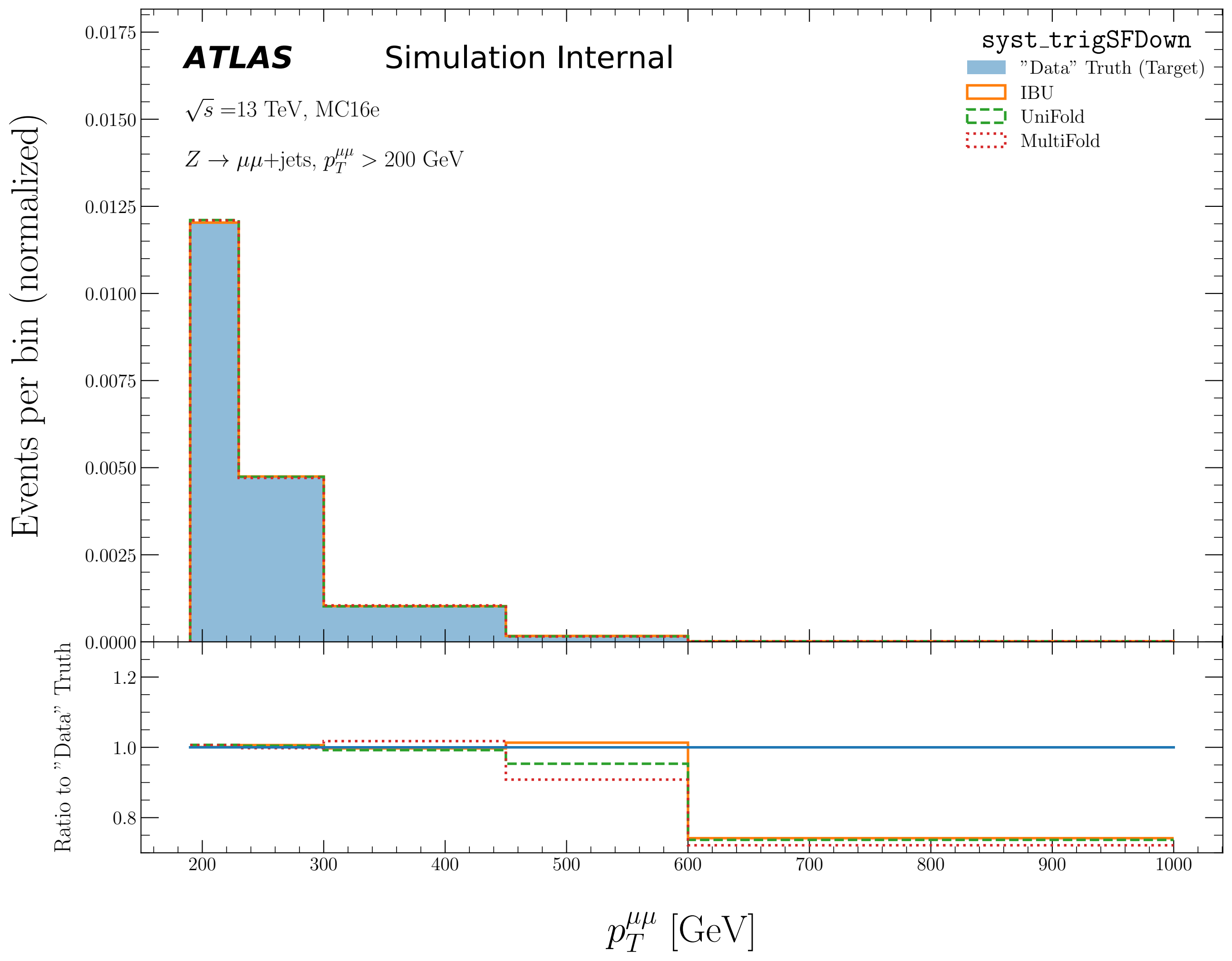


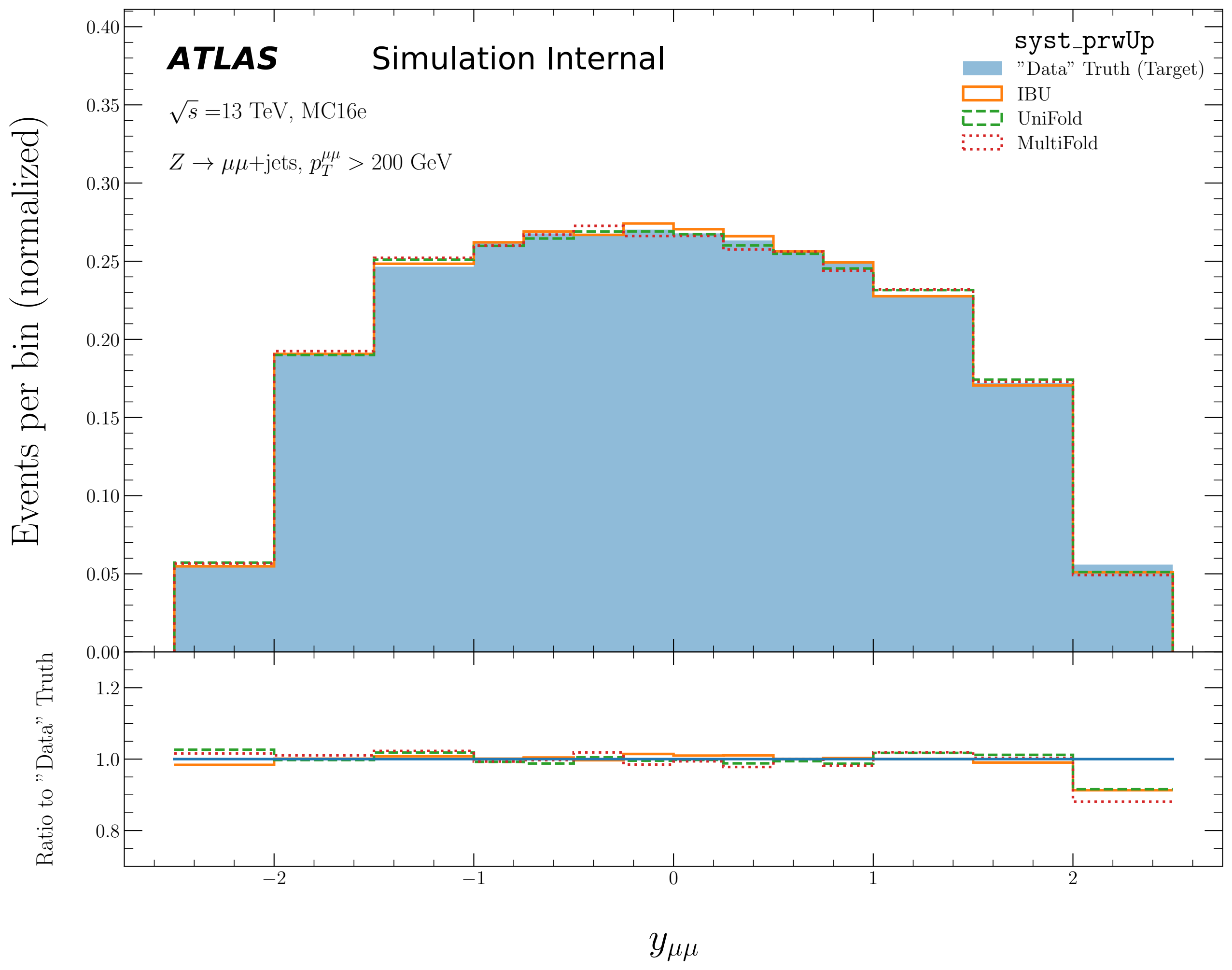












Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

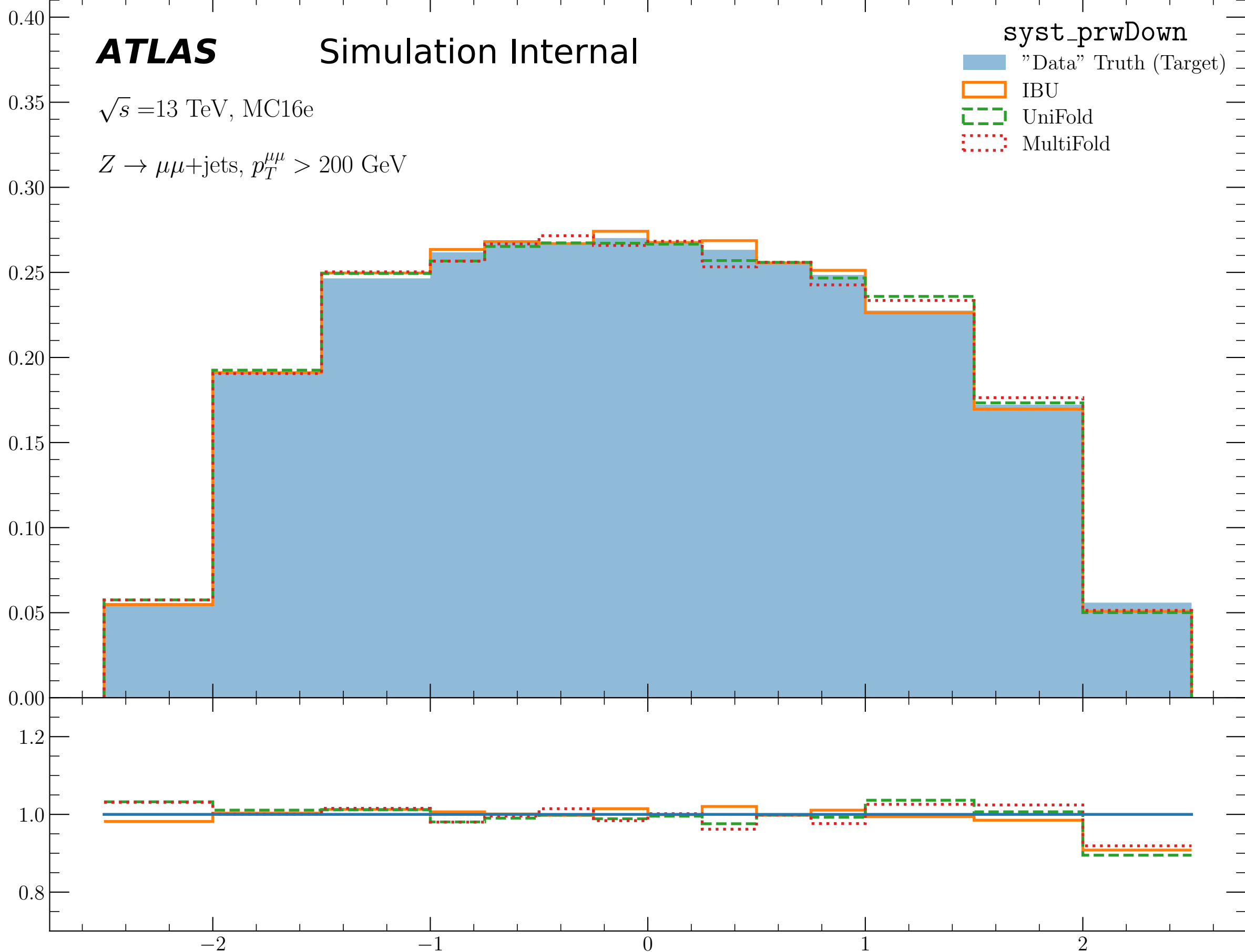
$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

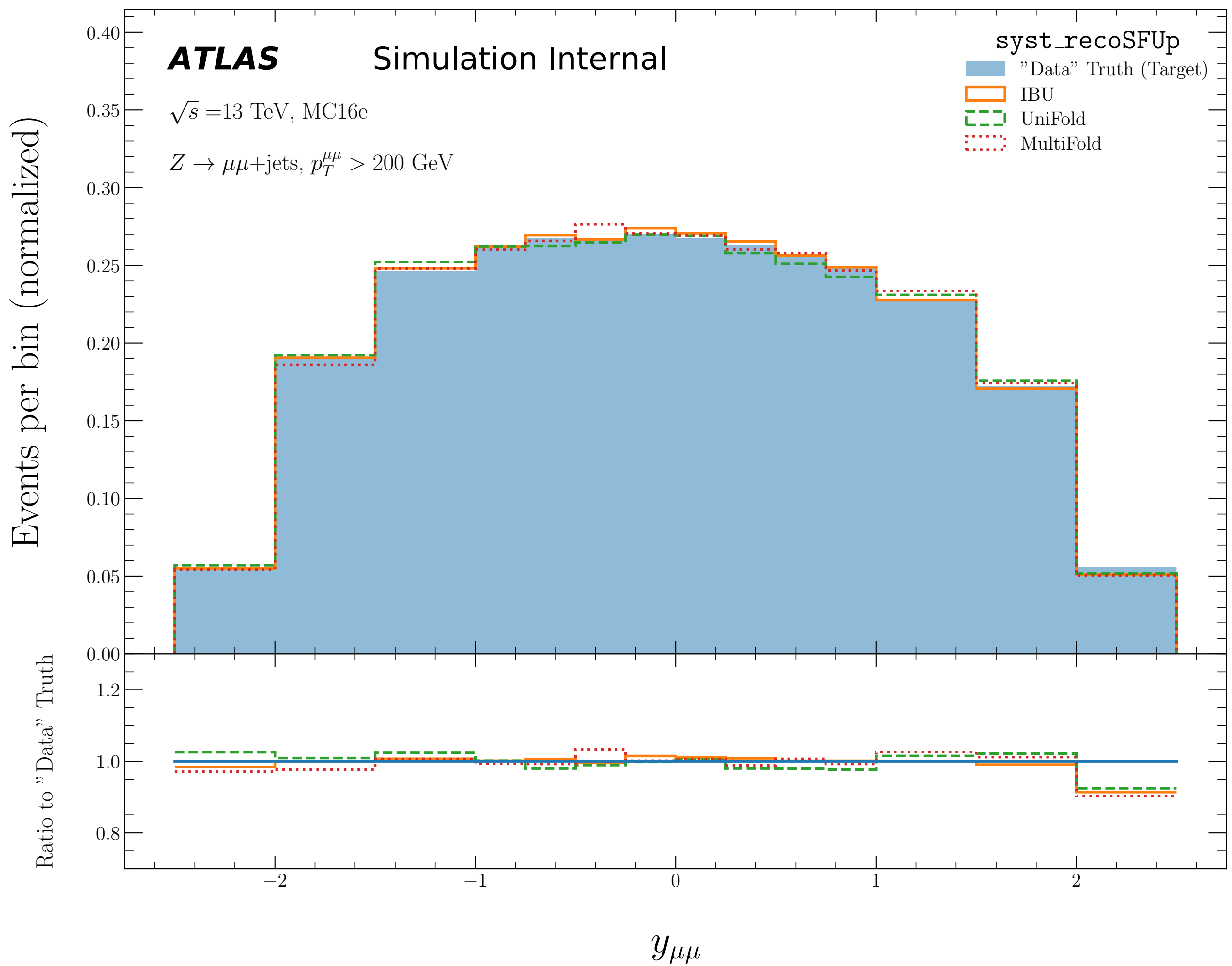
**syst\_prwDown**

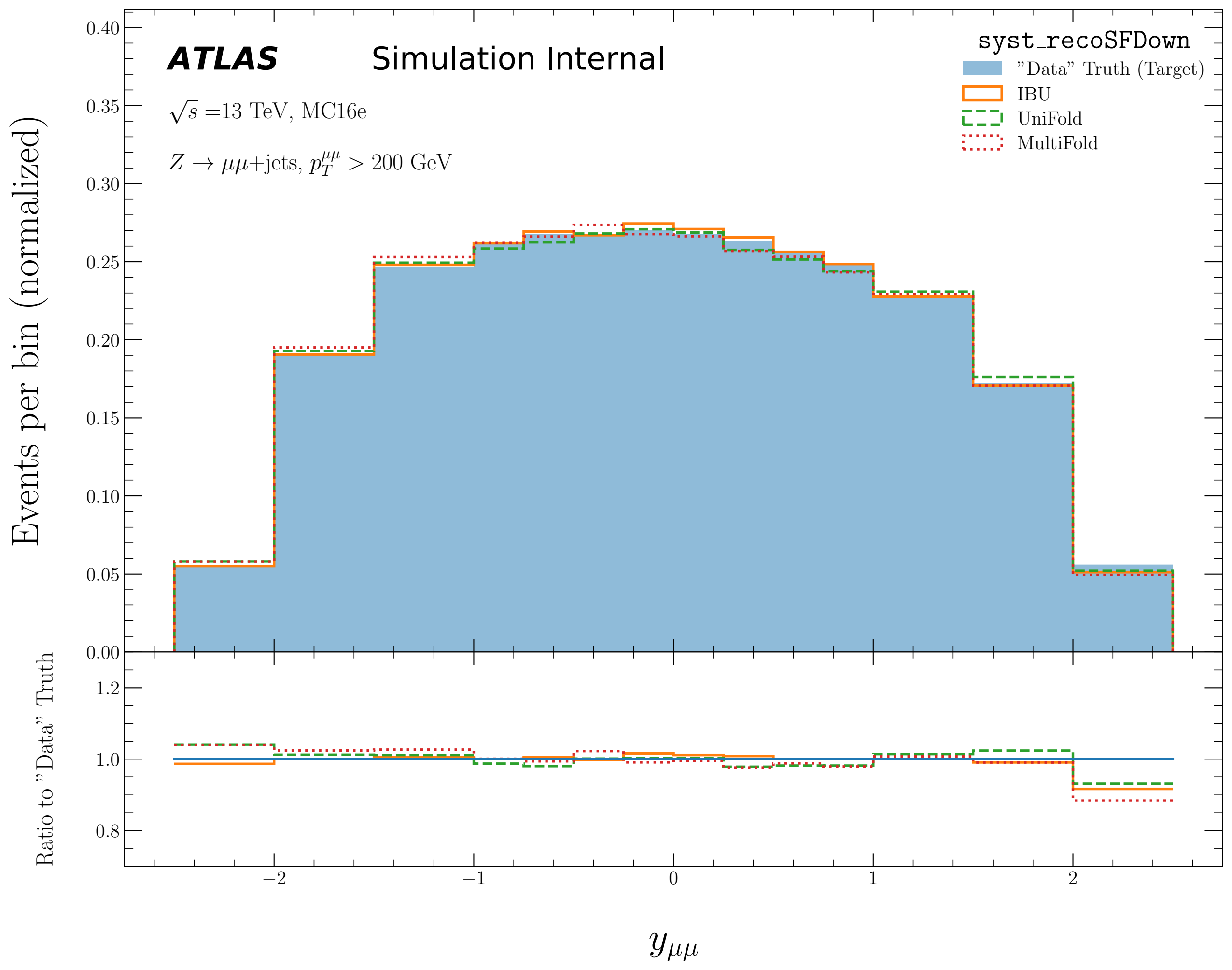
- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

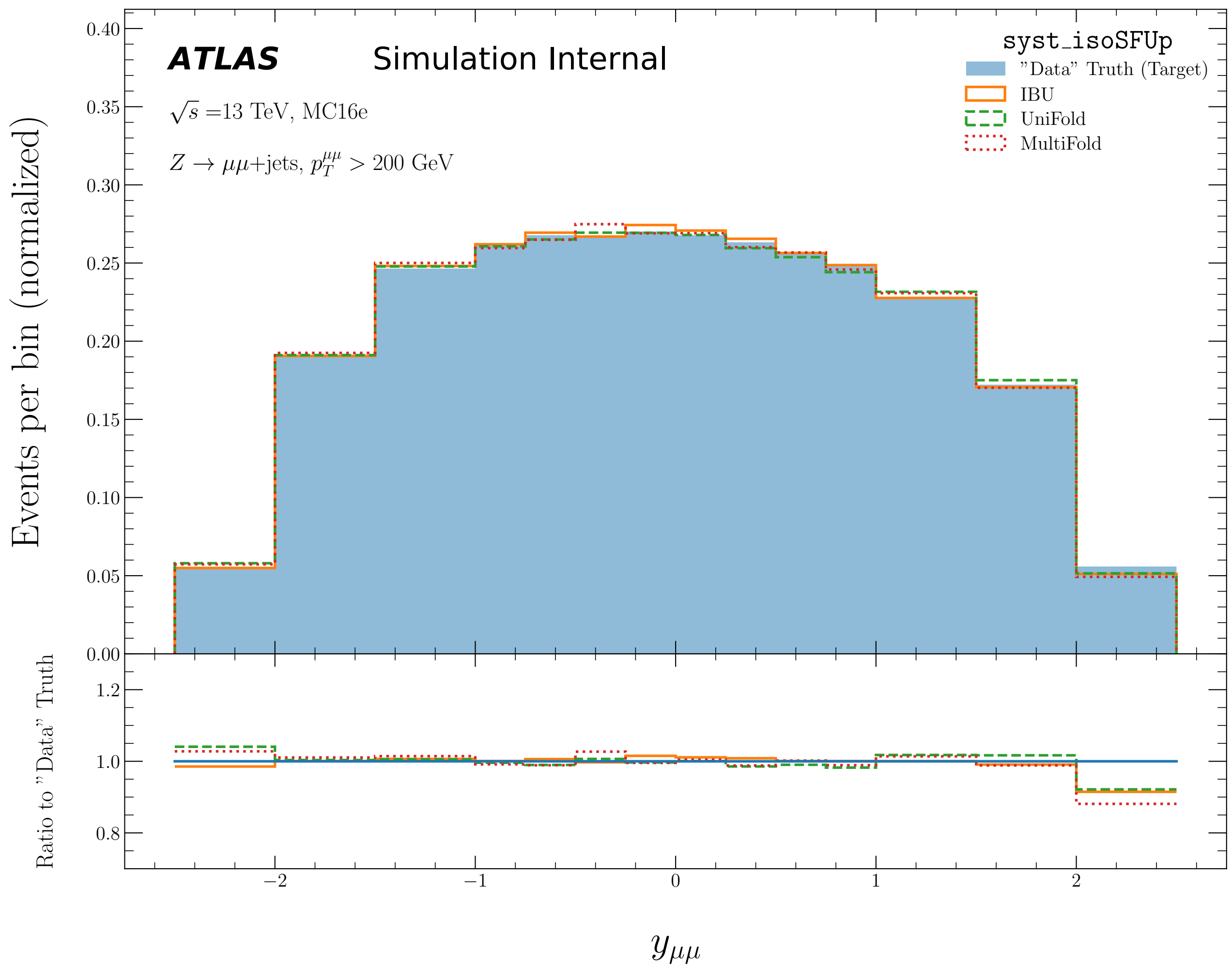
Ratio to "Data" Truth

$y_{\mu\mu}$









Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

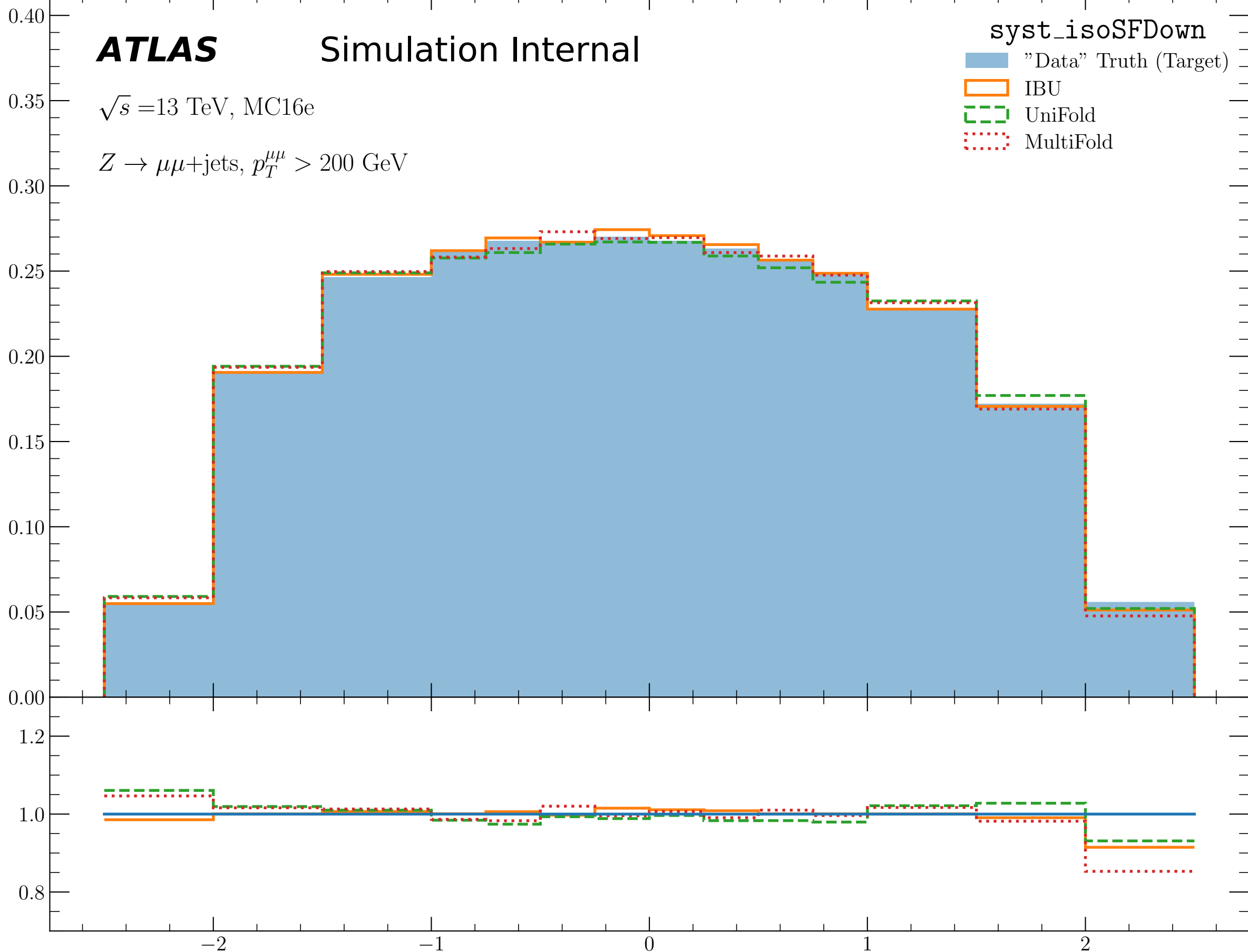
$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_isoSFDown

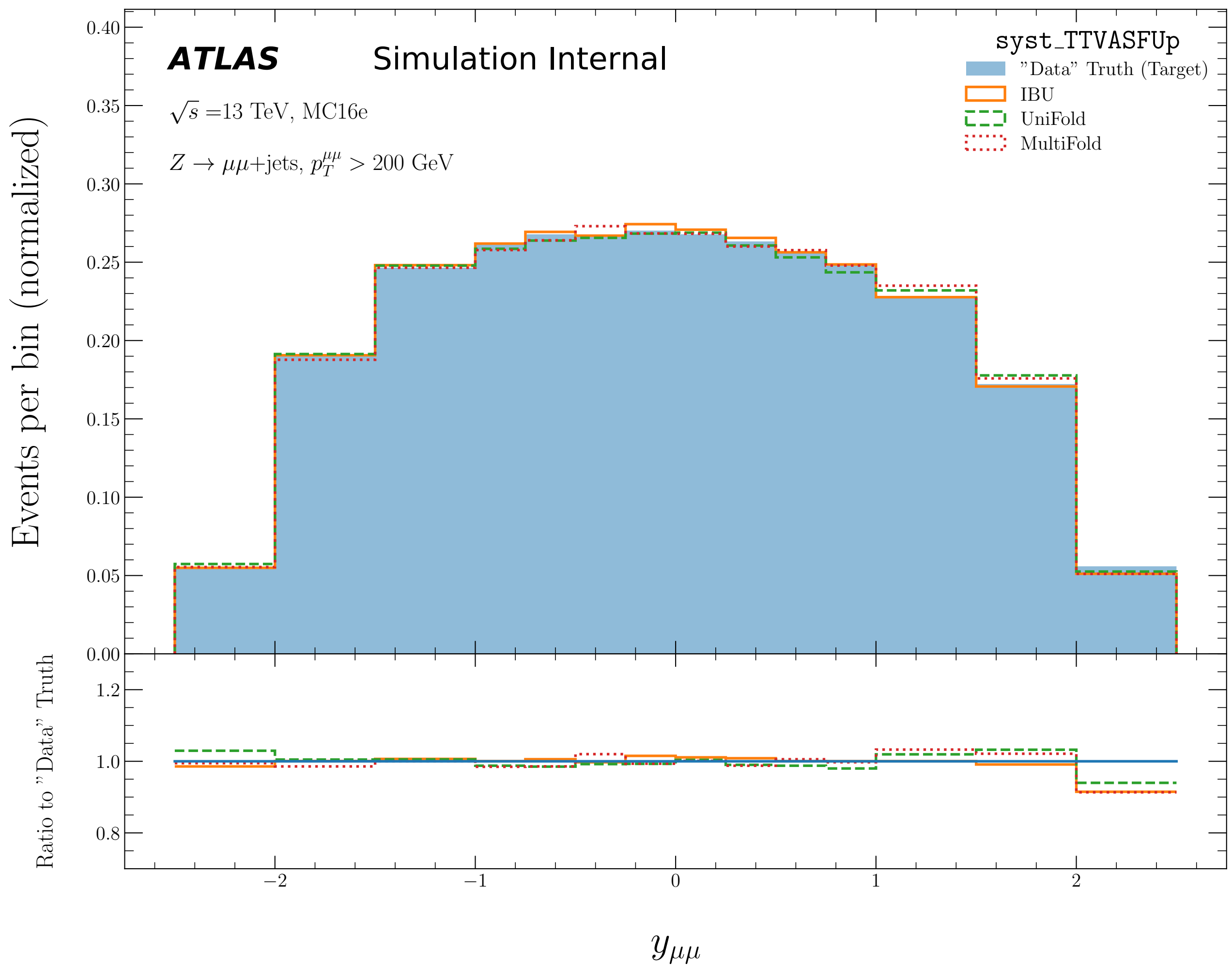
- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

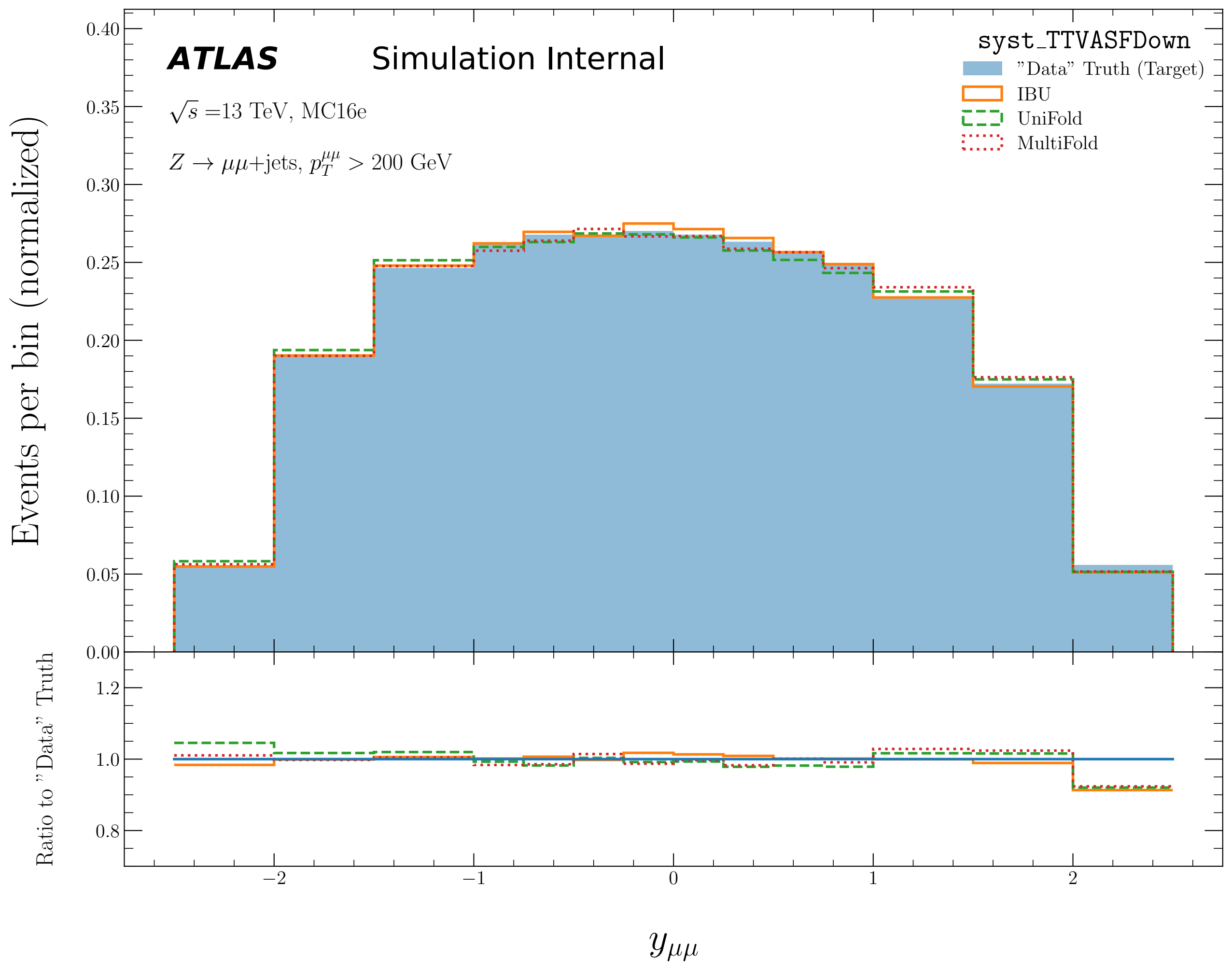
Ratio to "Data" Truth

$y_{\mu\mu}$









Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_trigSFUp

"Data" Truth (Target)

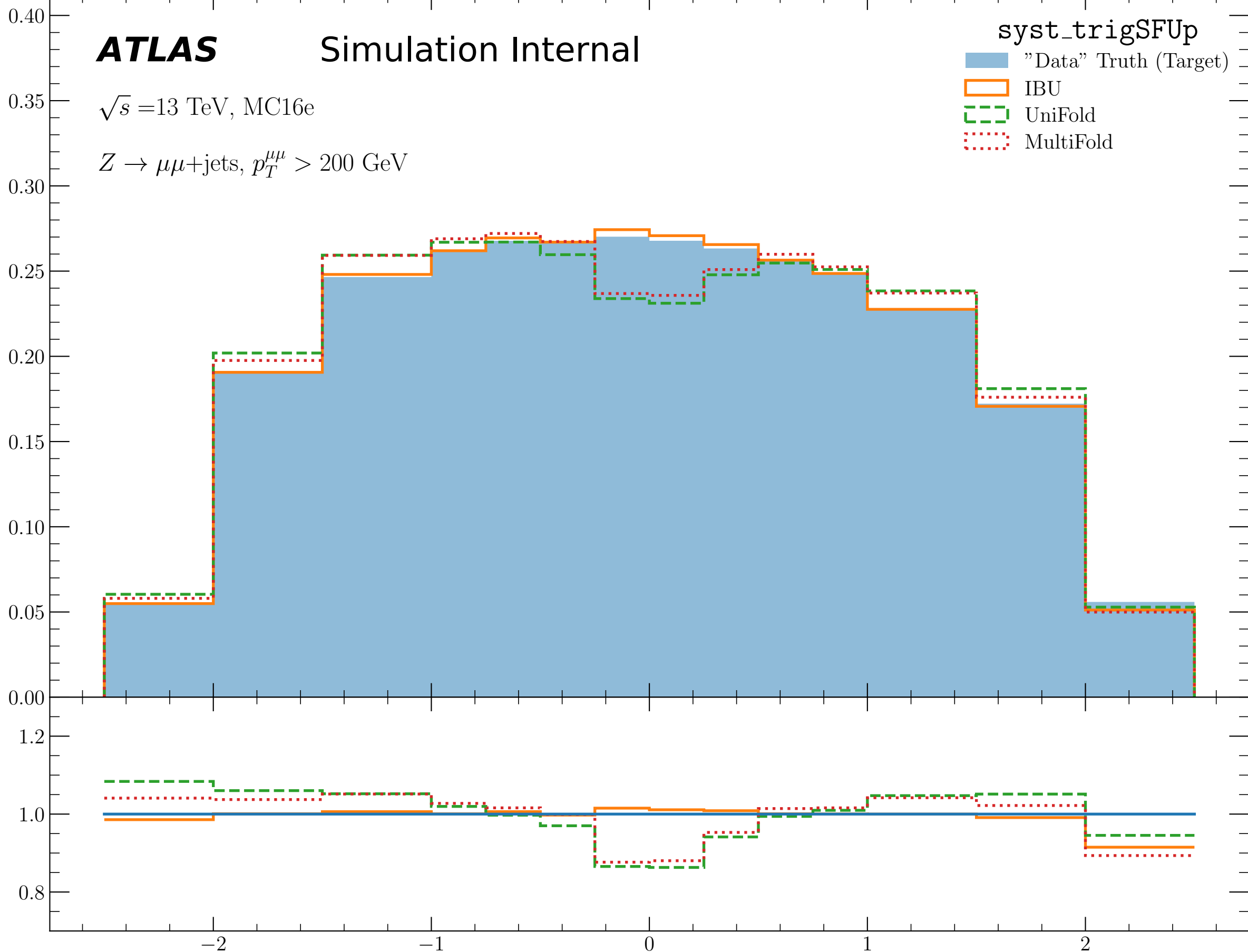
IBU

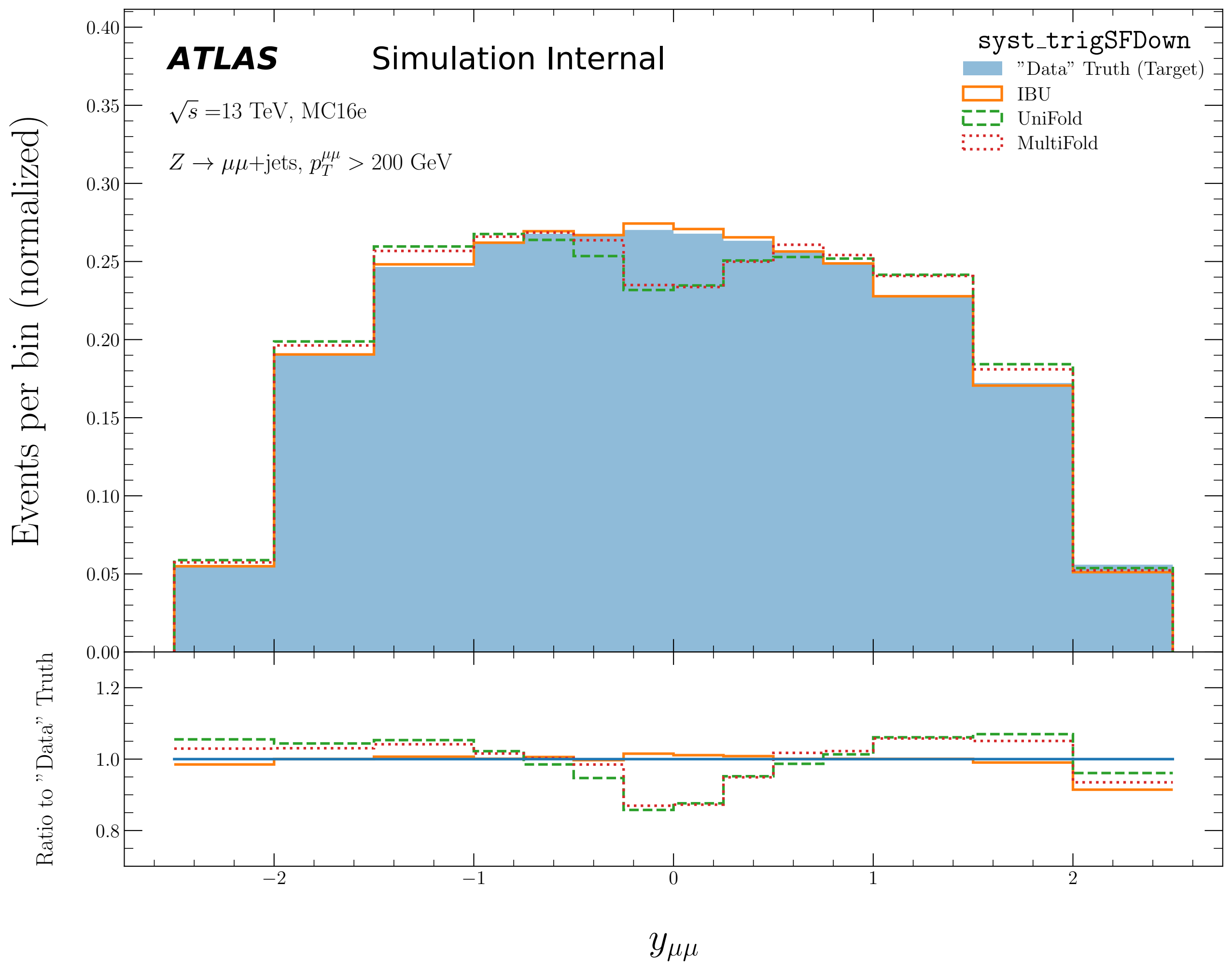
UniFold

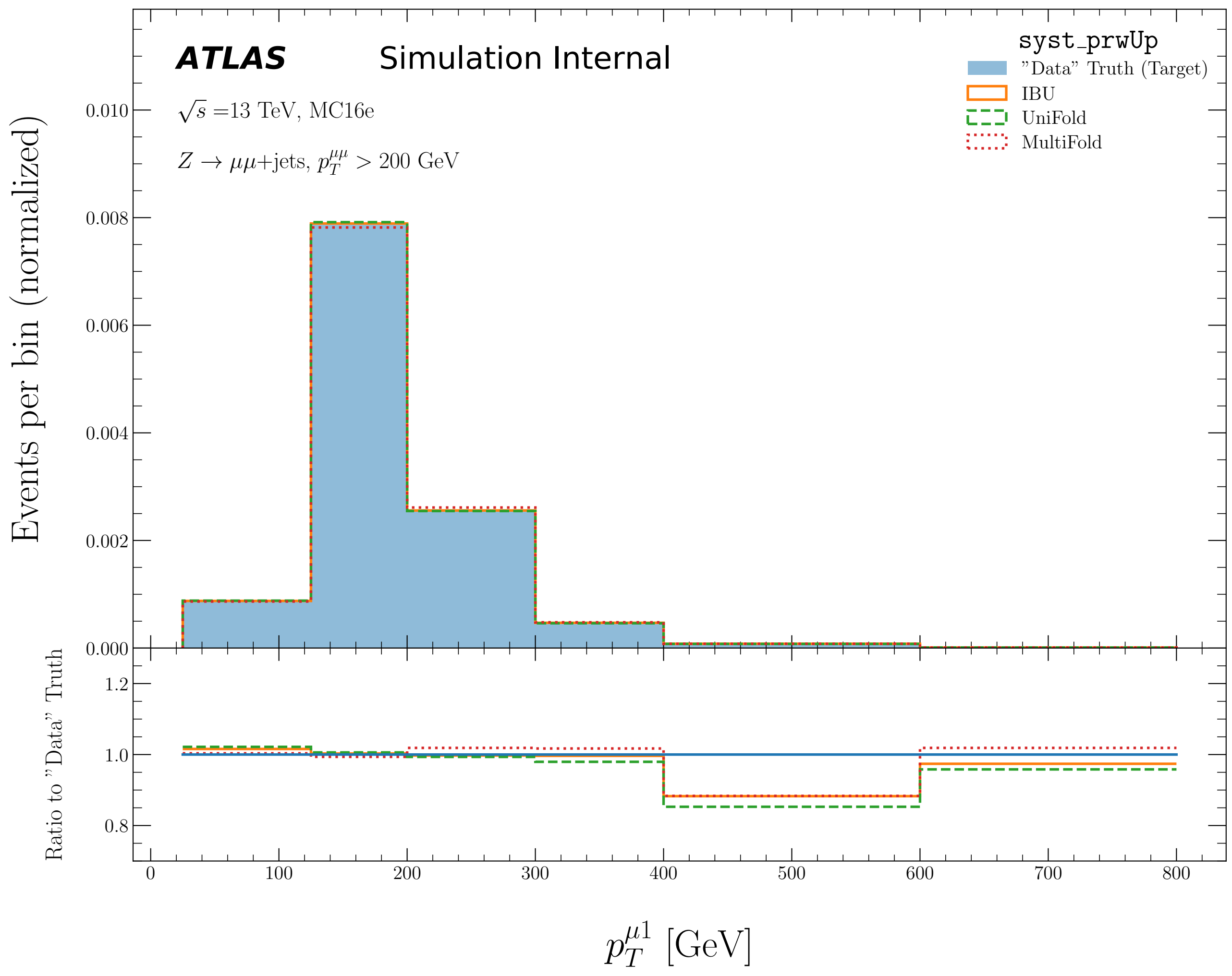
MultiFold

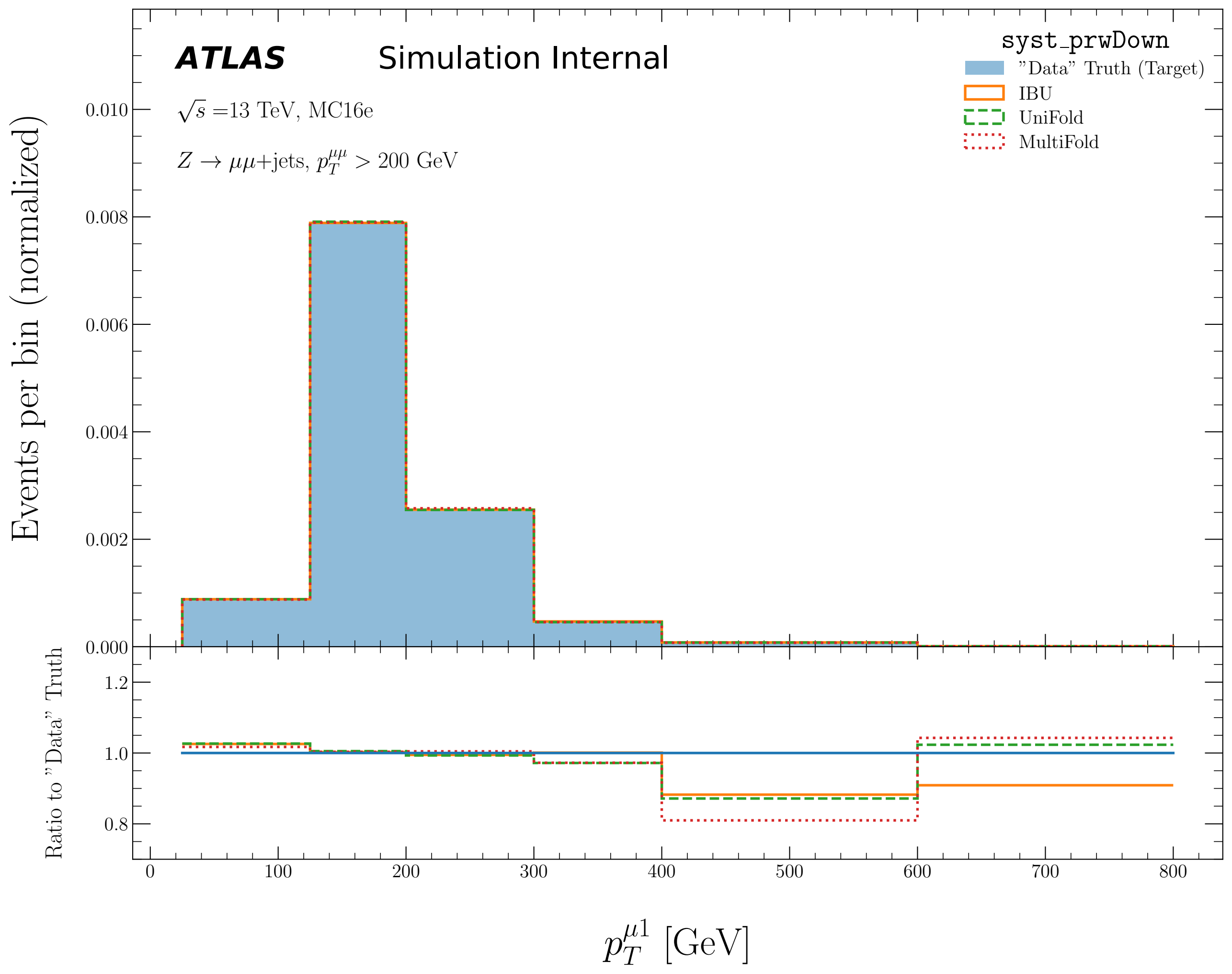
Ratio to "Data" Truth

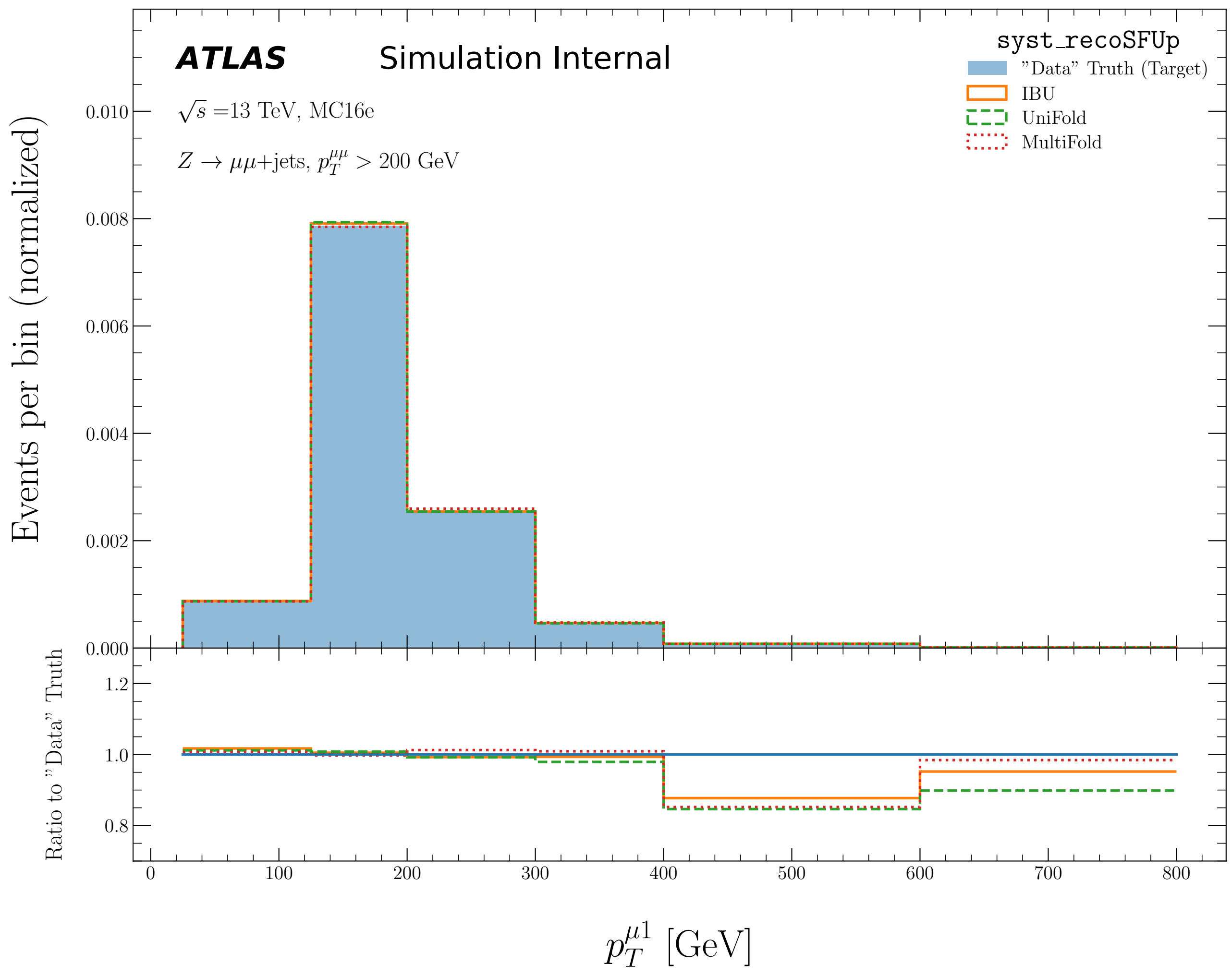
$y_{\mu\mu}$

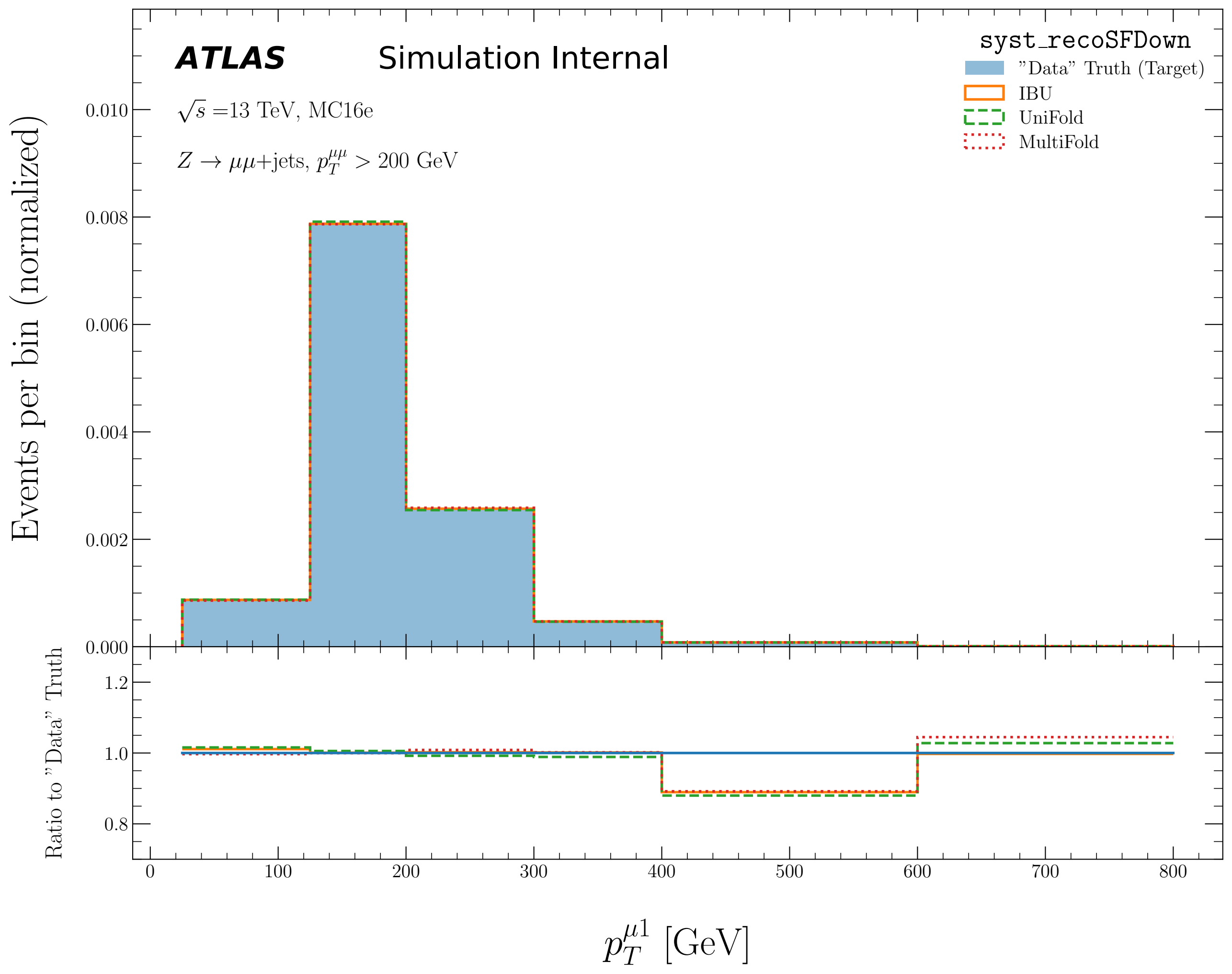




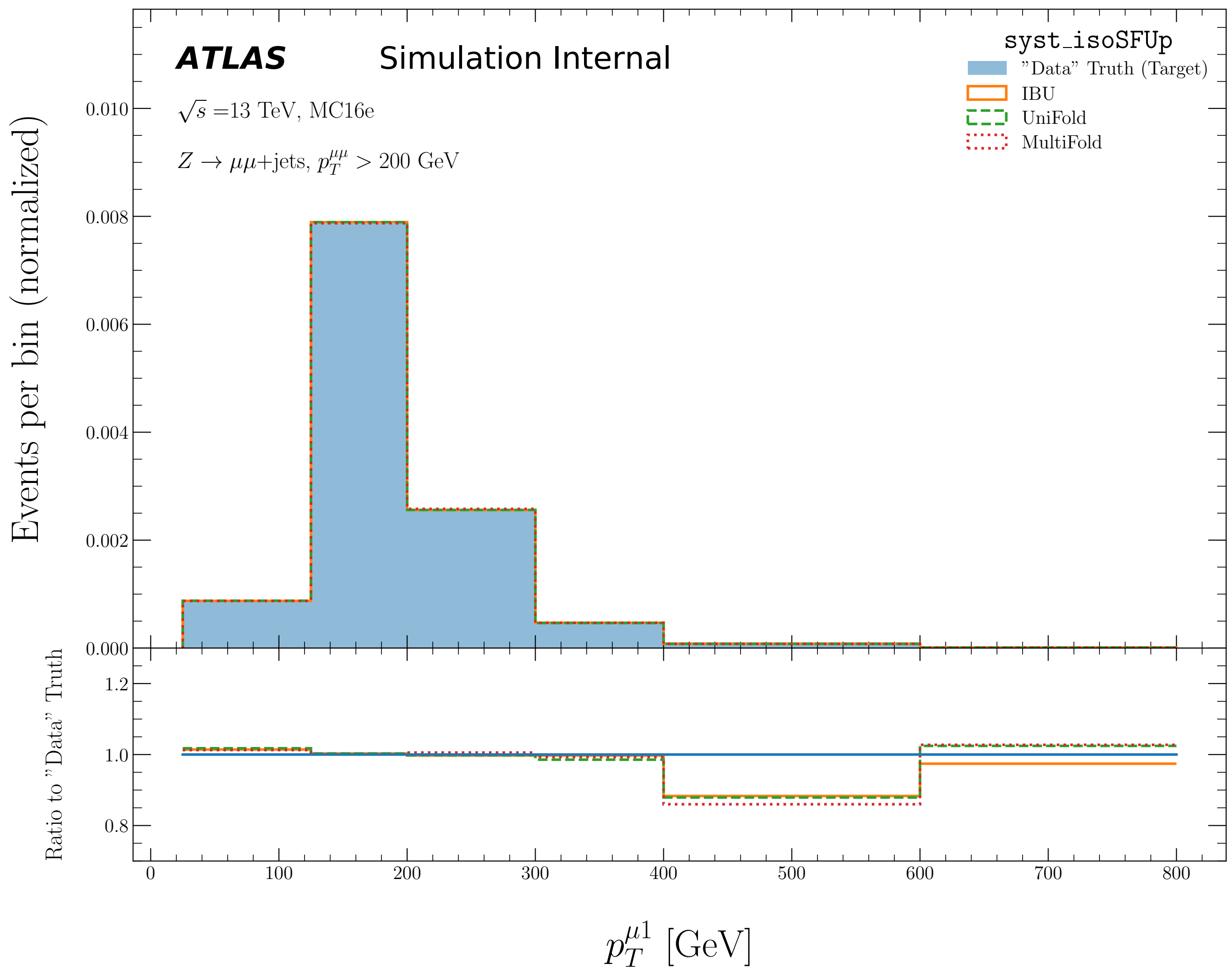


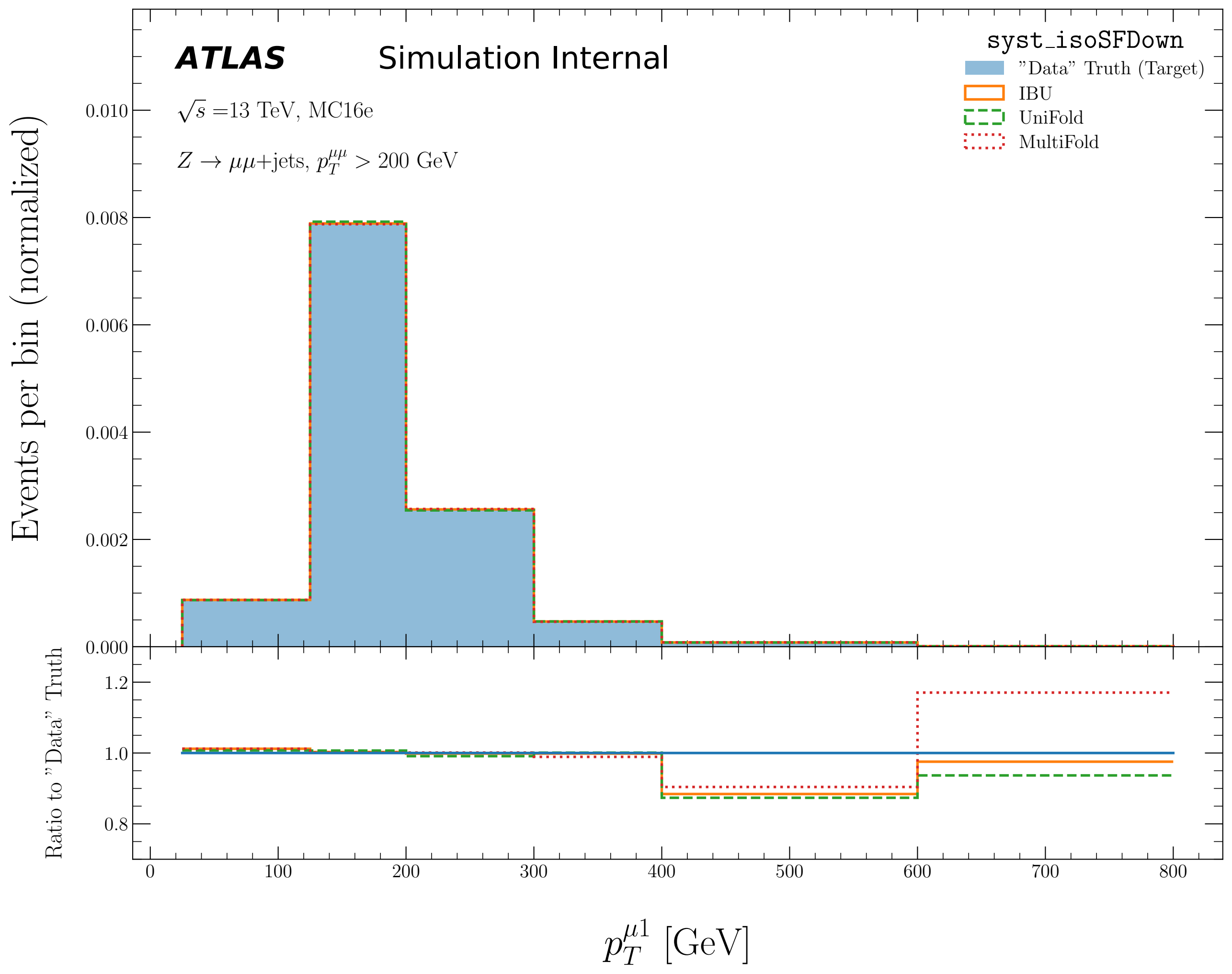


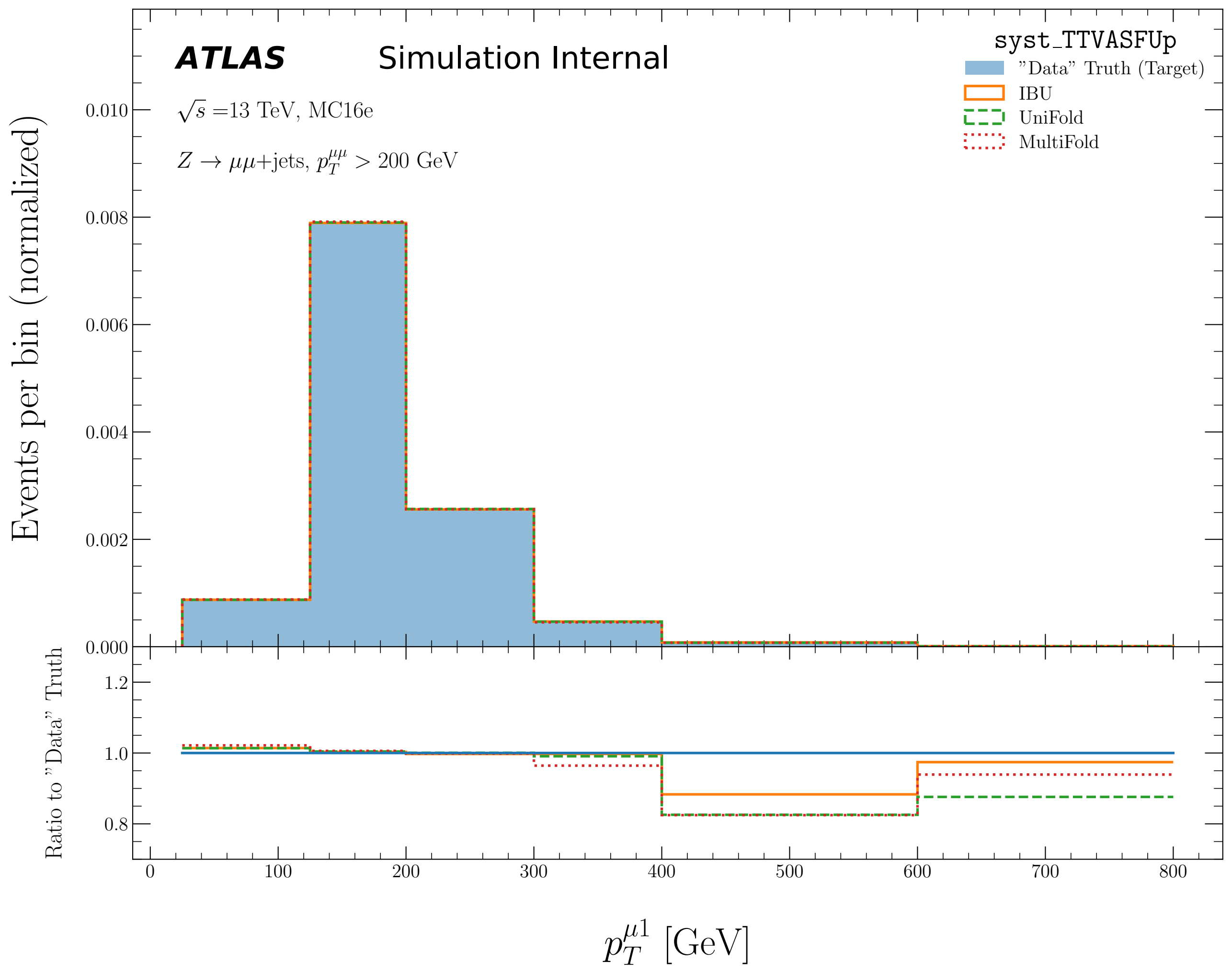


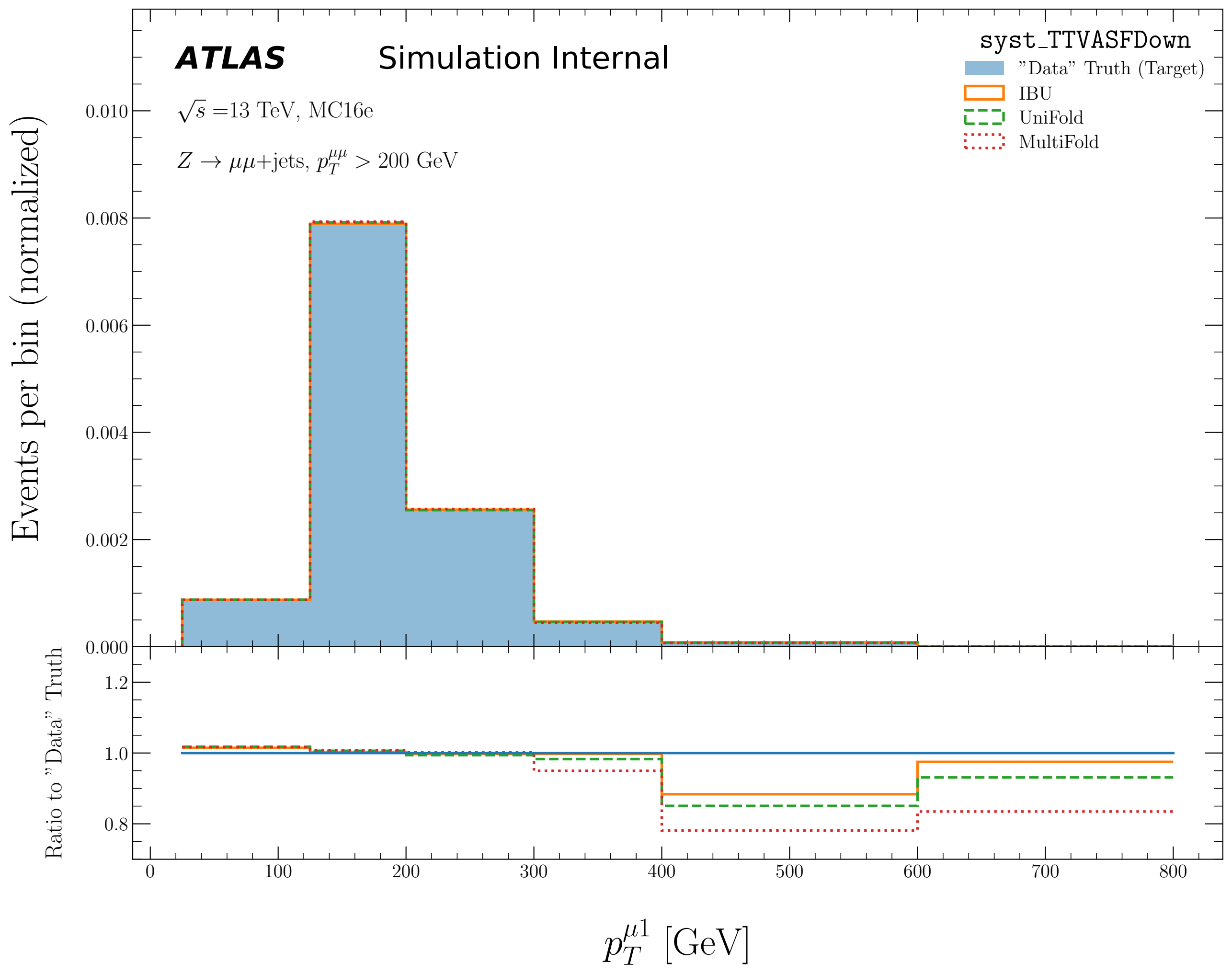


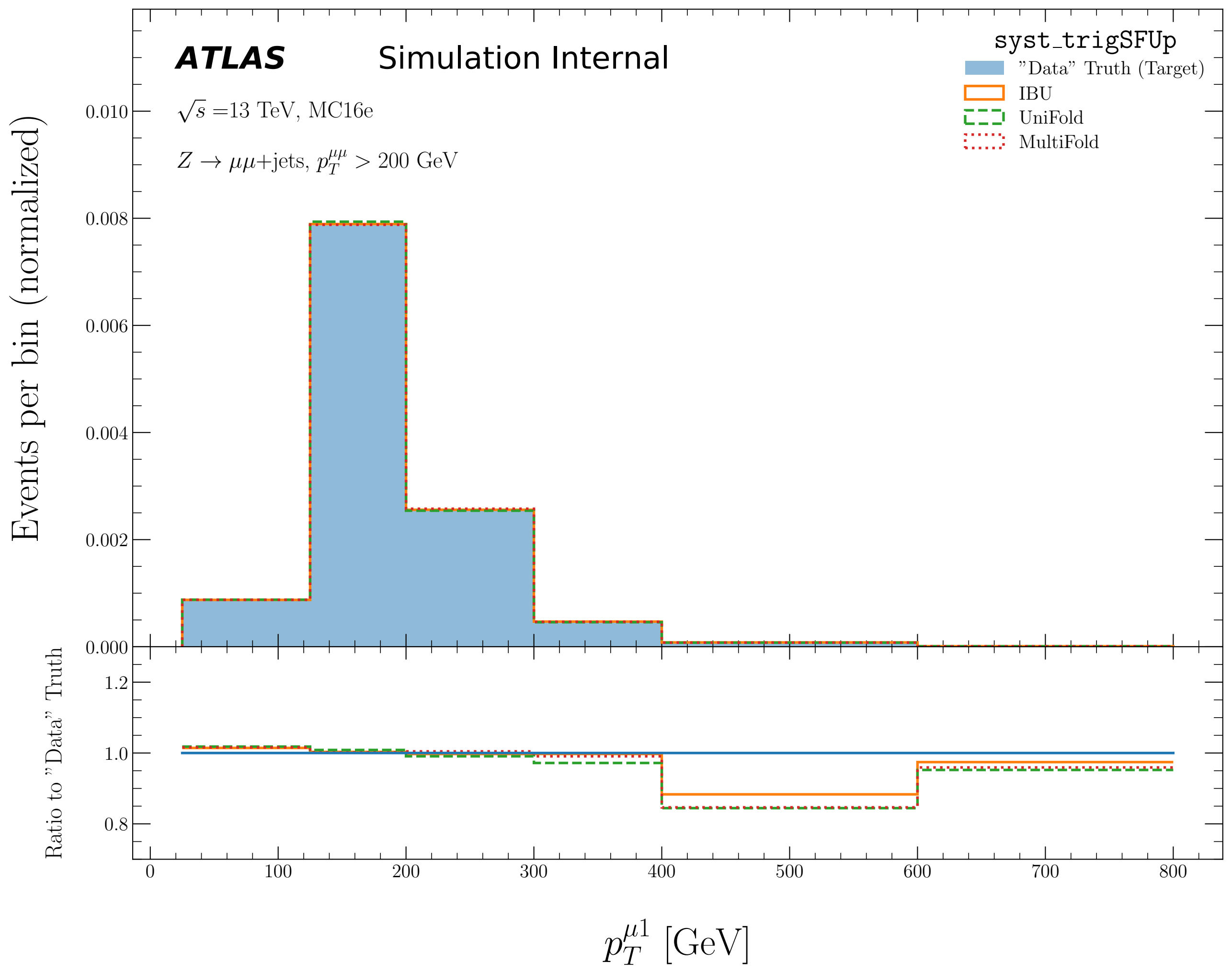


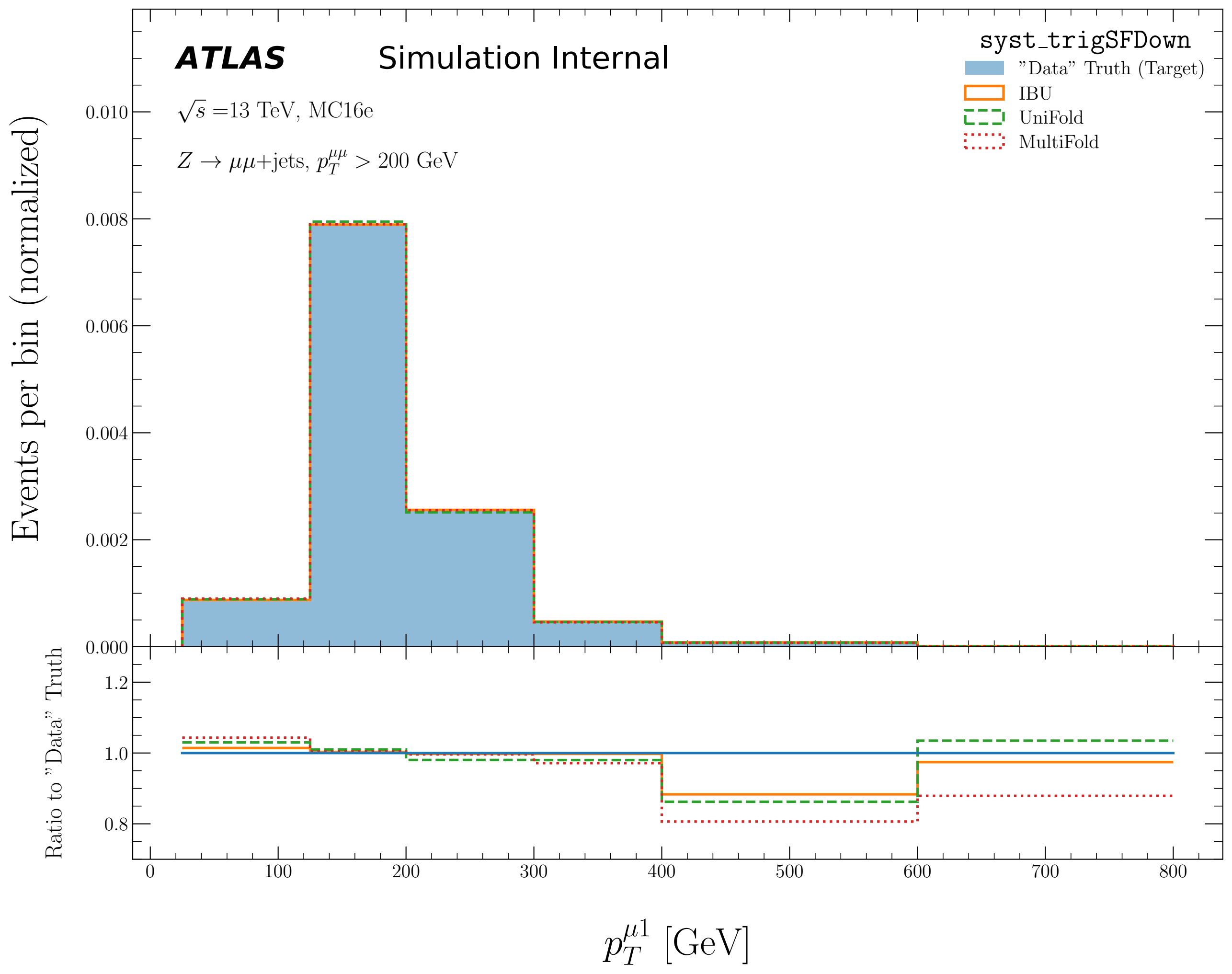


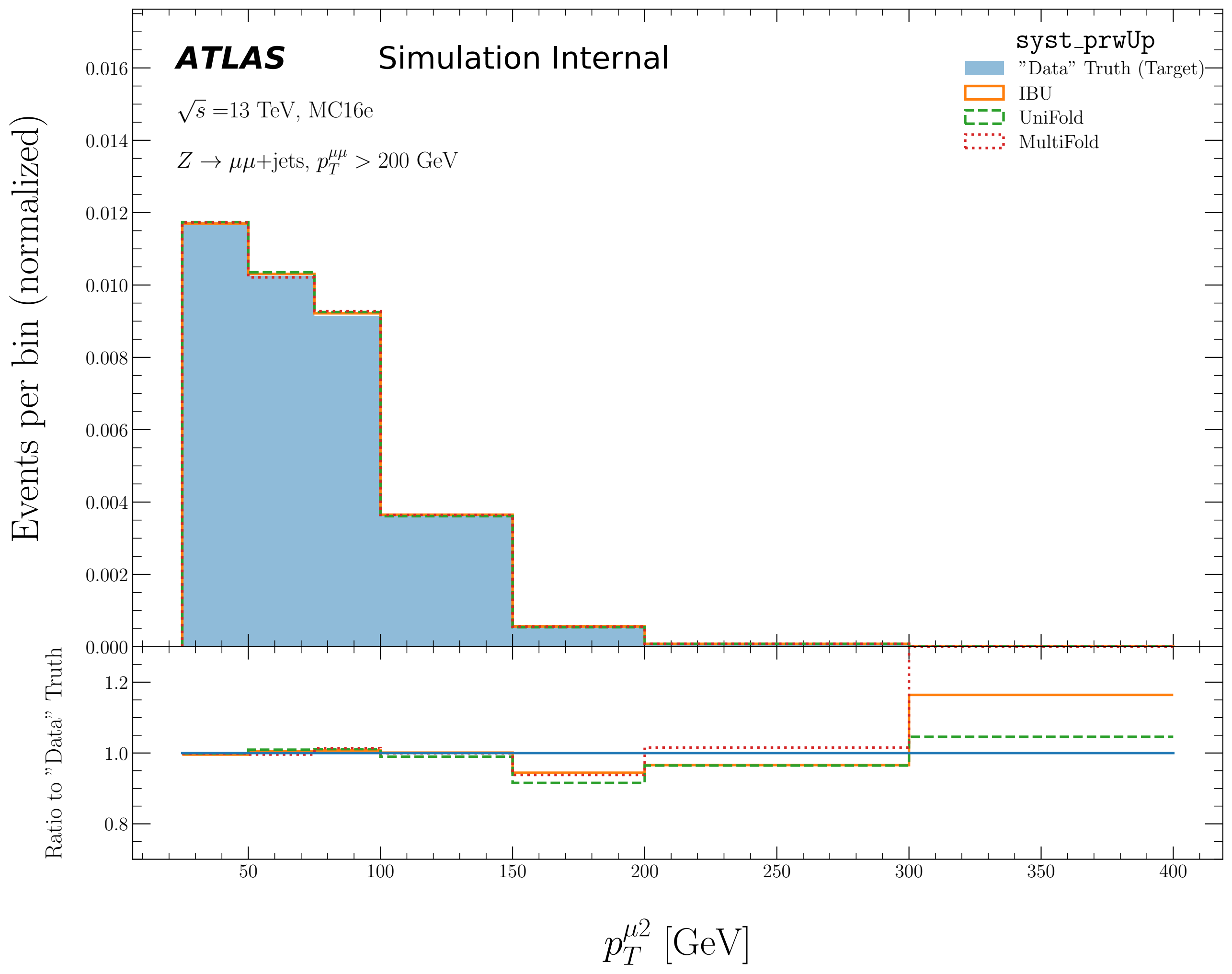


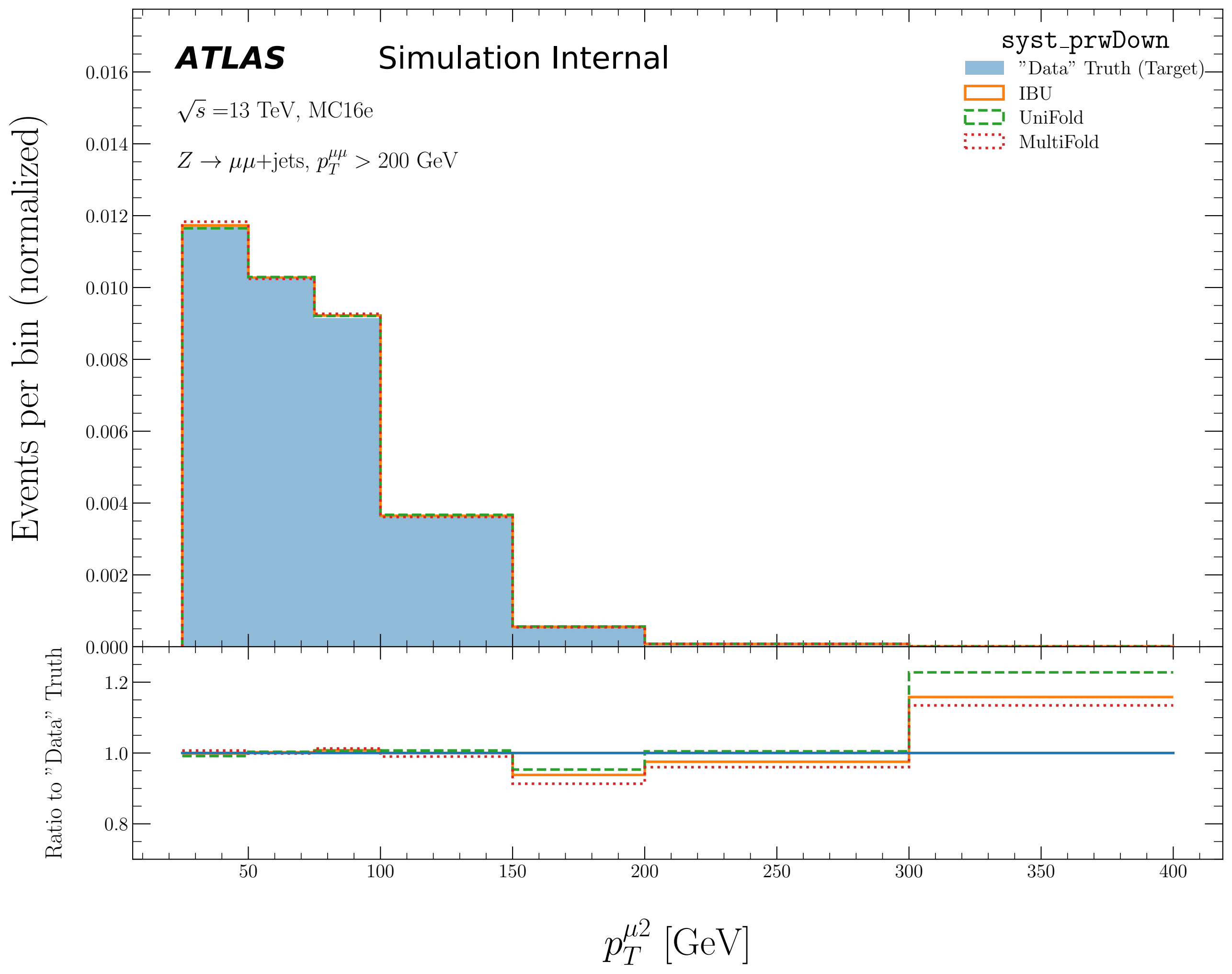




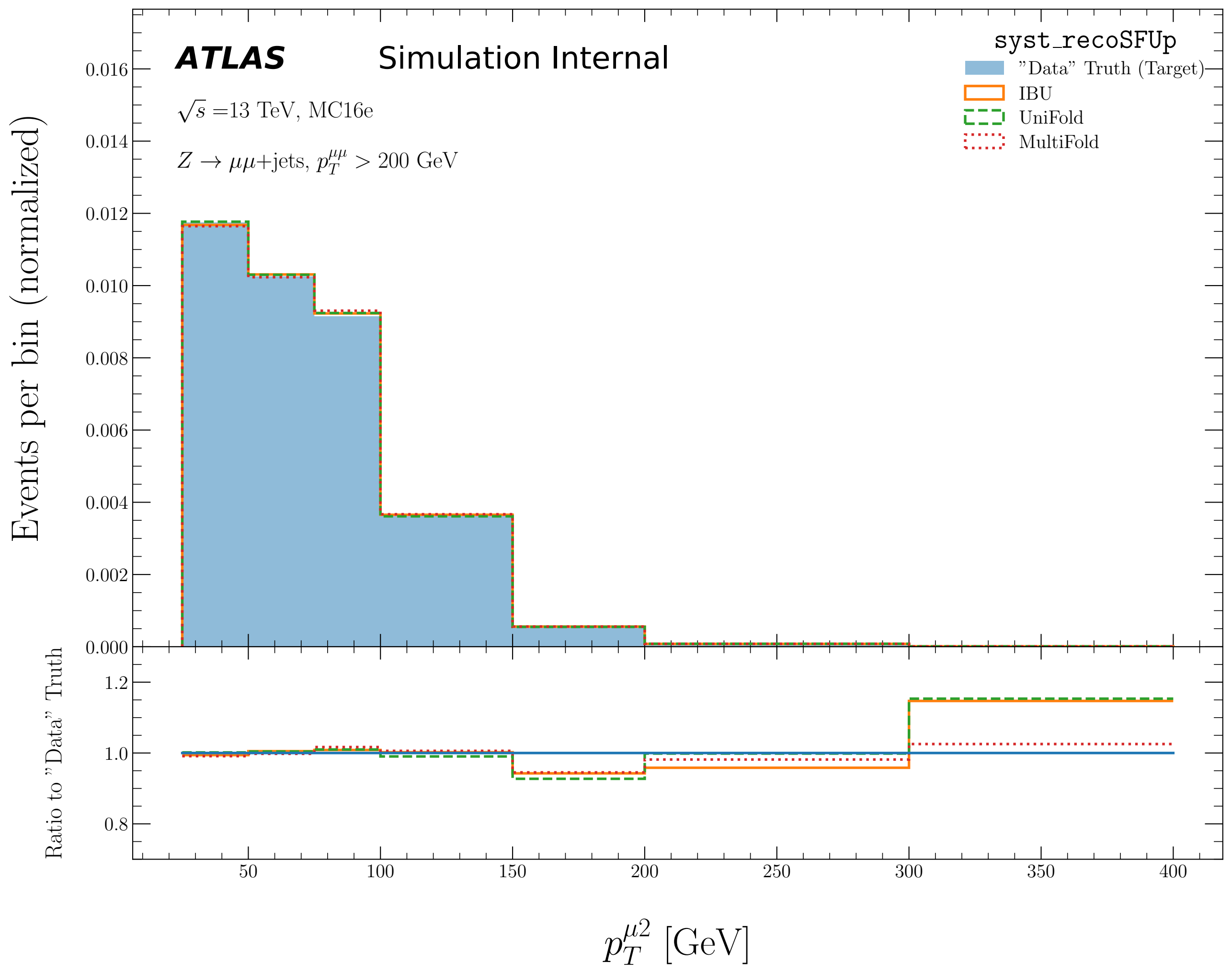


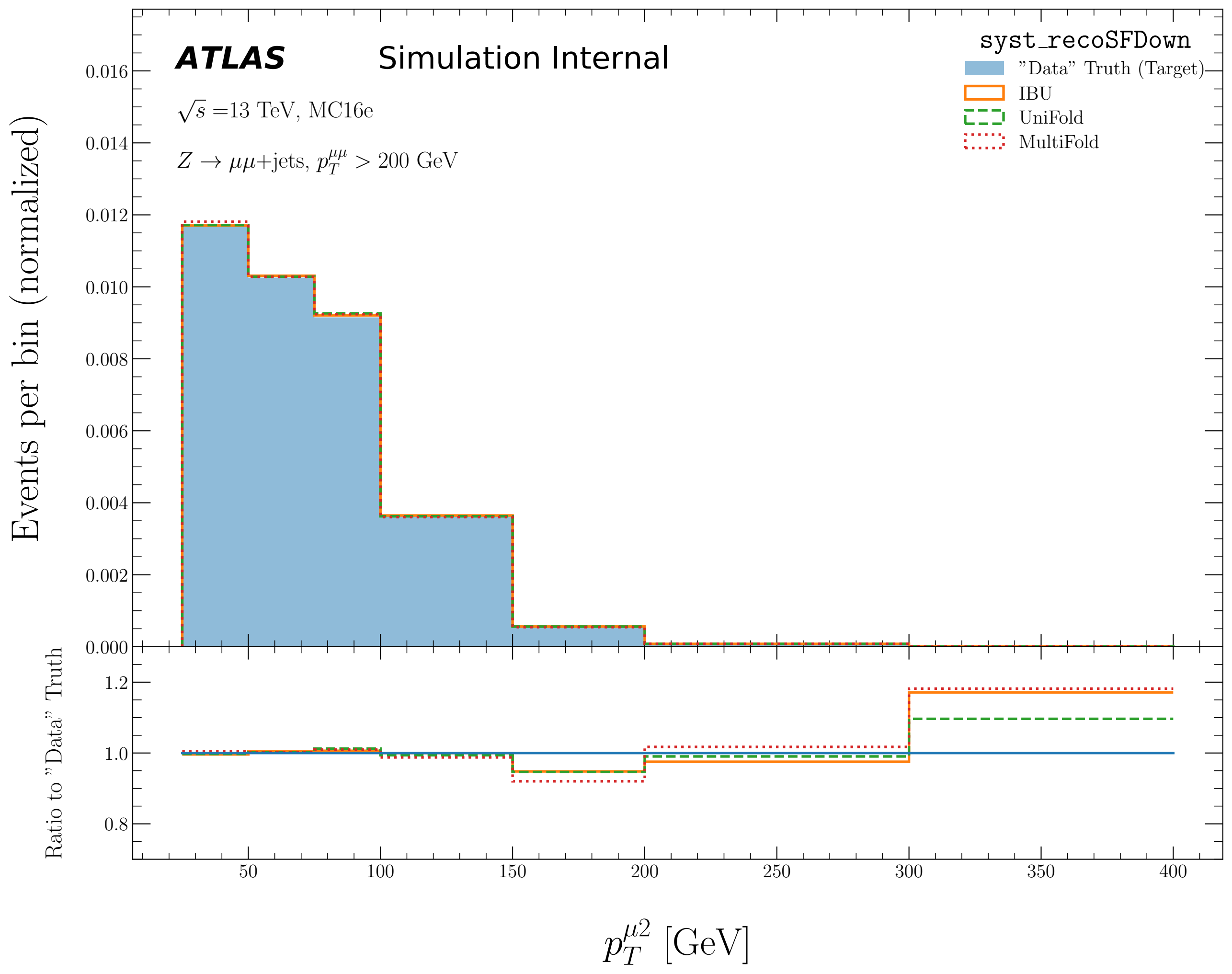


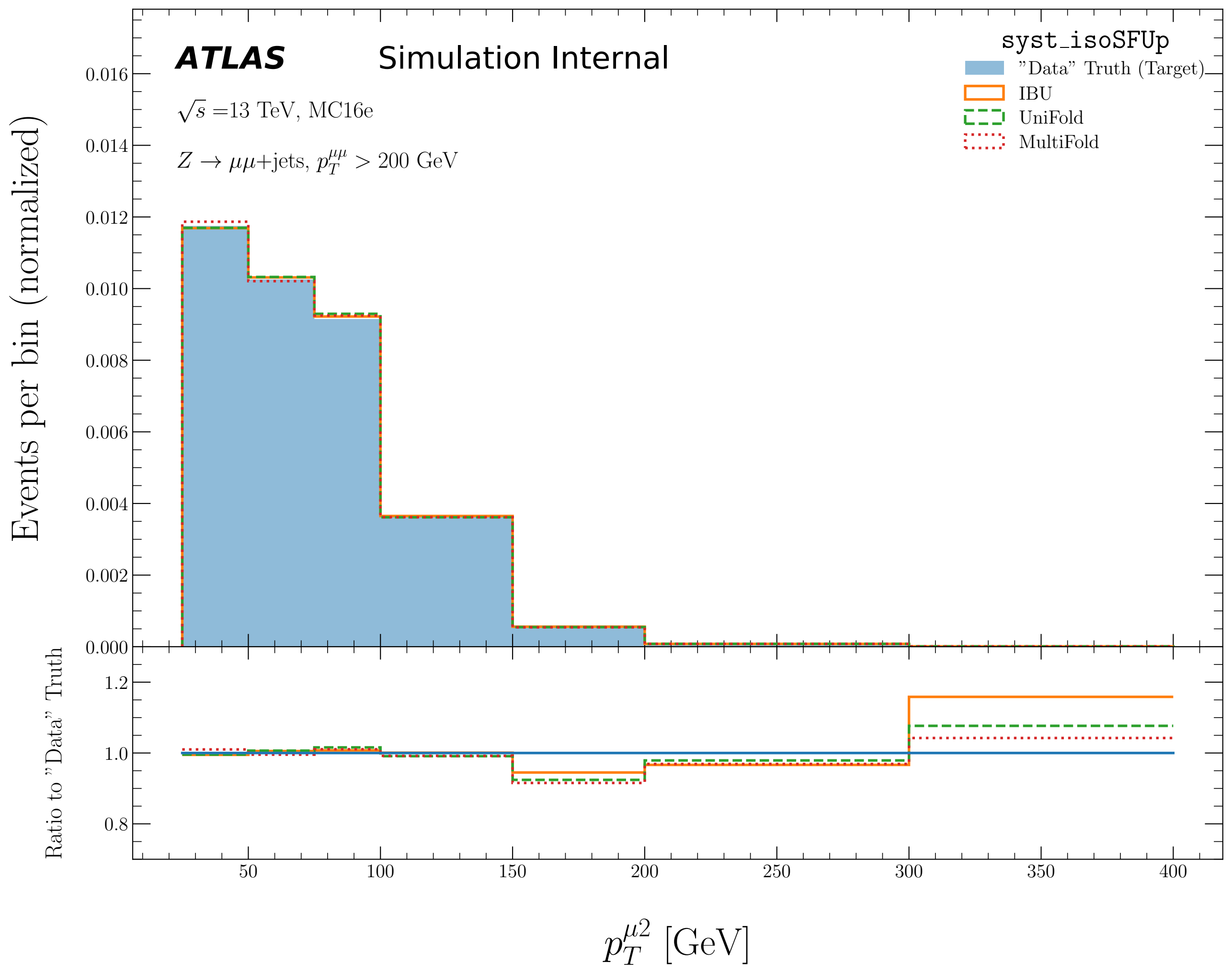


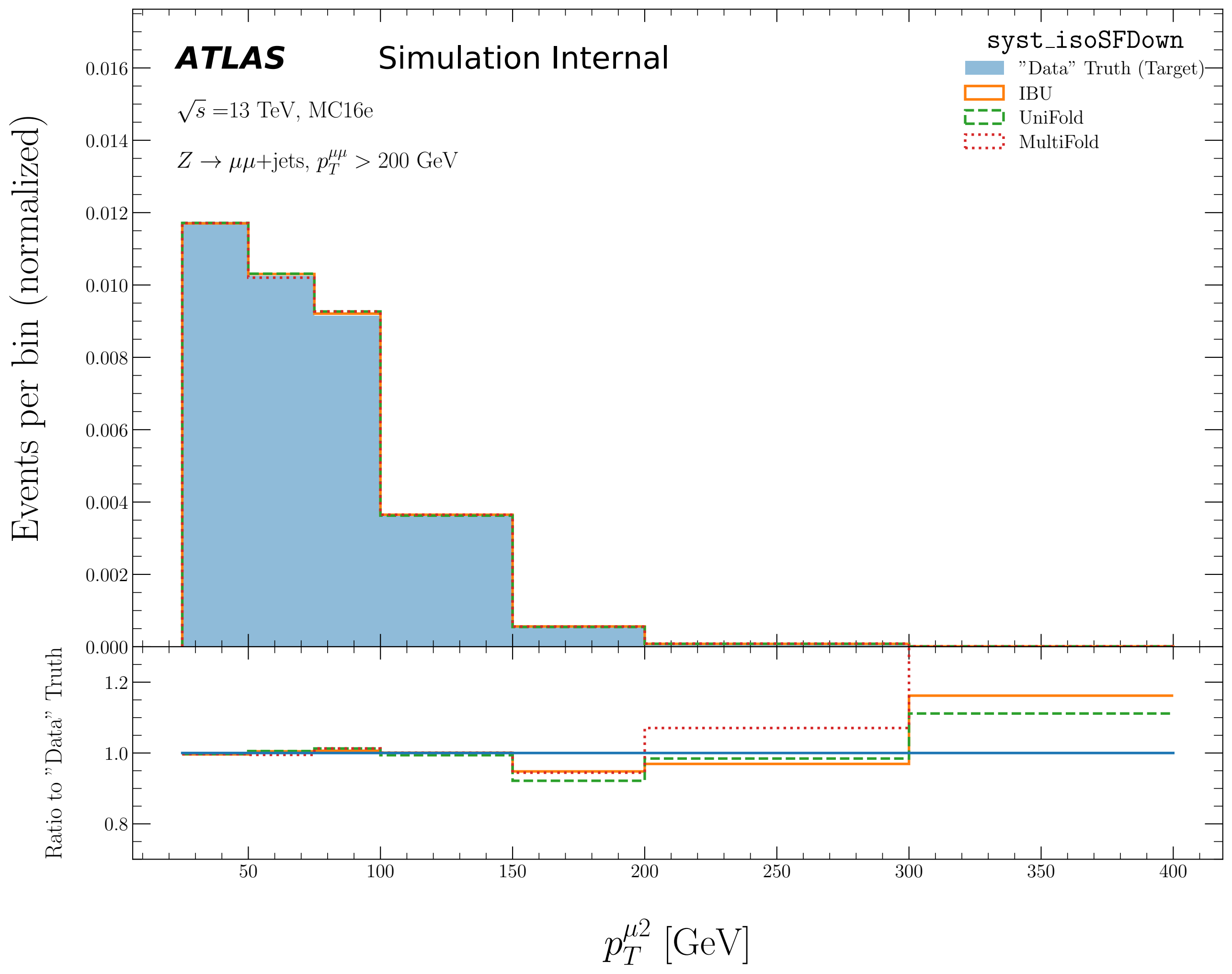


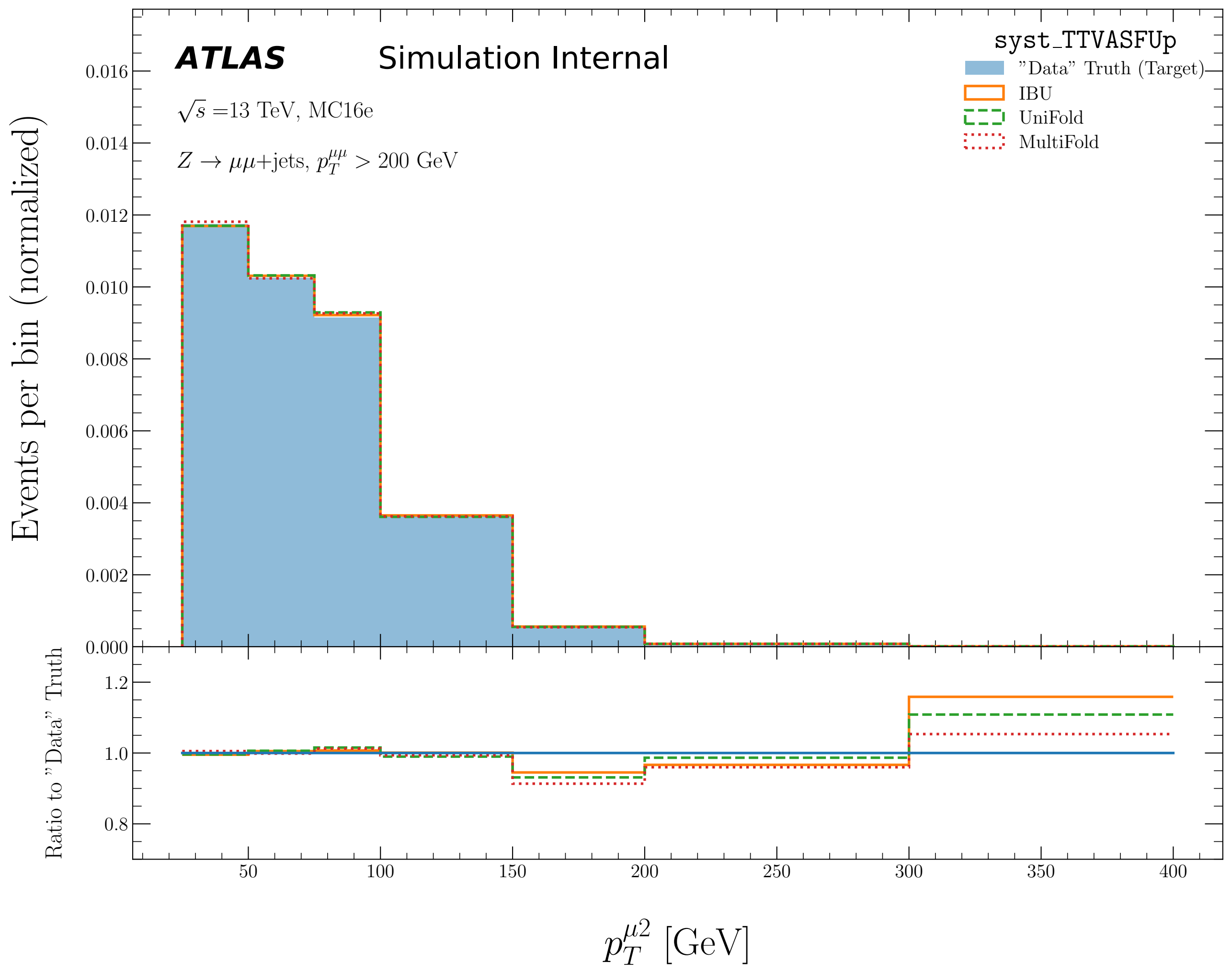


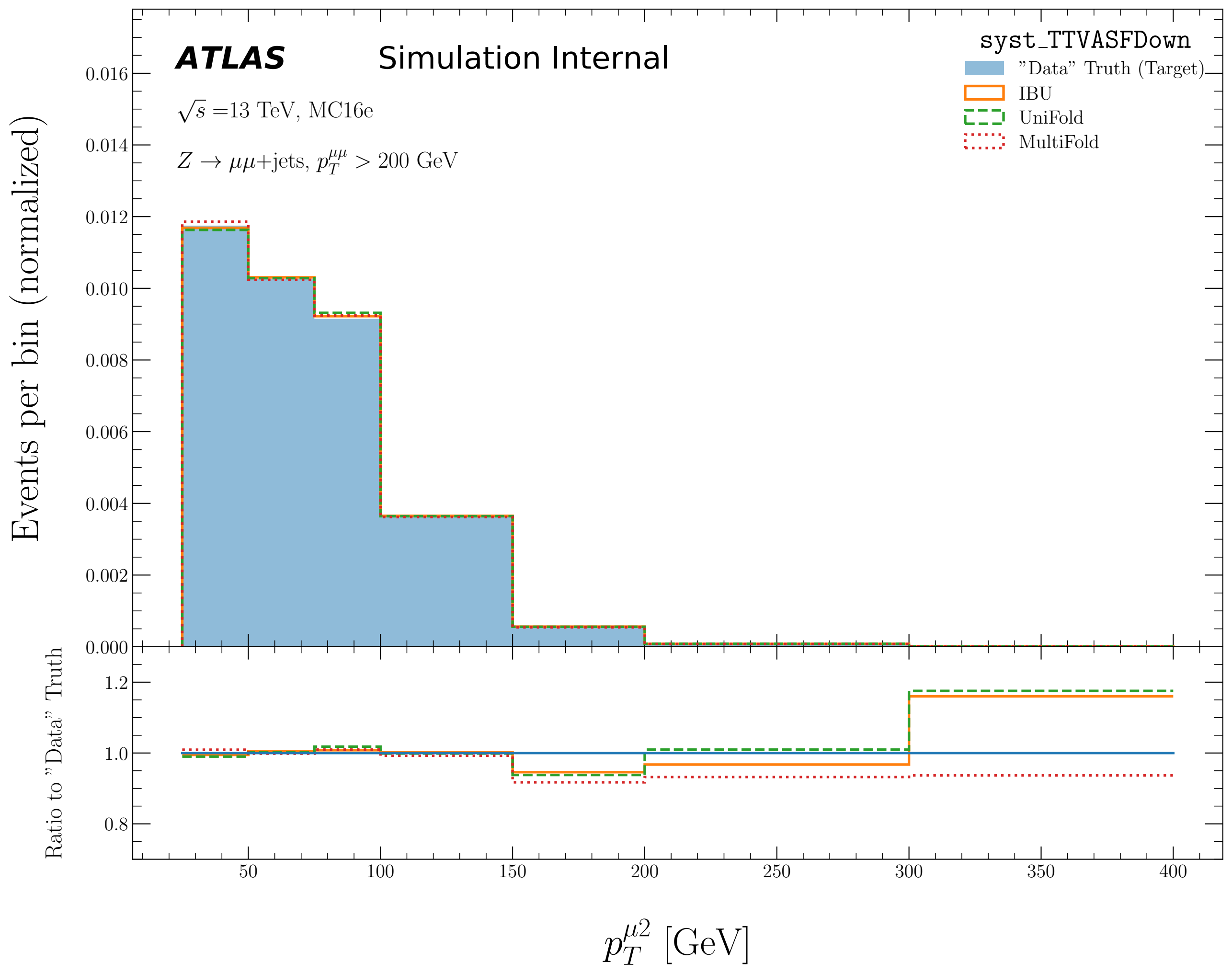


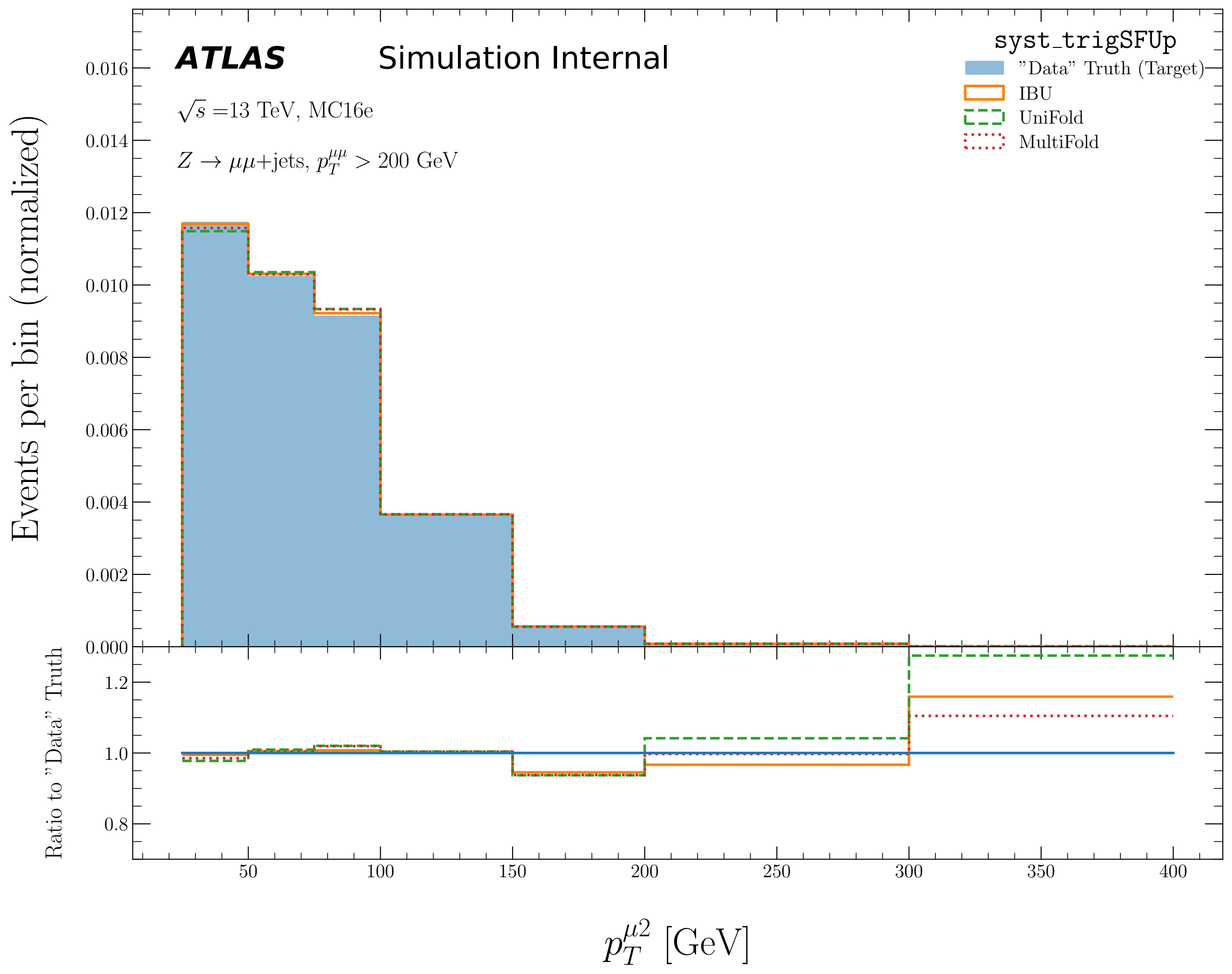


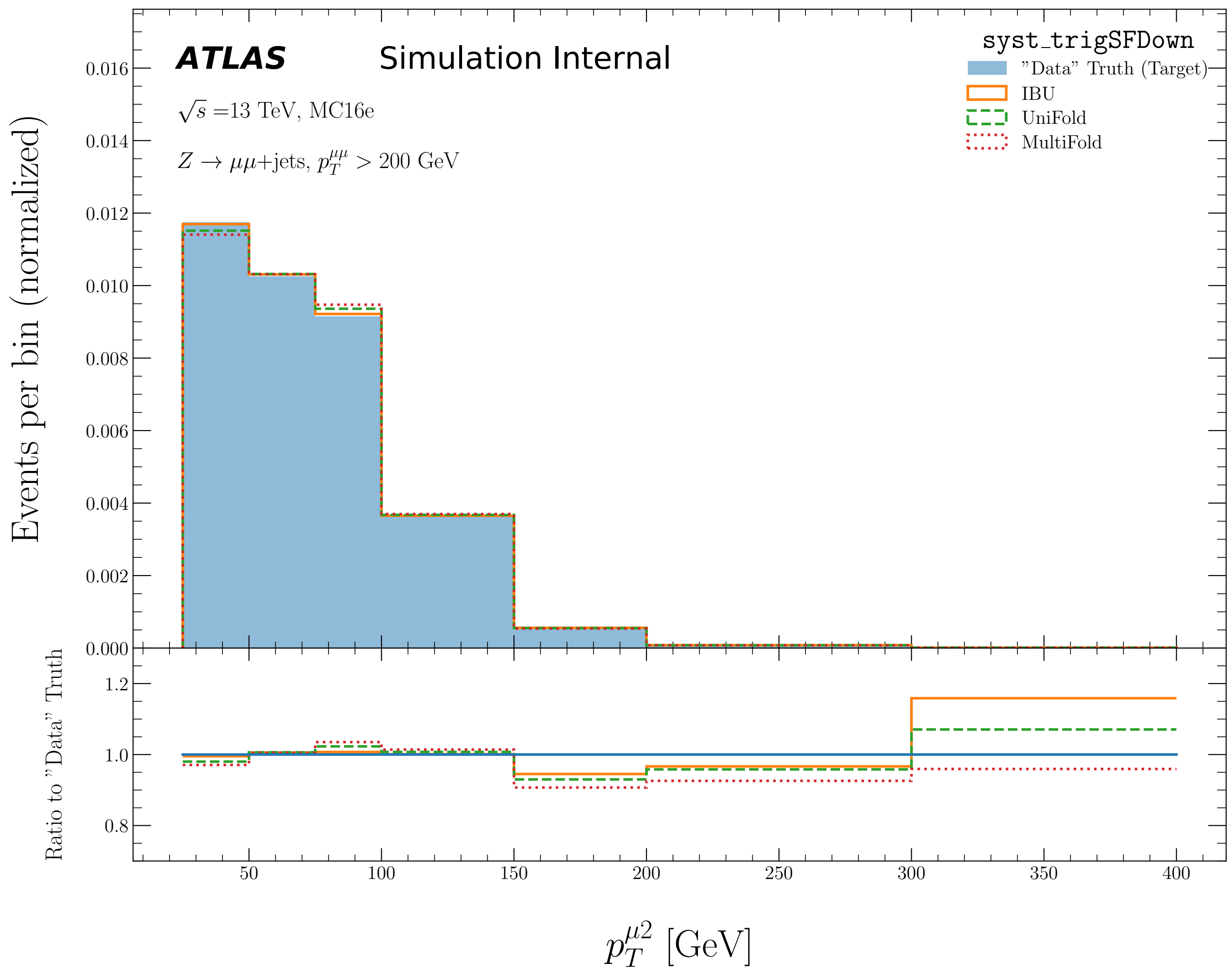




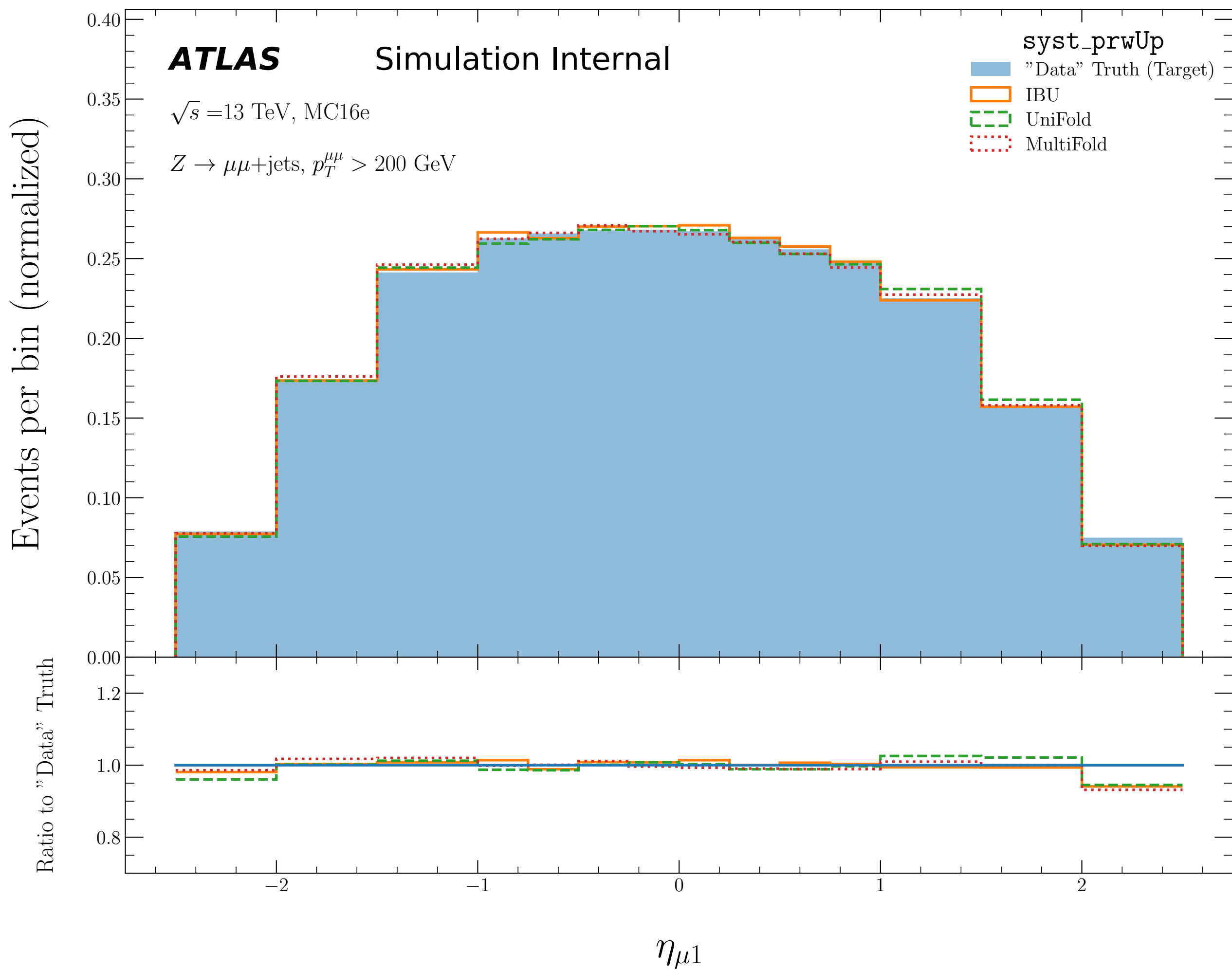


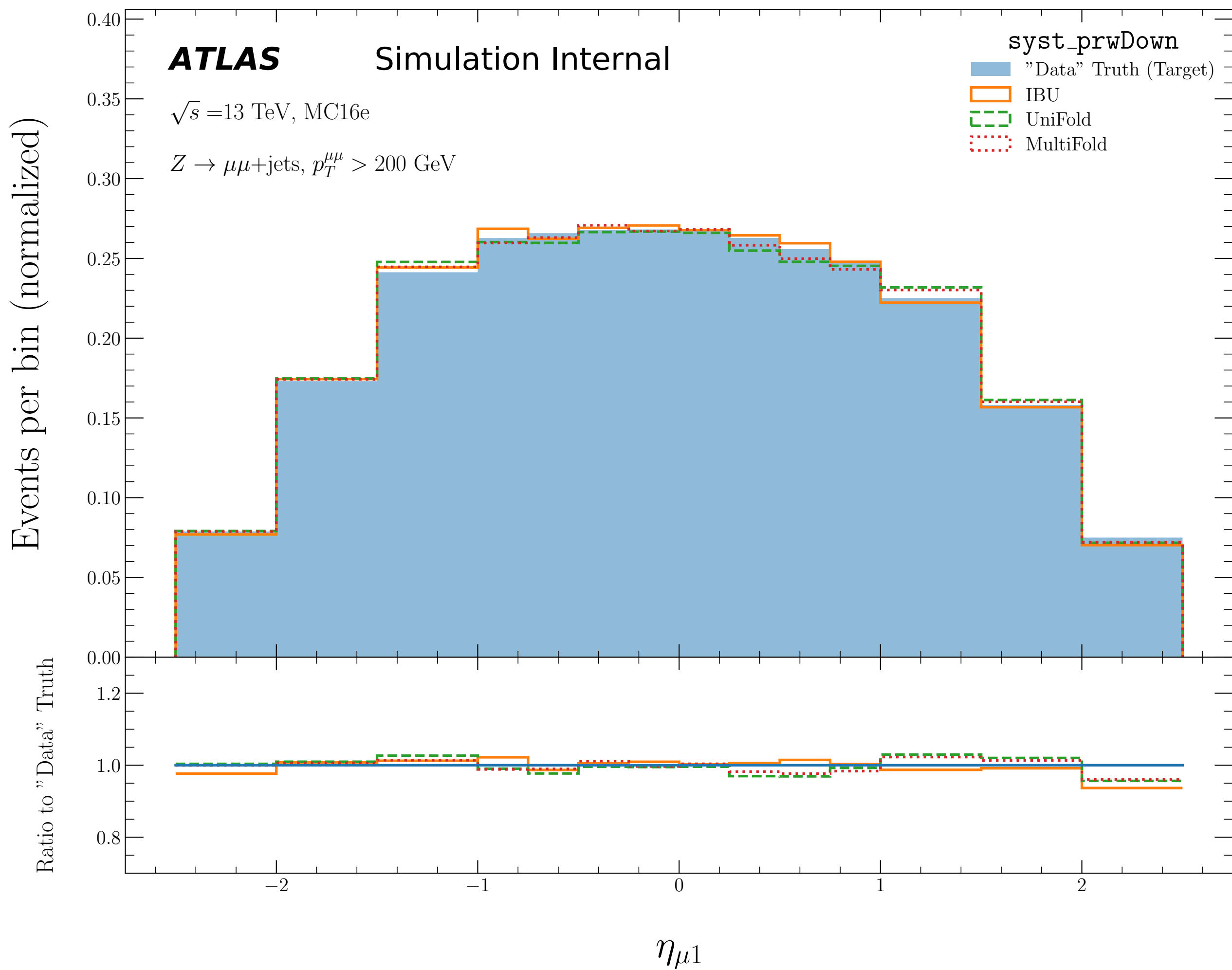


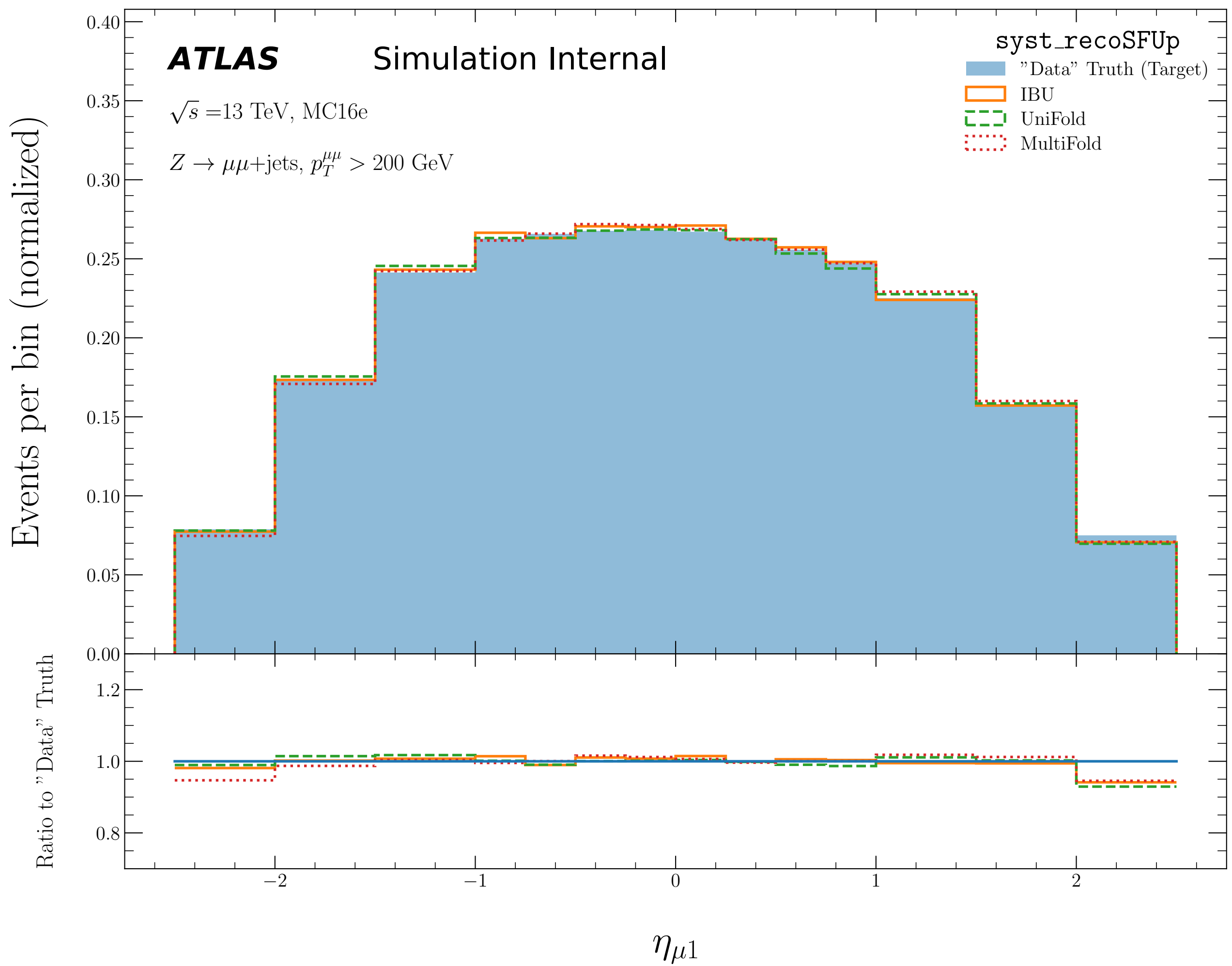


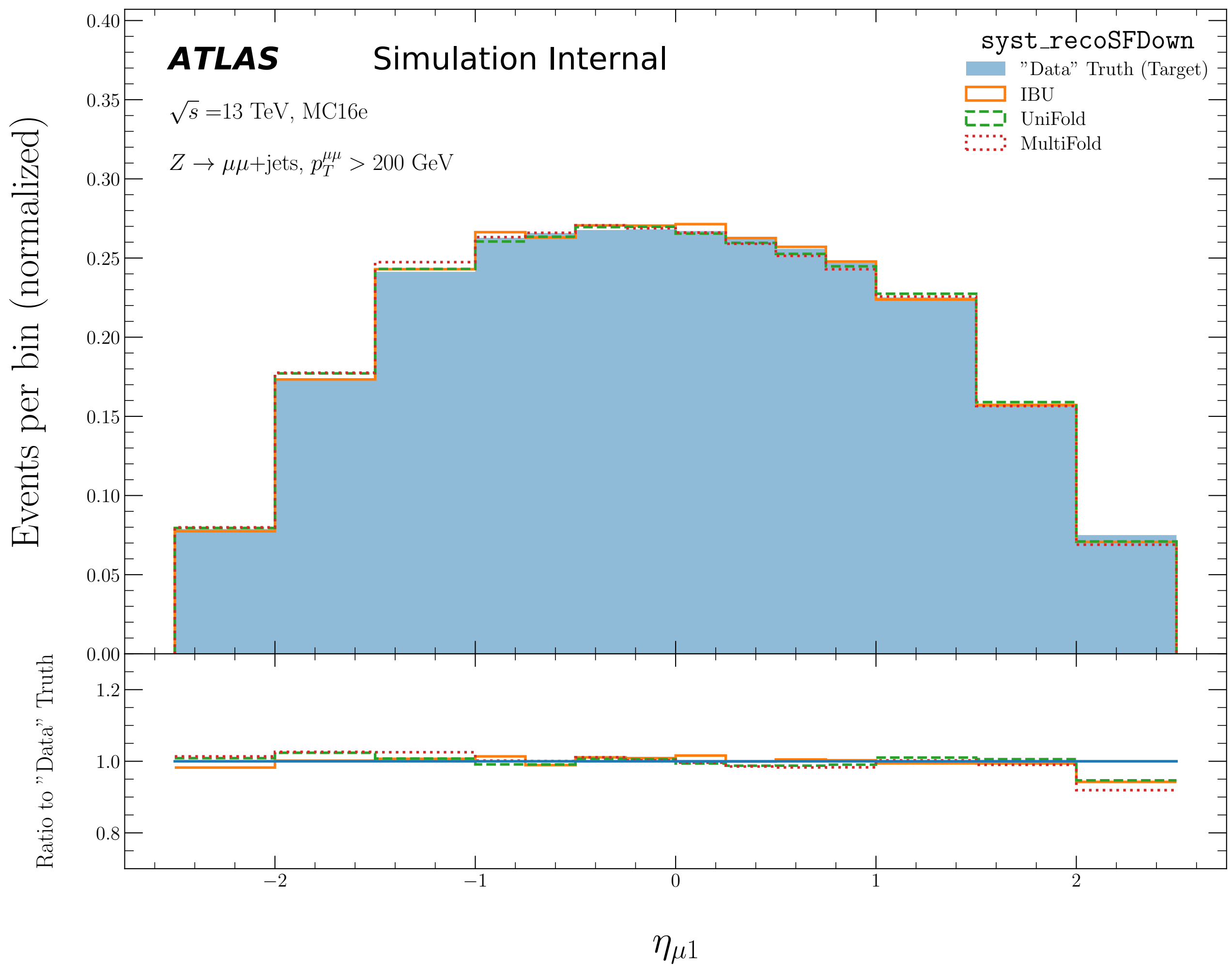


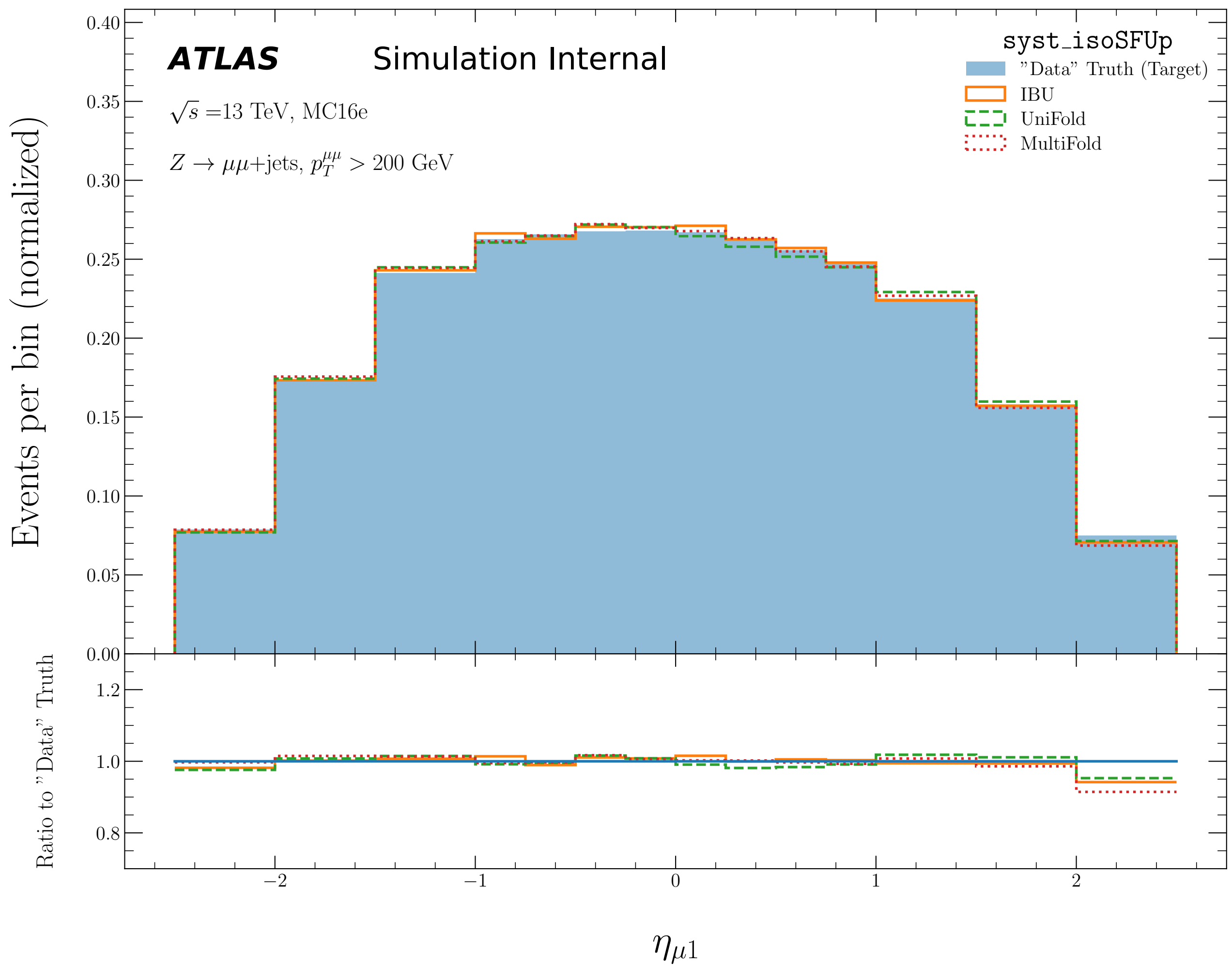


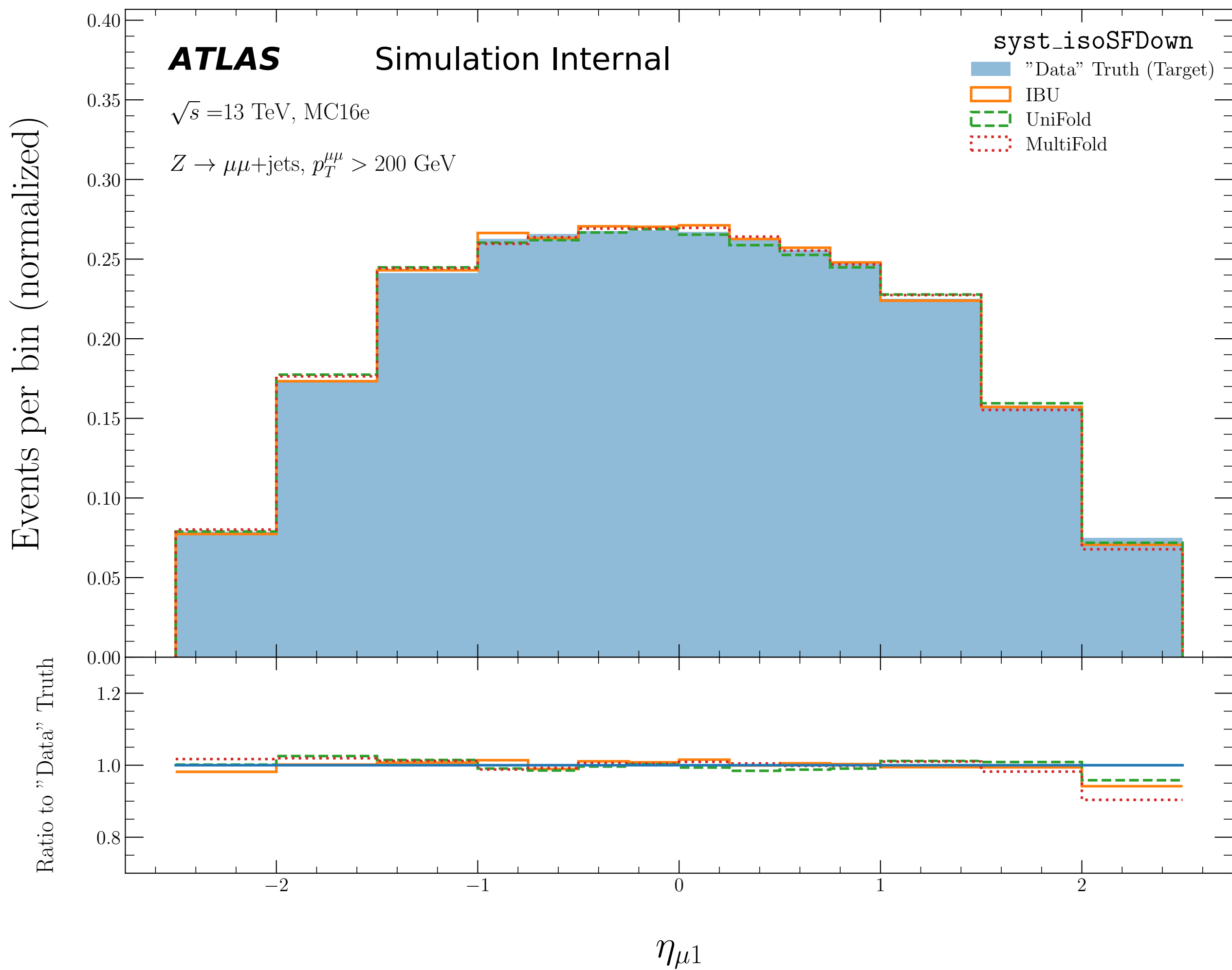


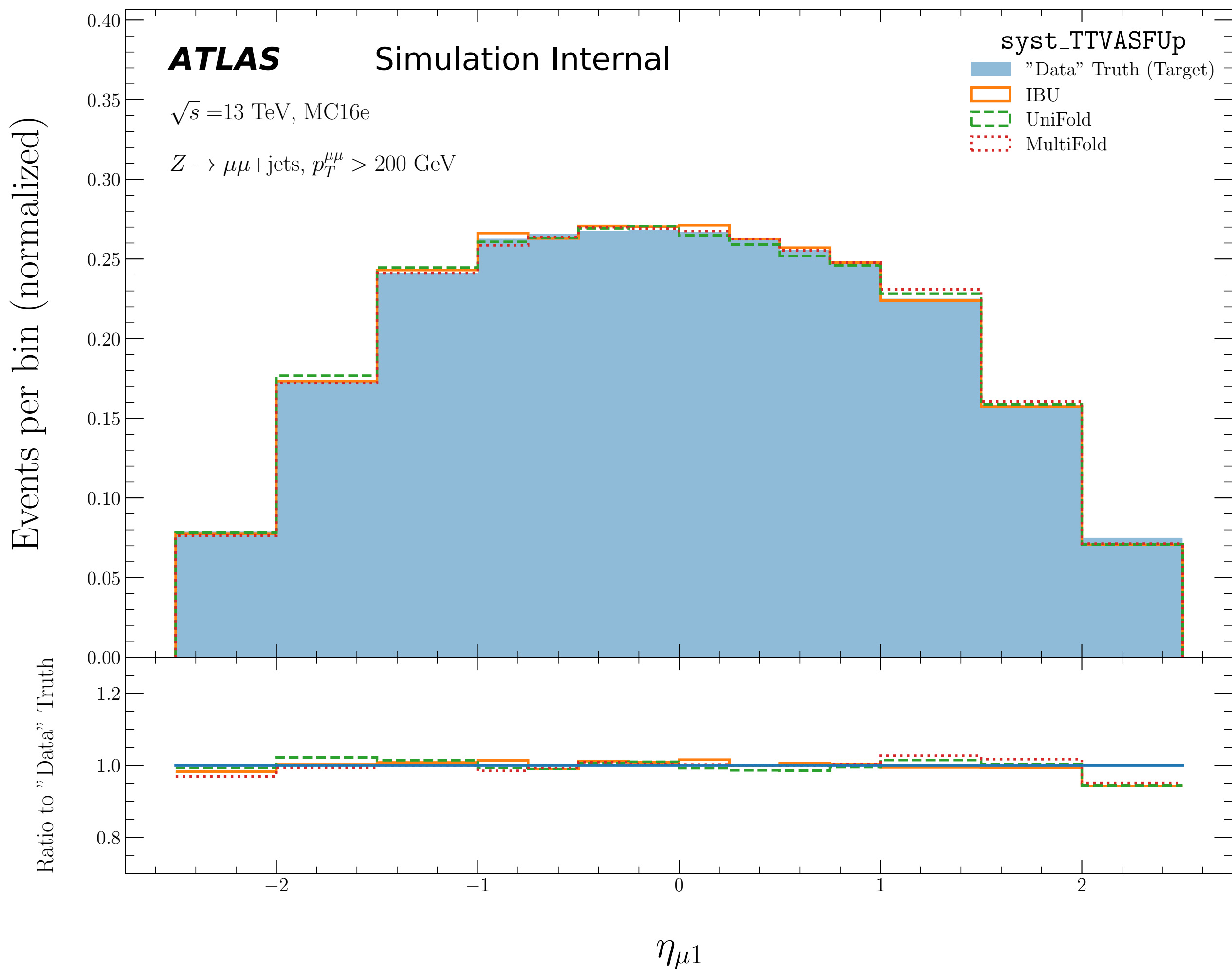


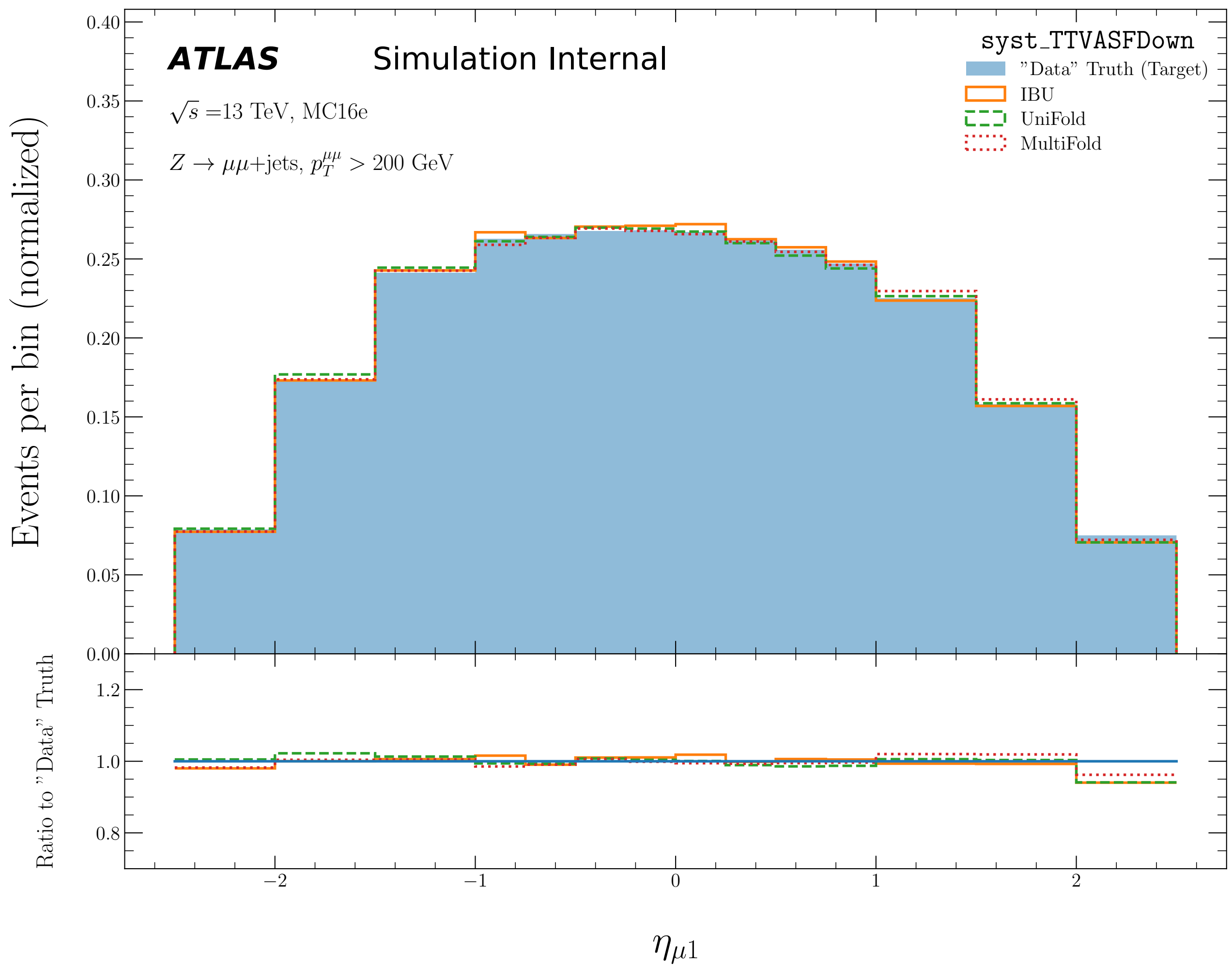




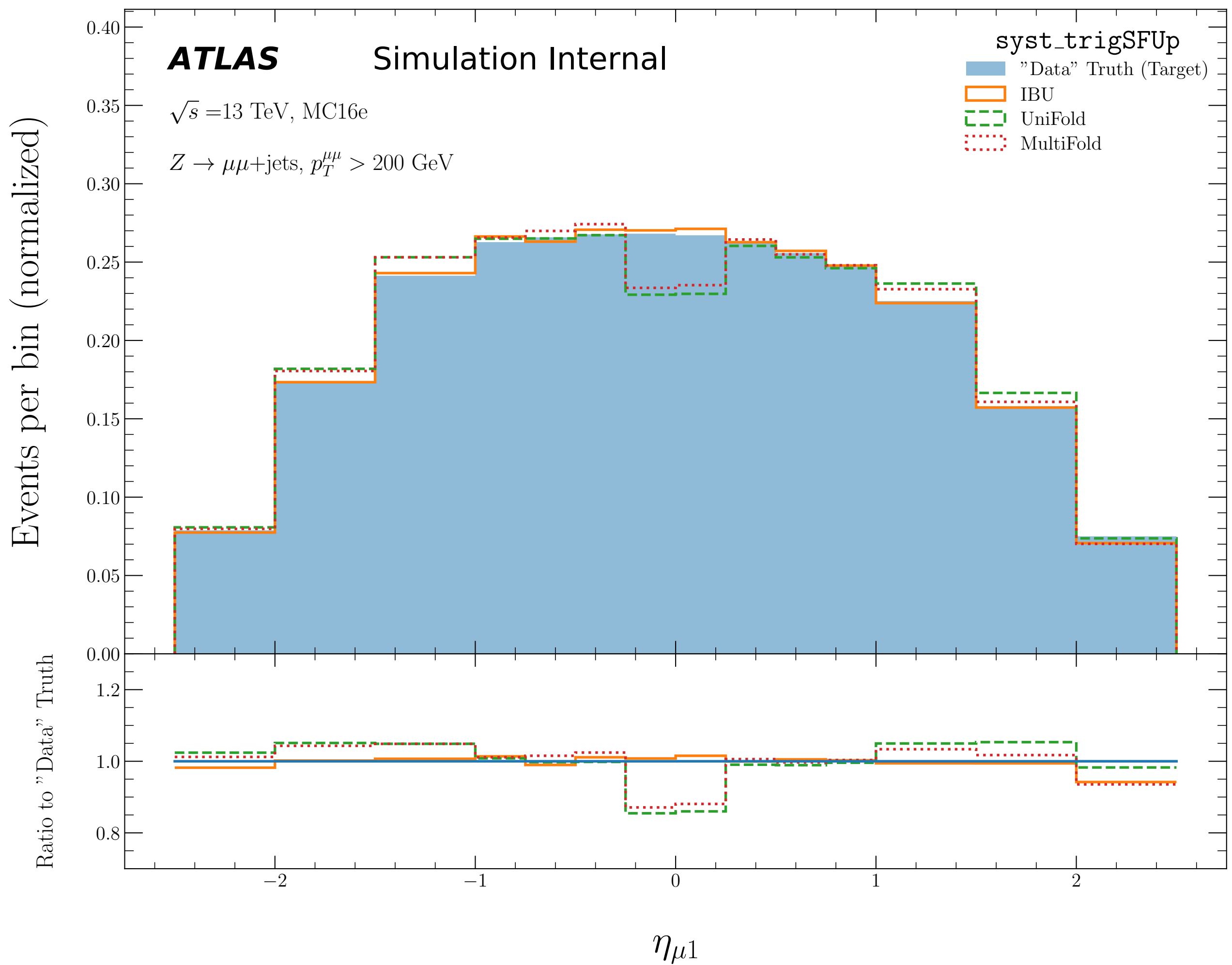


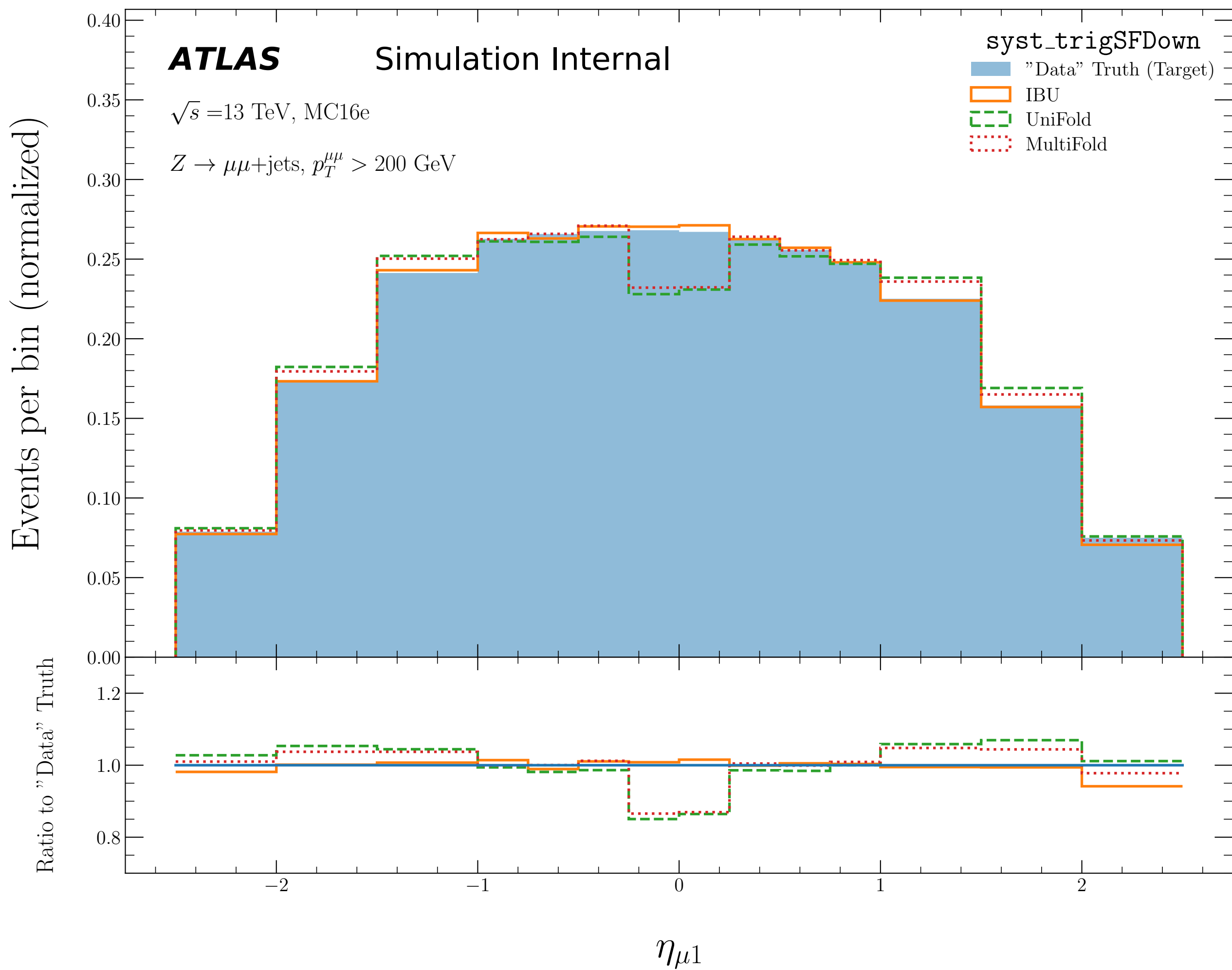


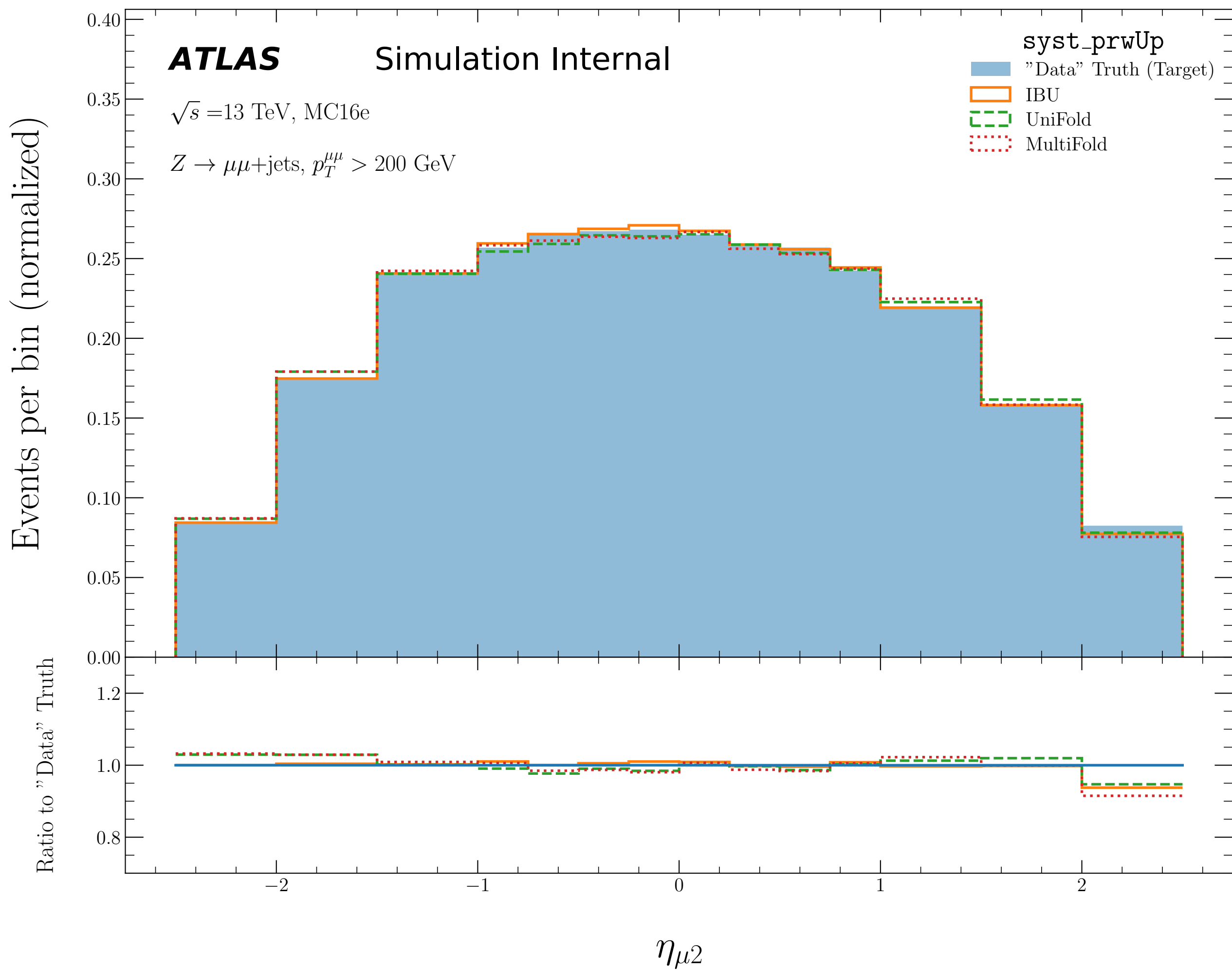


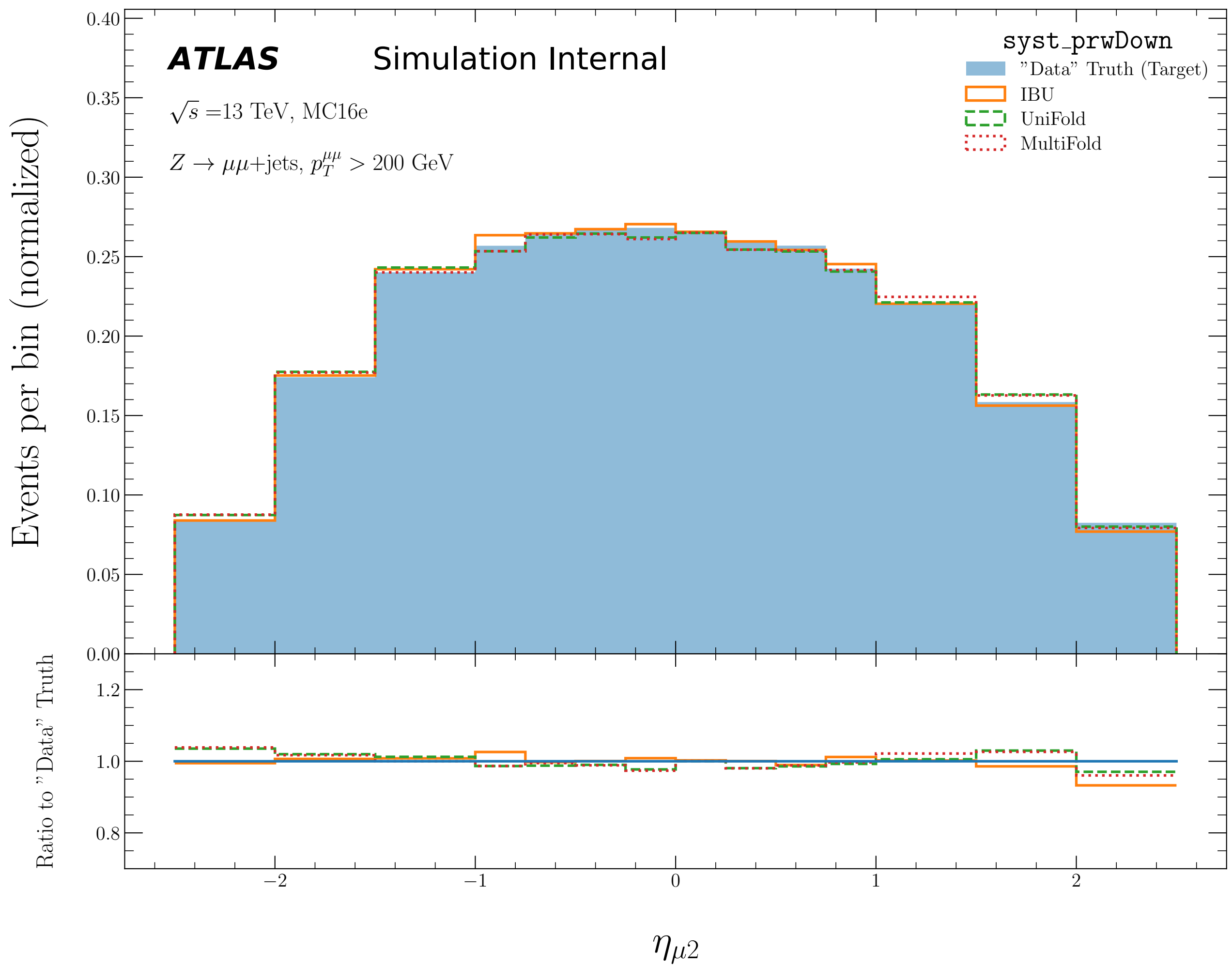


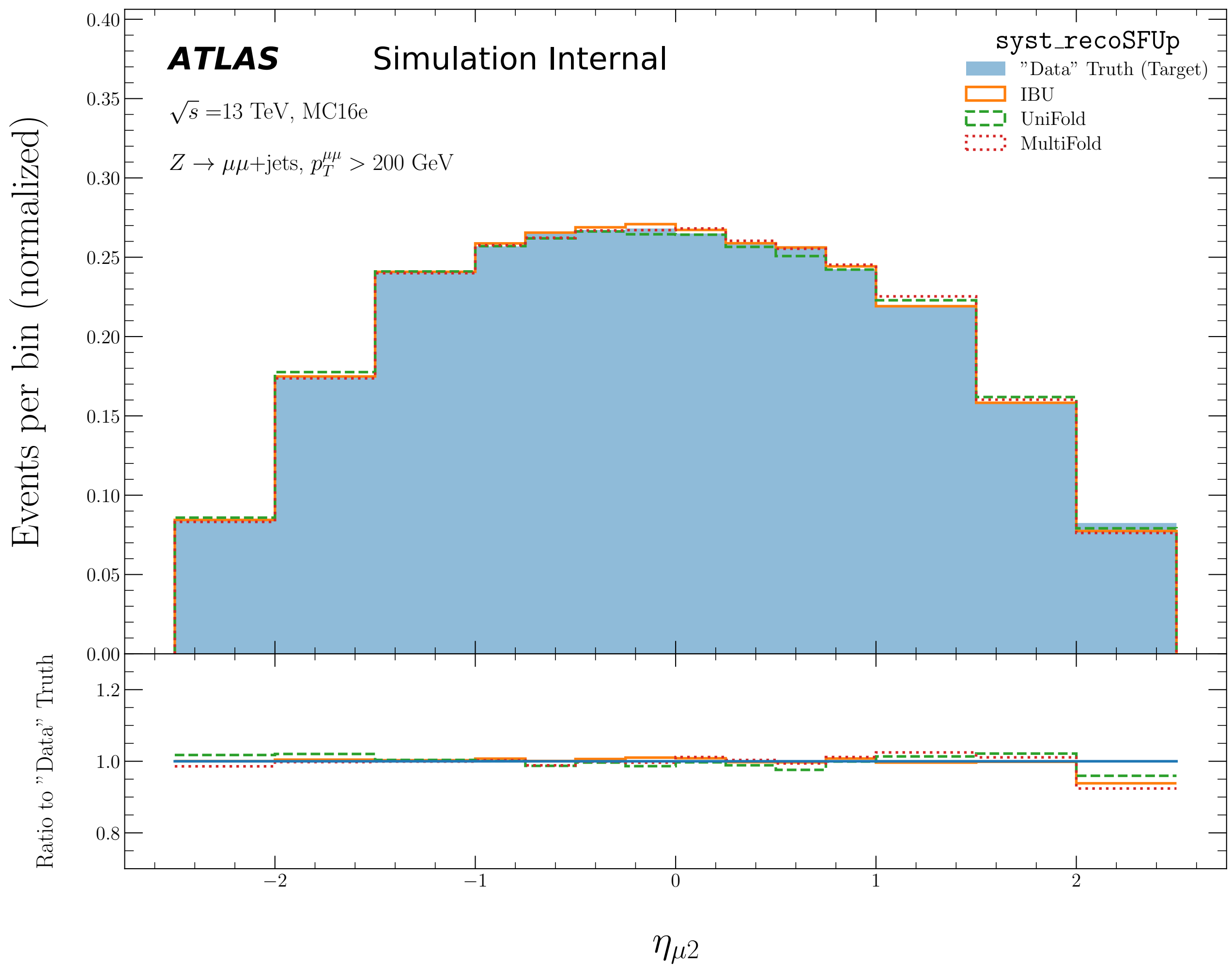


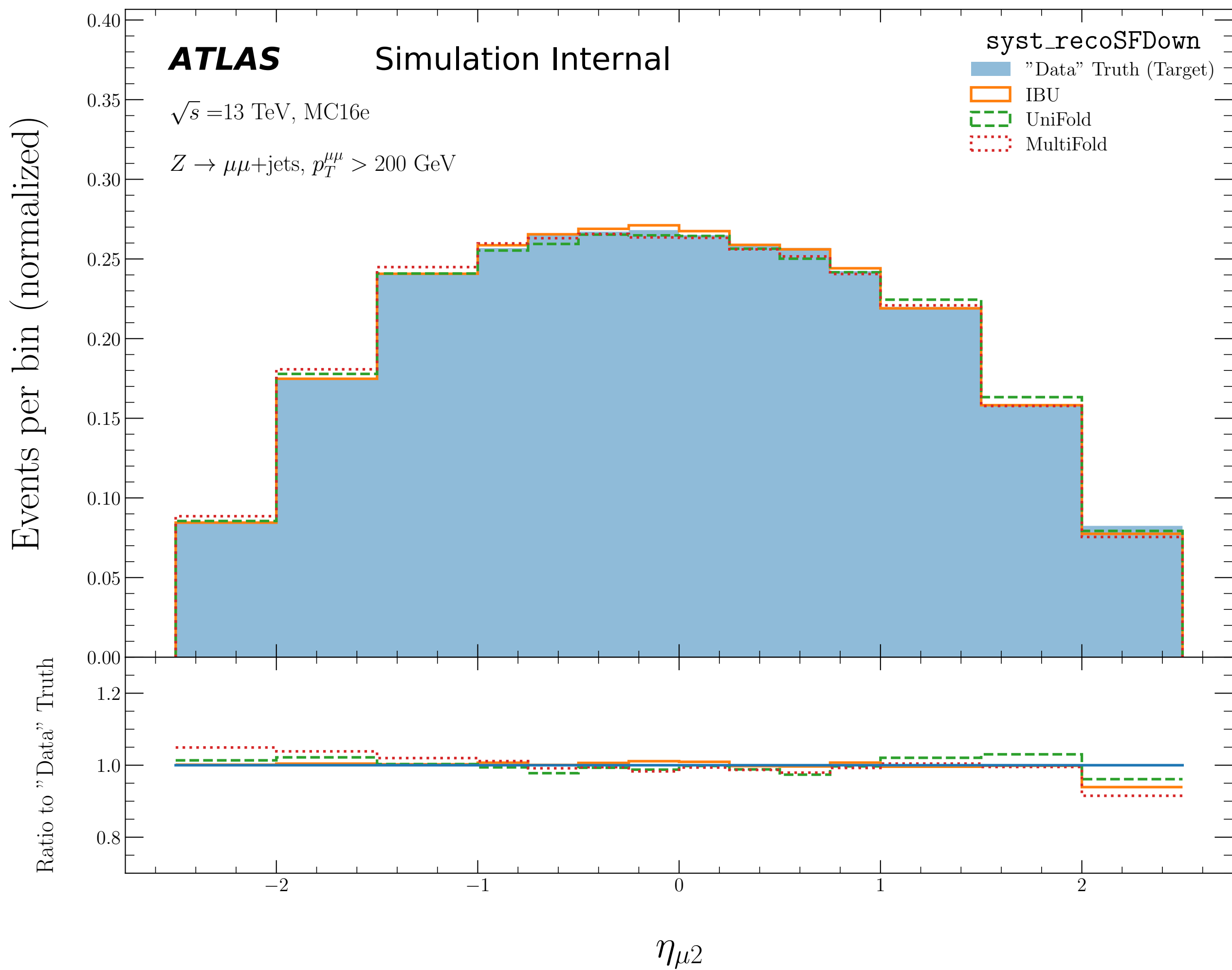


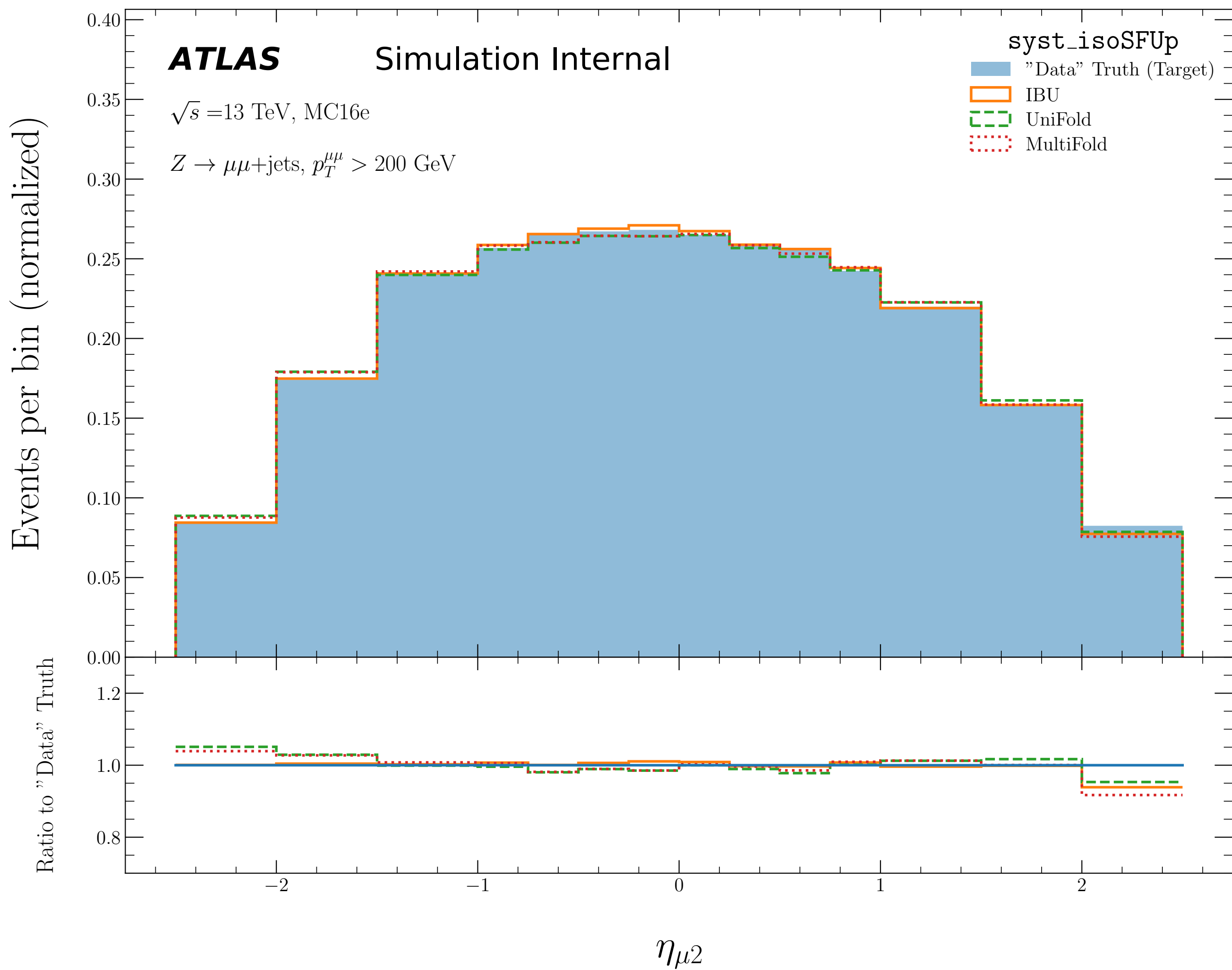


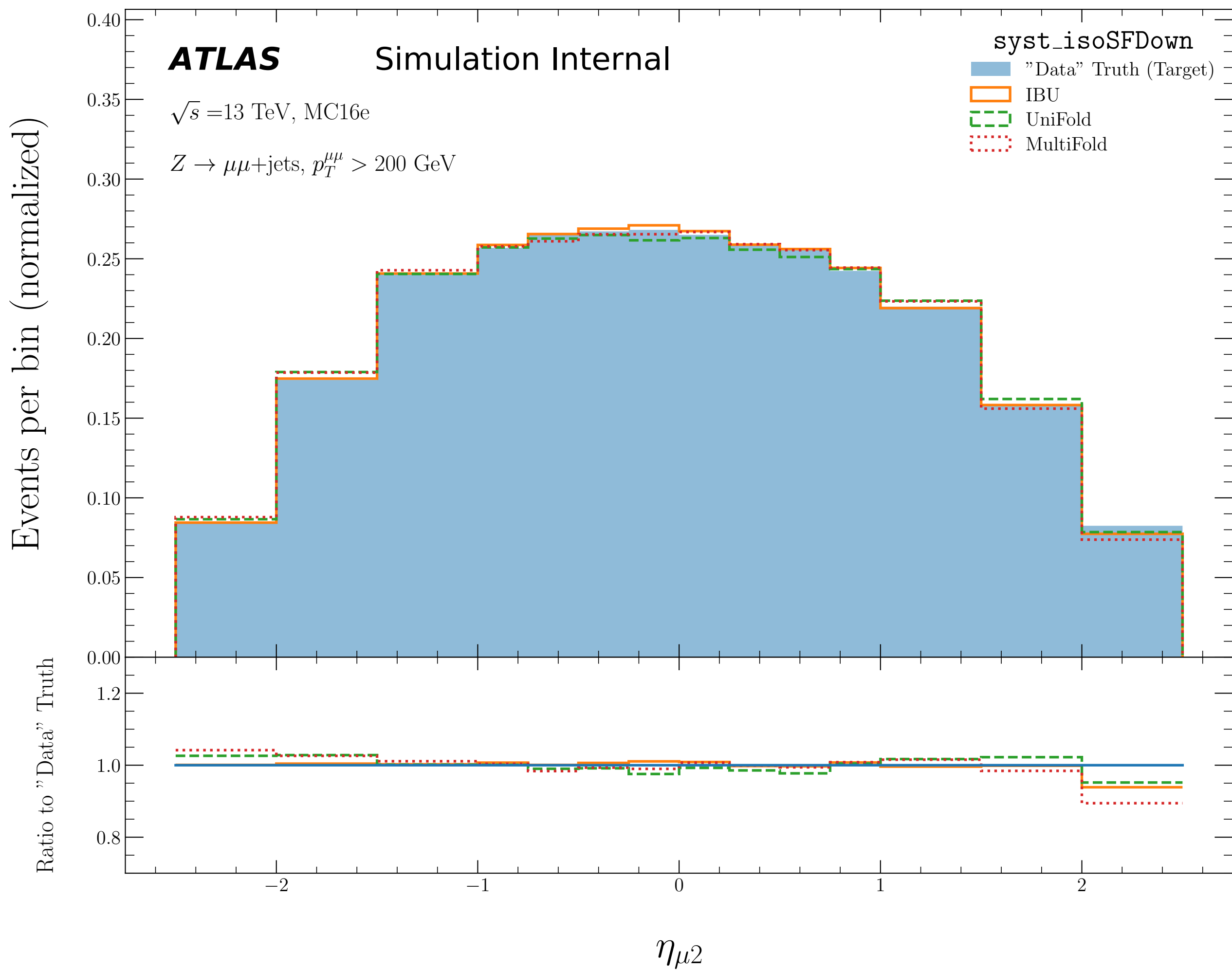




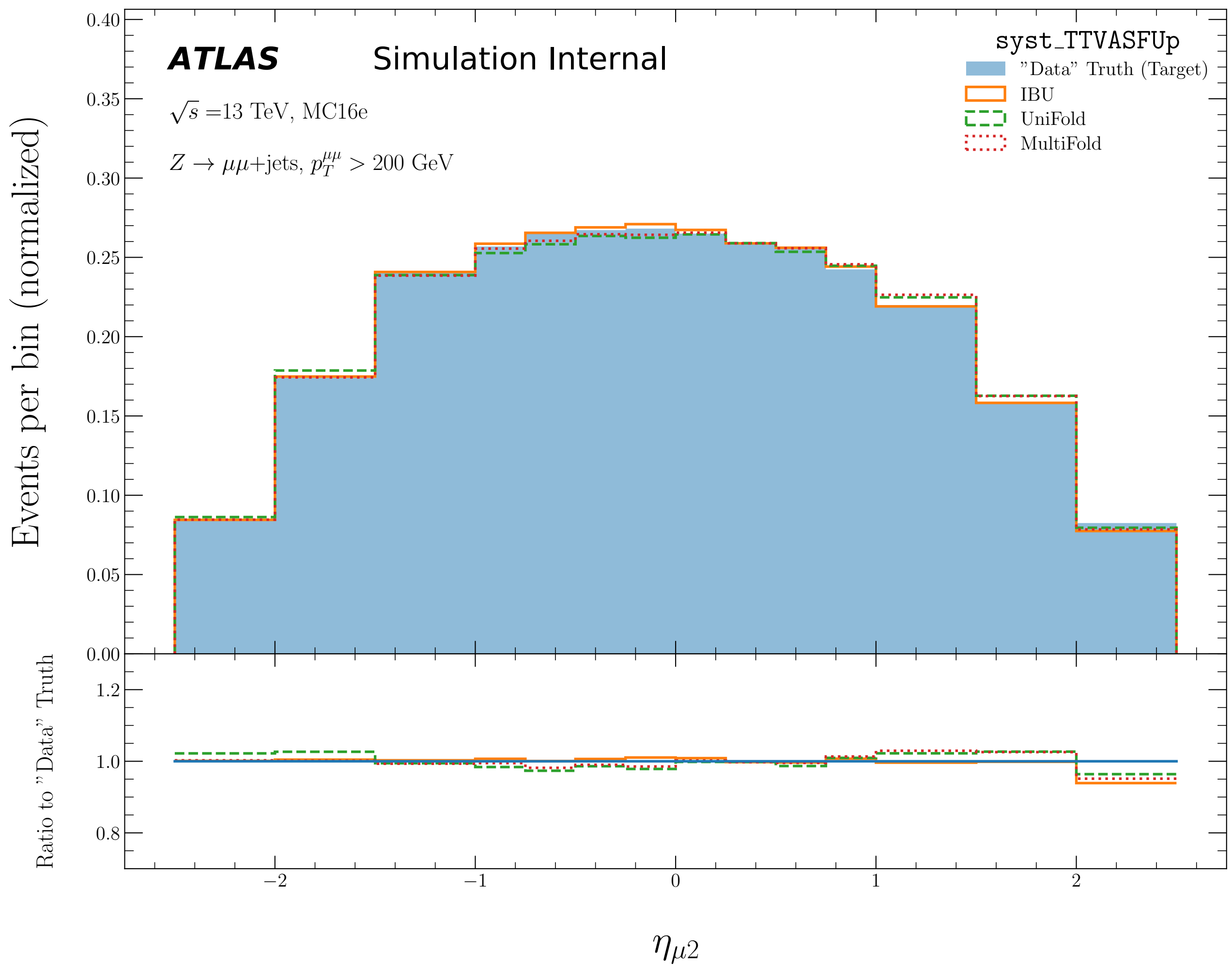


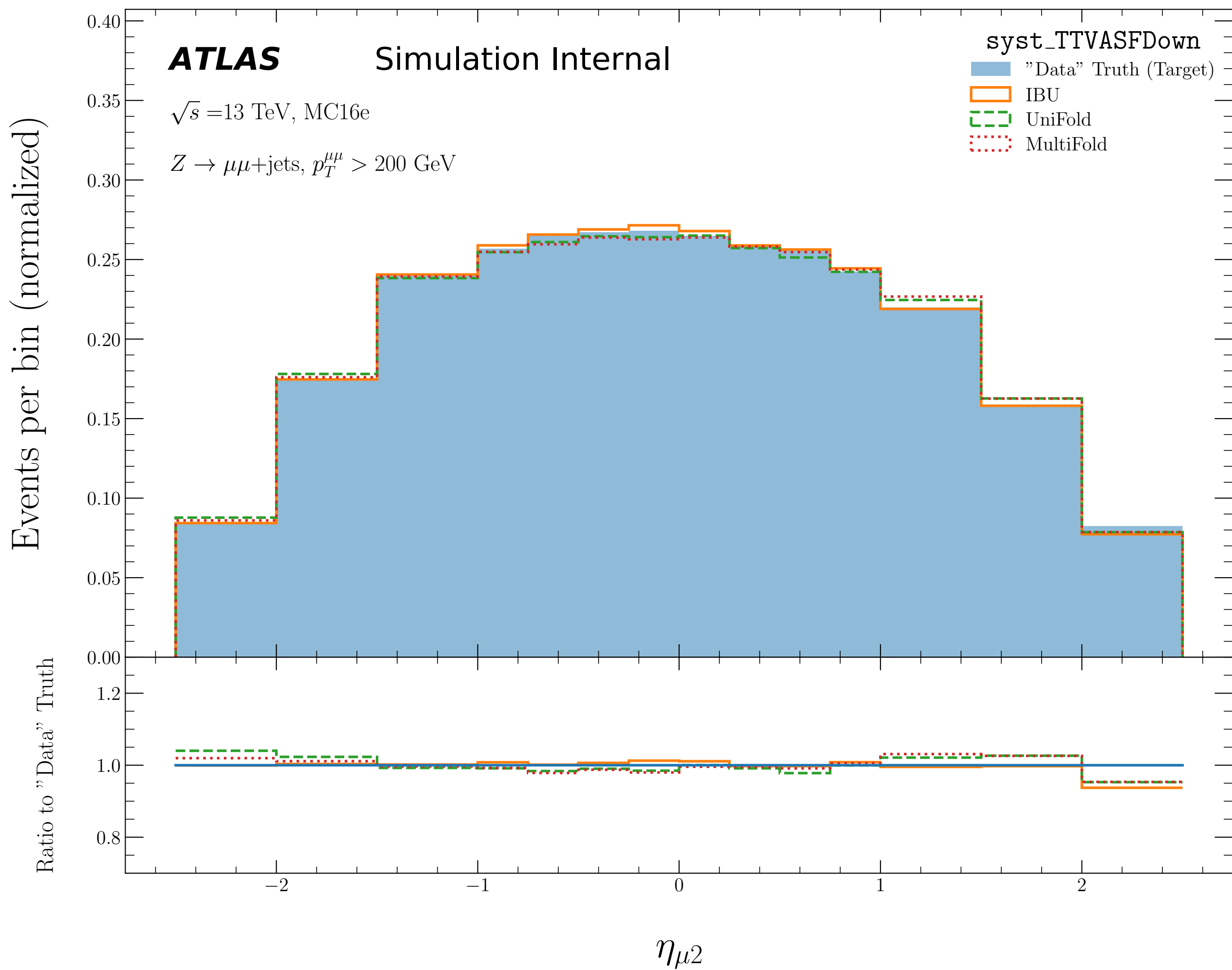


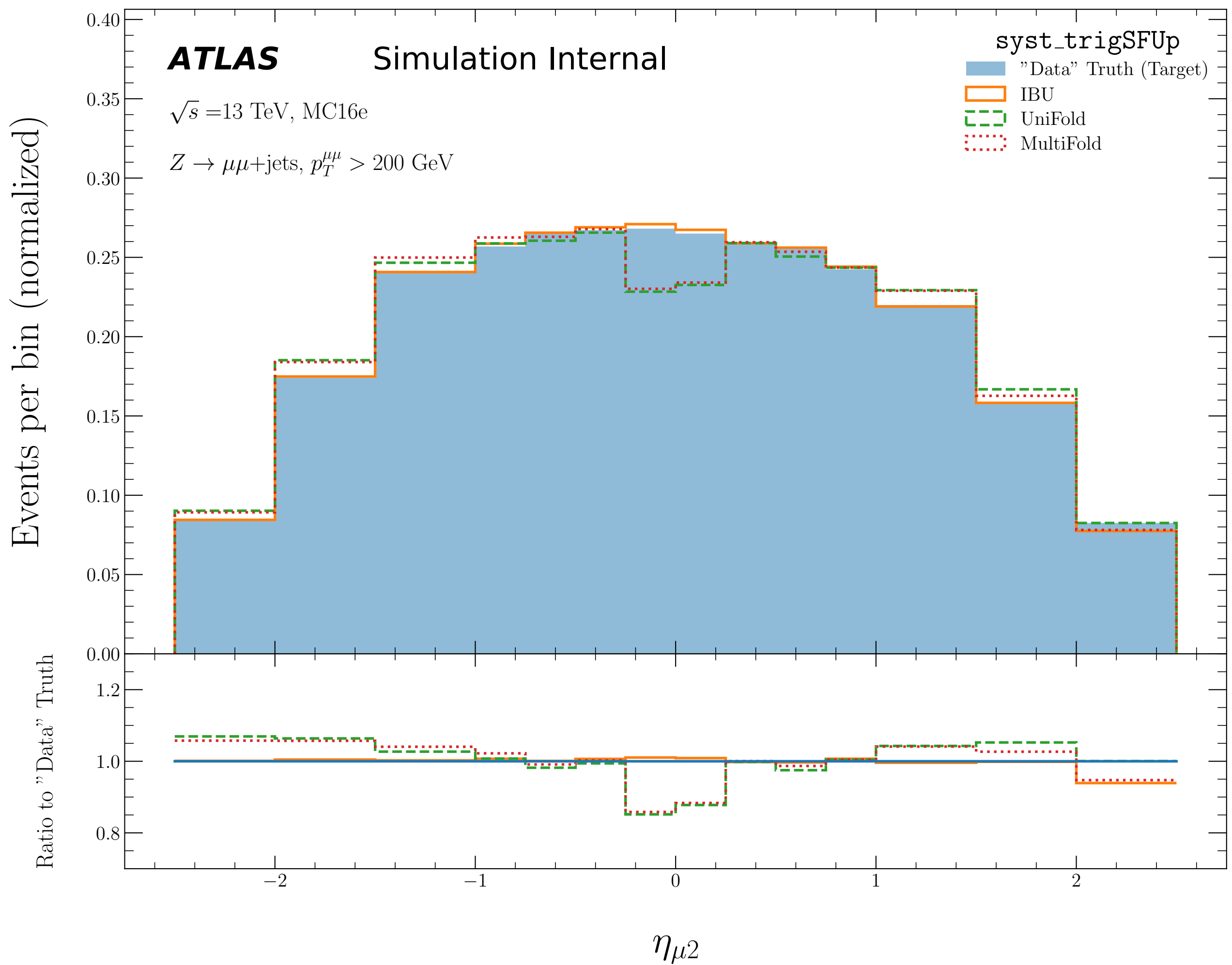


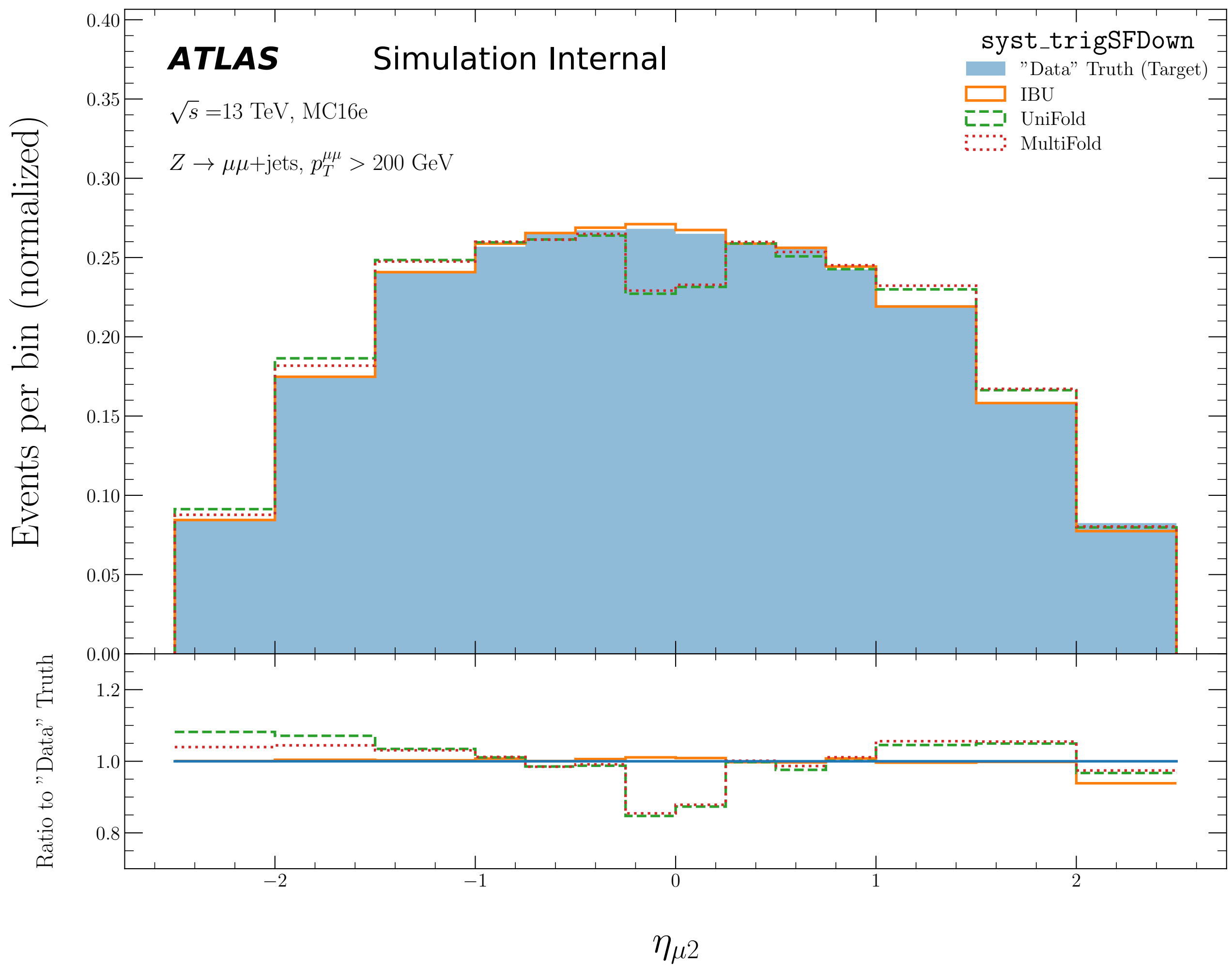












Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_prwUp

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

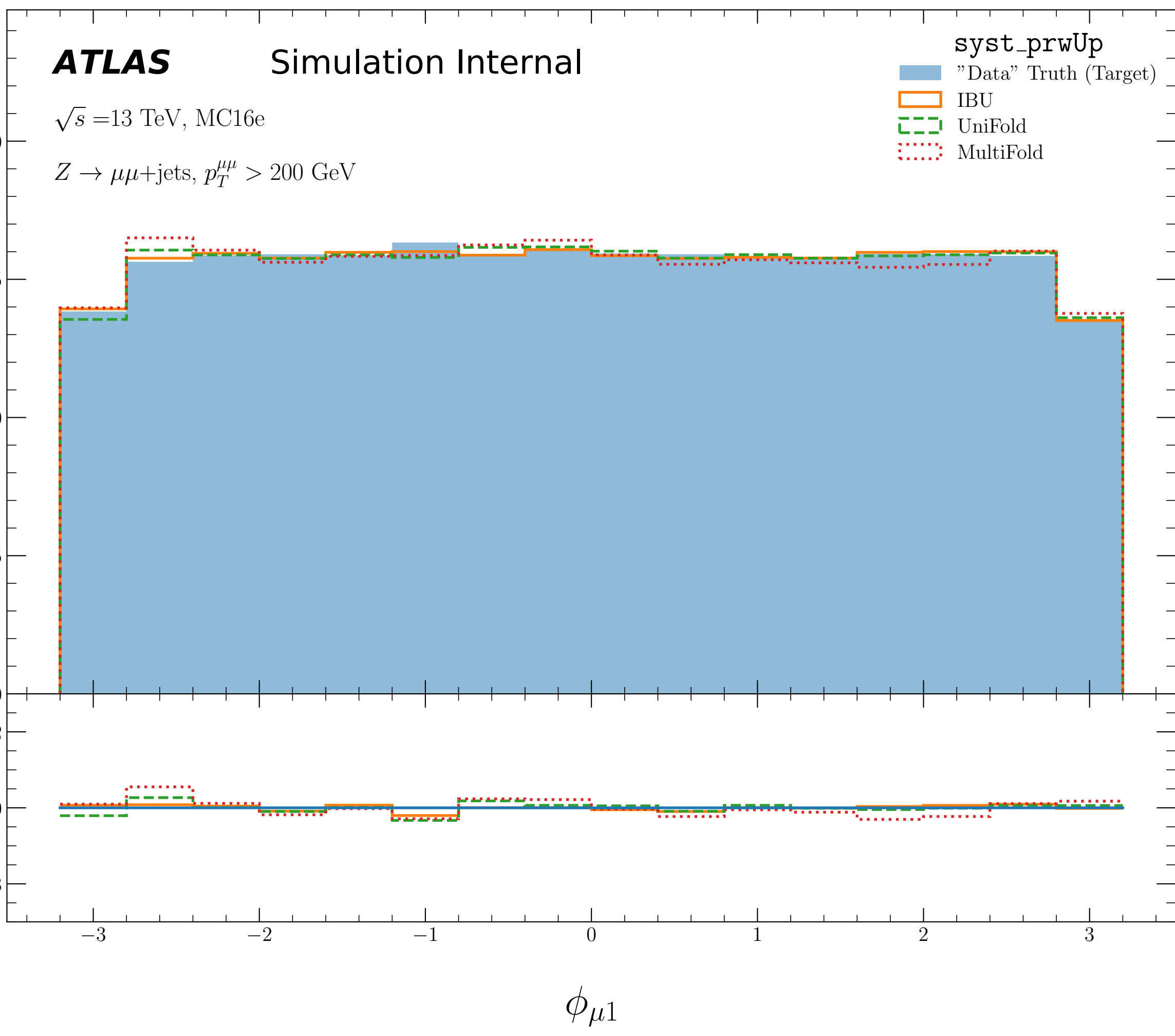
0

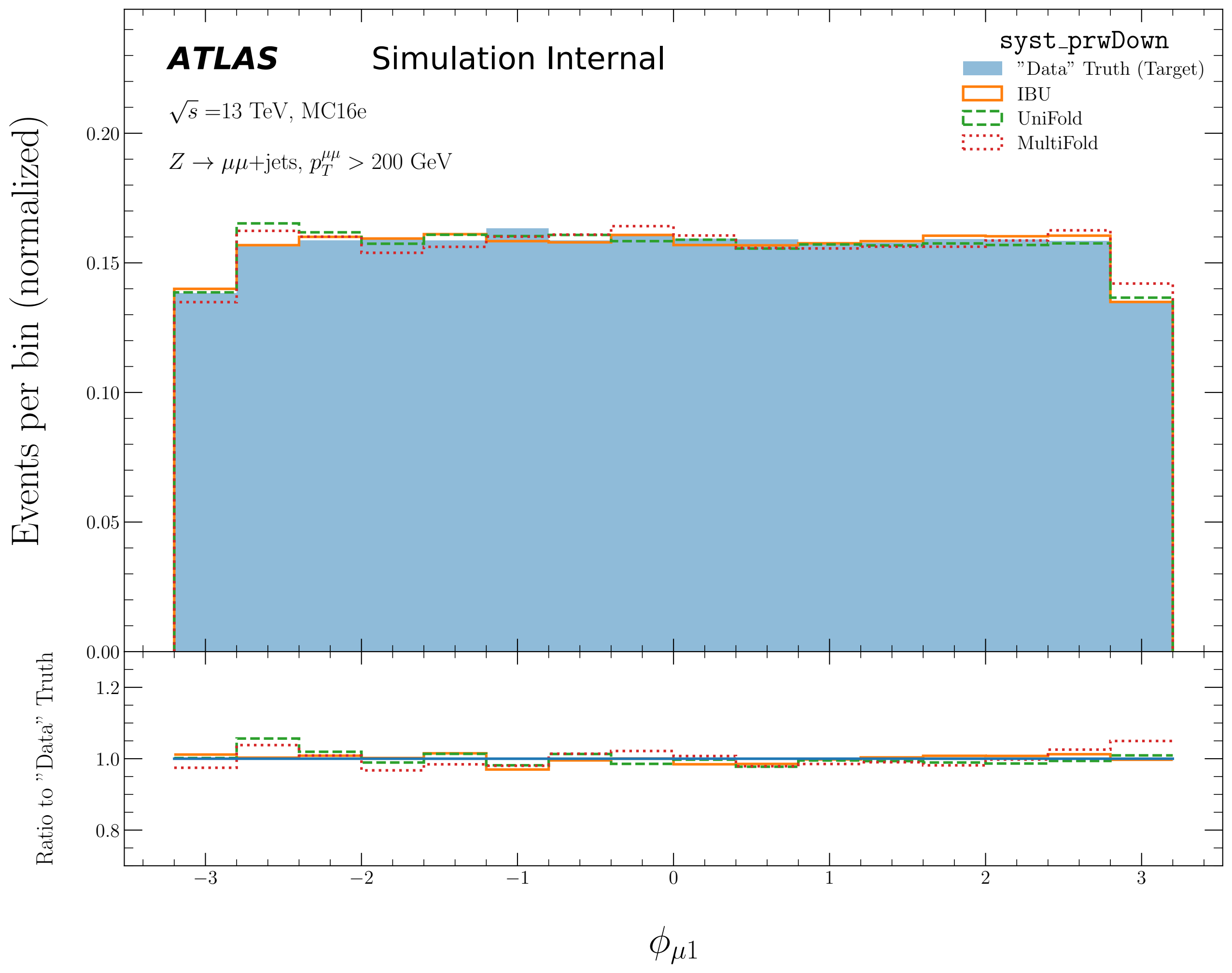
1

2

3

$\phi_{\mu 1}$





Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_recoSFUp

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

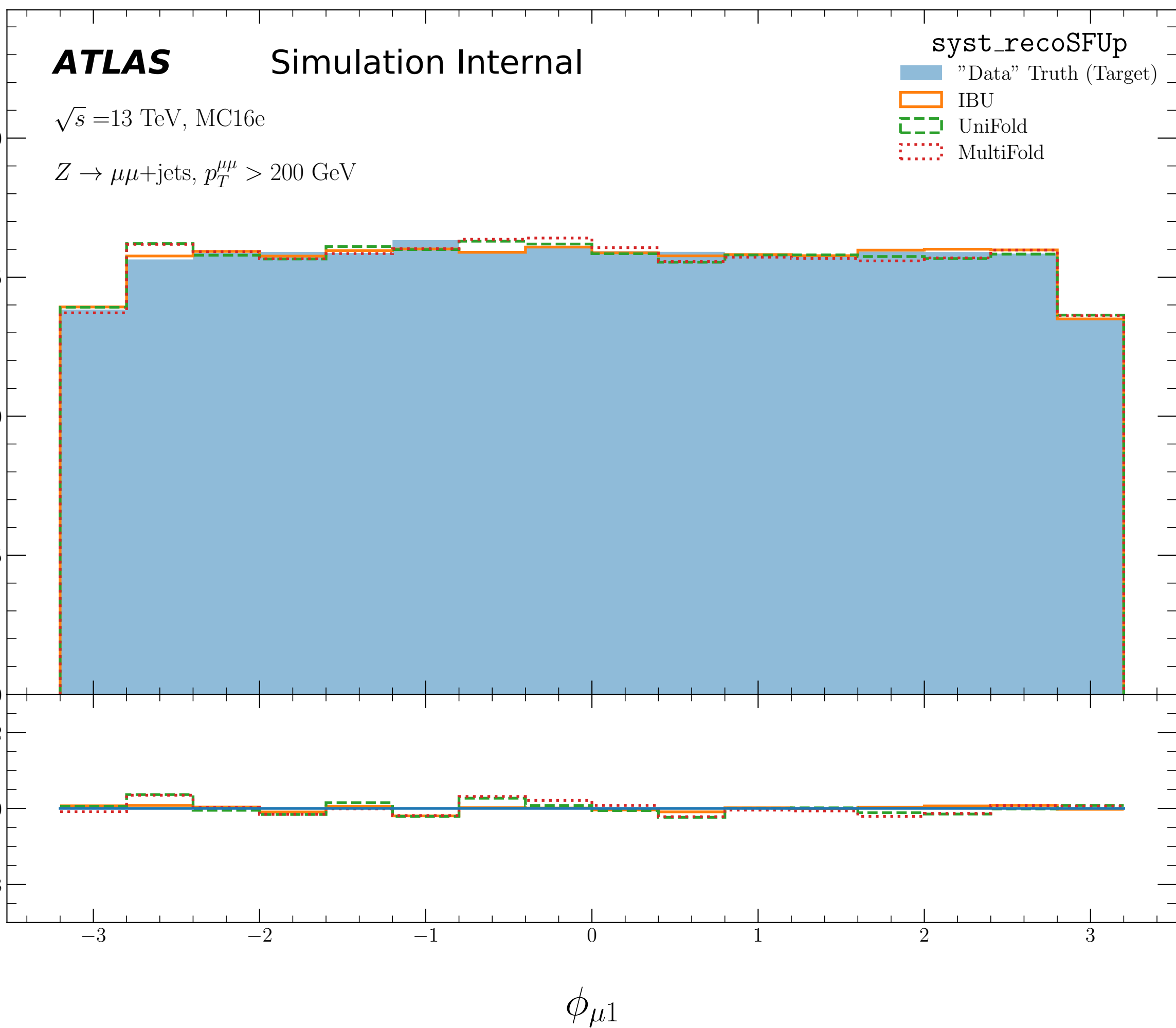
0

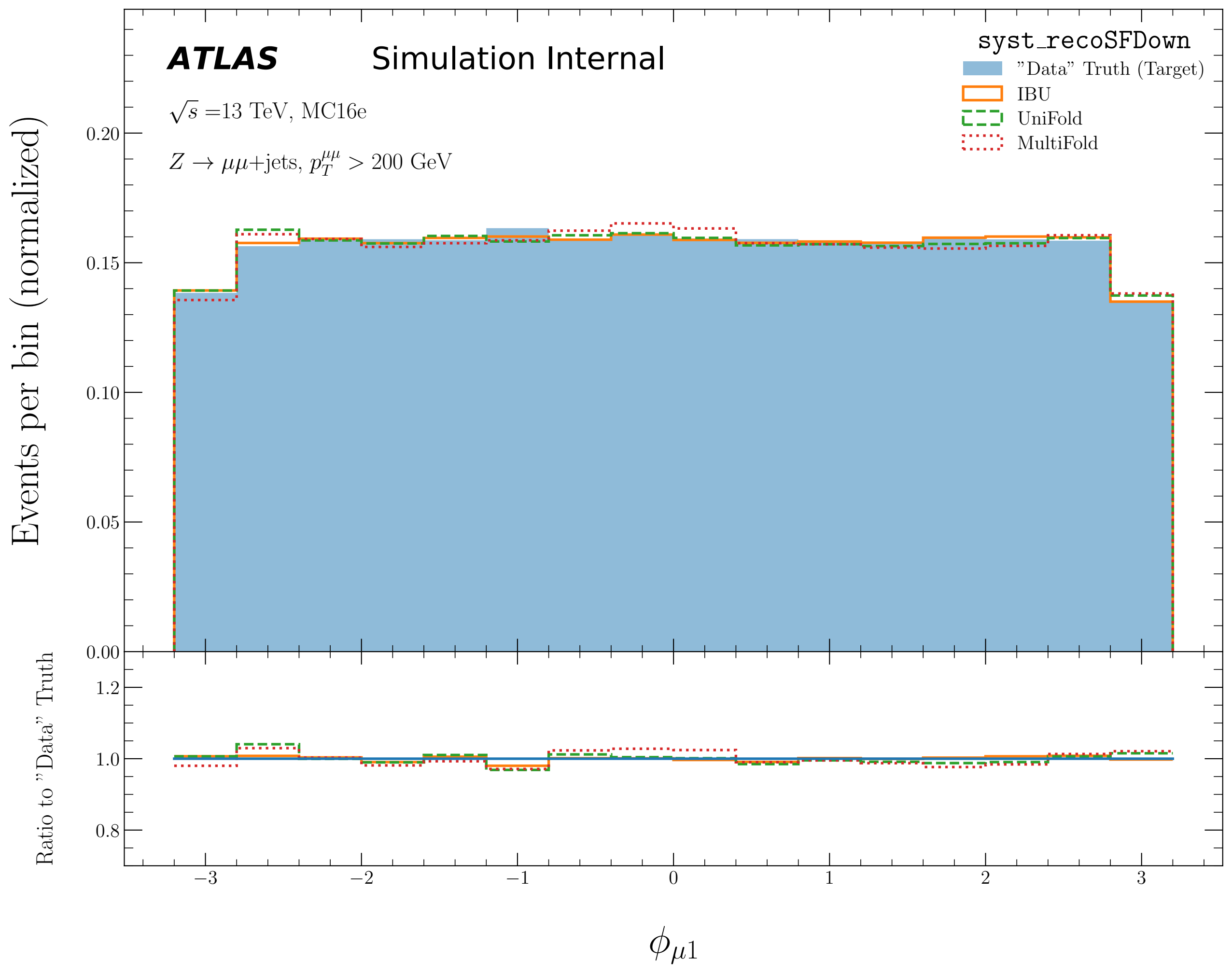
1

2

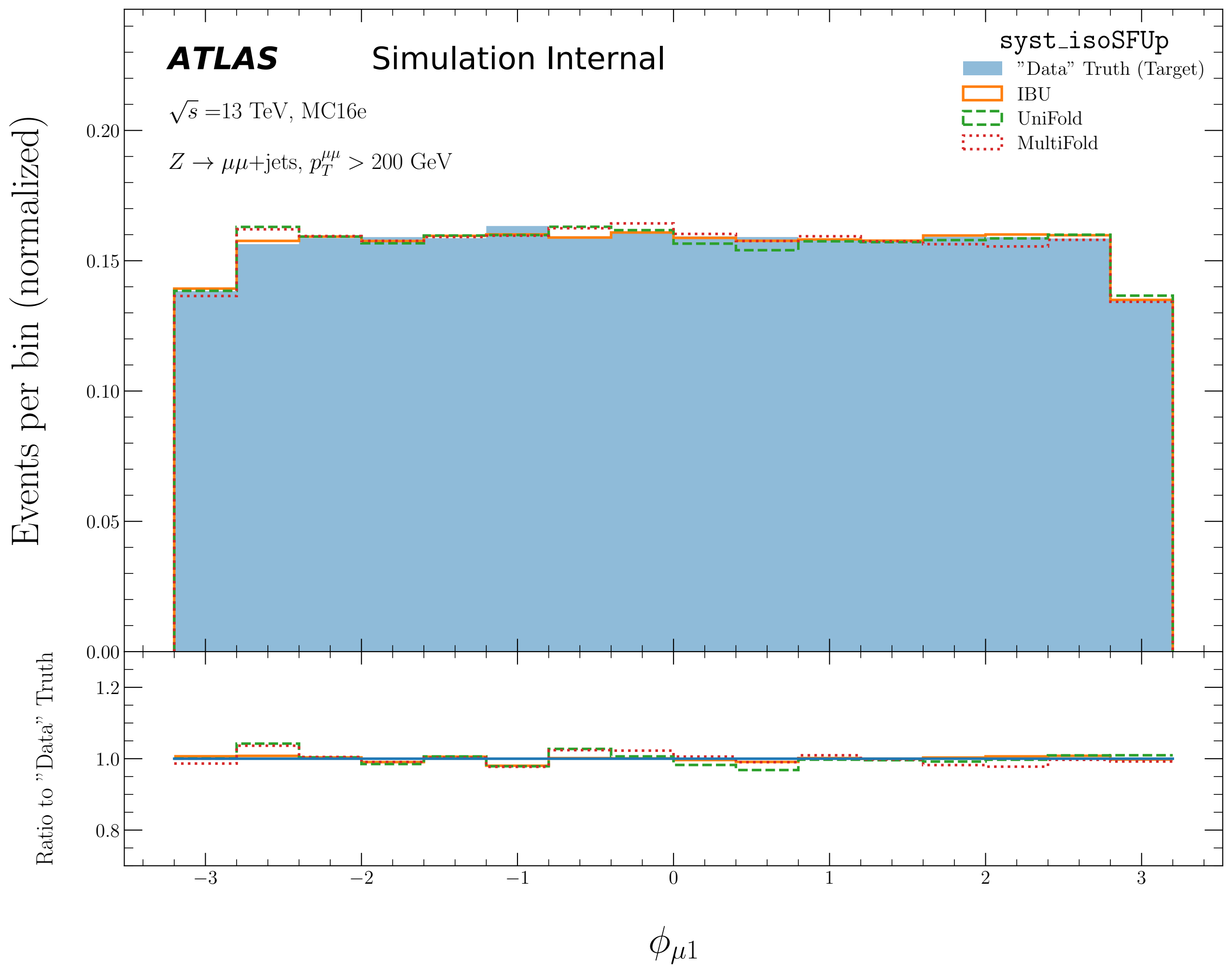
3

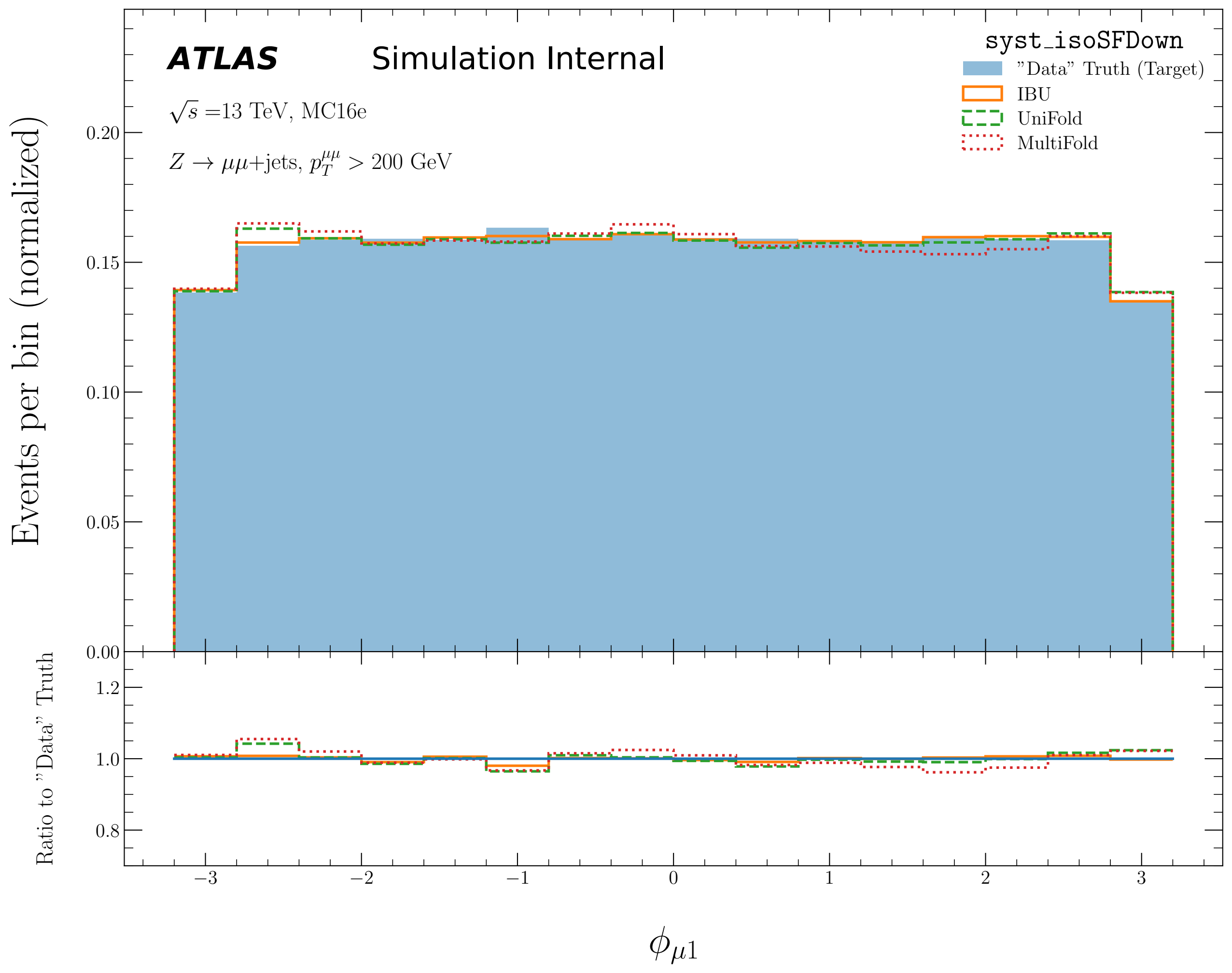
$\phi_{\mu 1}$











Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_TTVASFUp

- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20

0.15

0.10

0.05

0.00

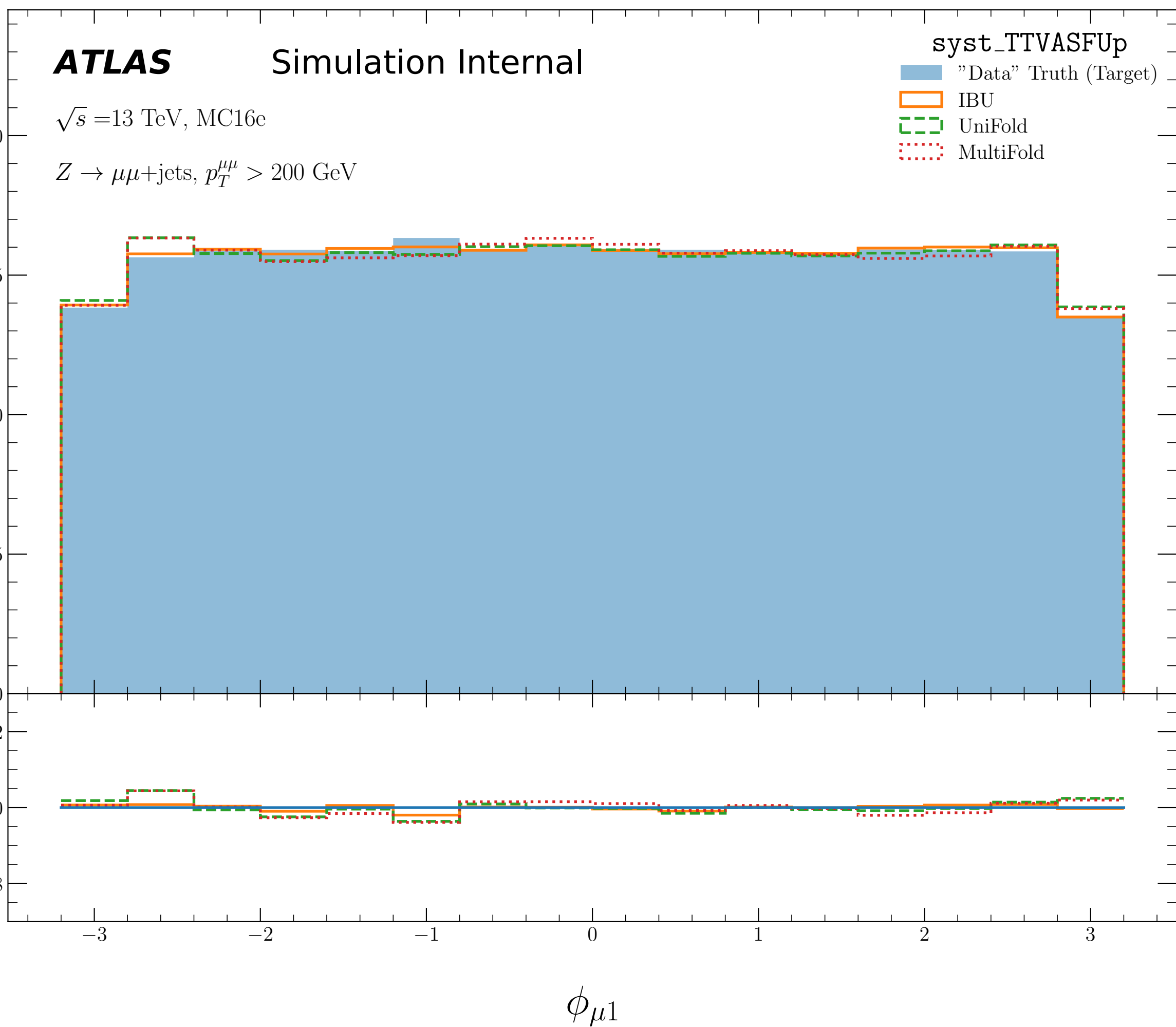
Ratio to "Data" Truth

1.2

1.0

0.8

$\phi_{\mu 1}$



Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_TTVASFDown

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

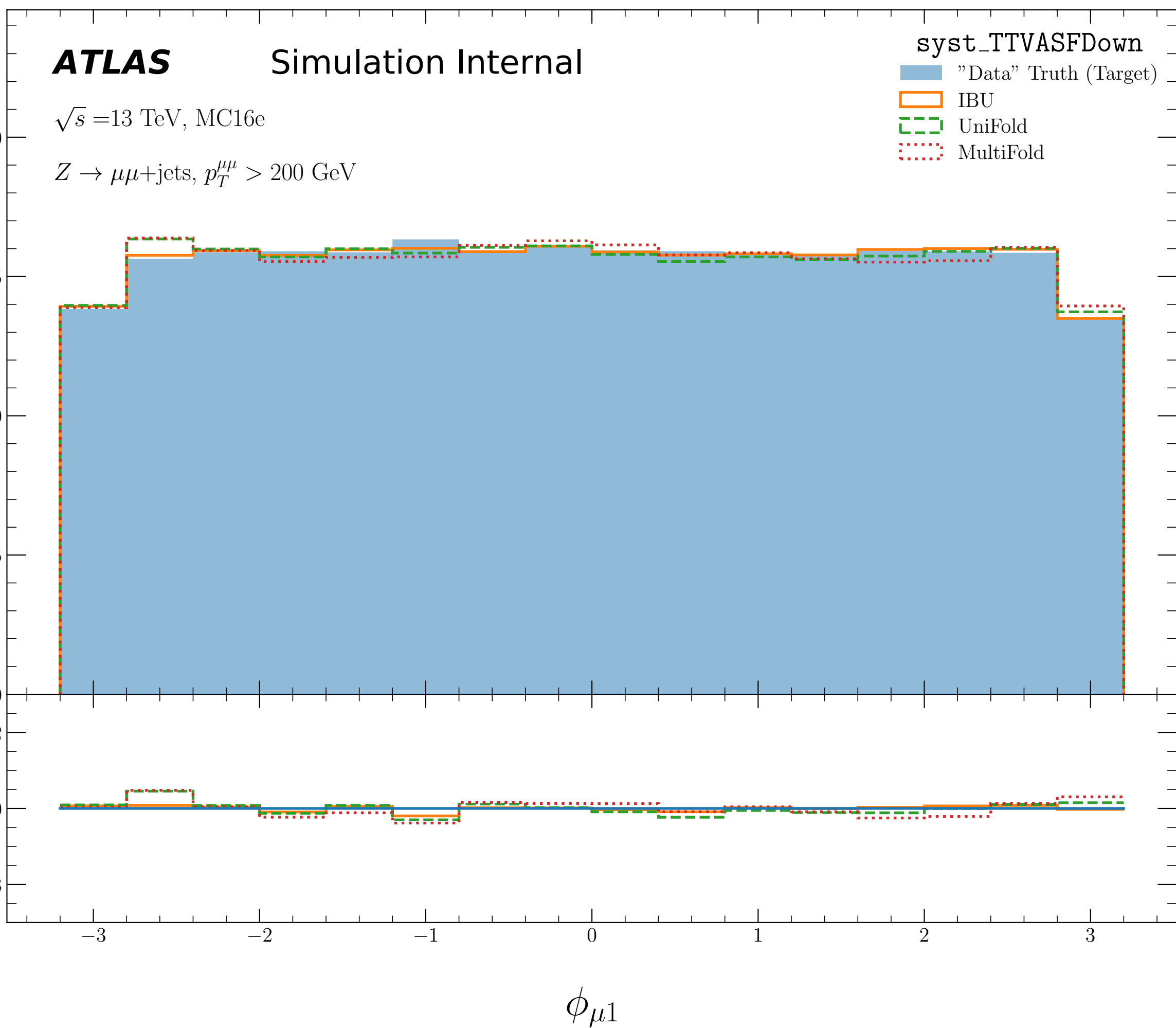
0

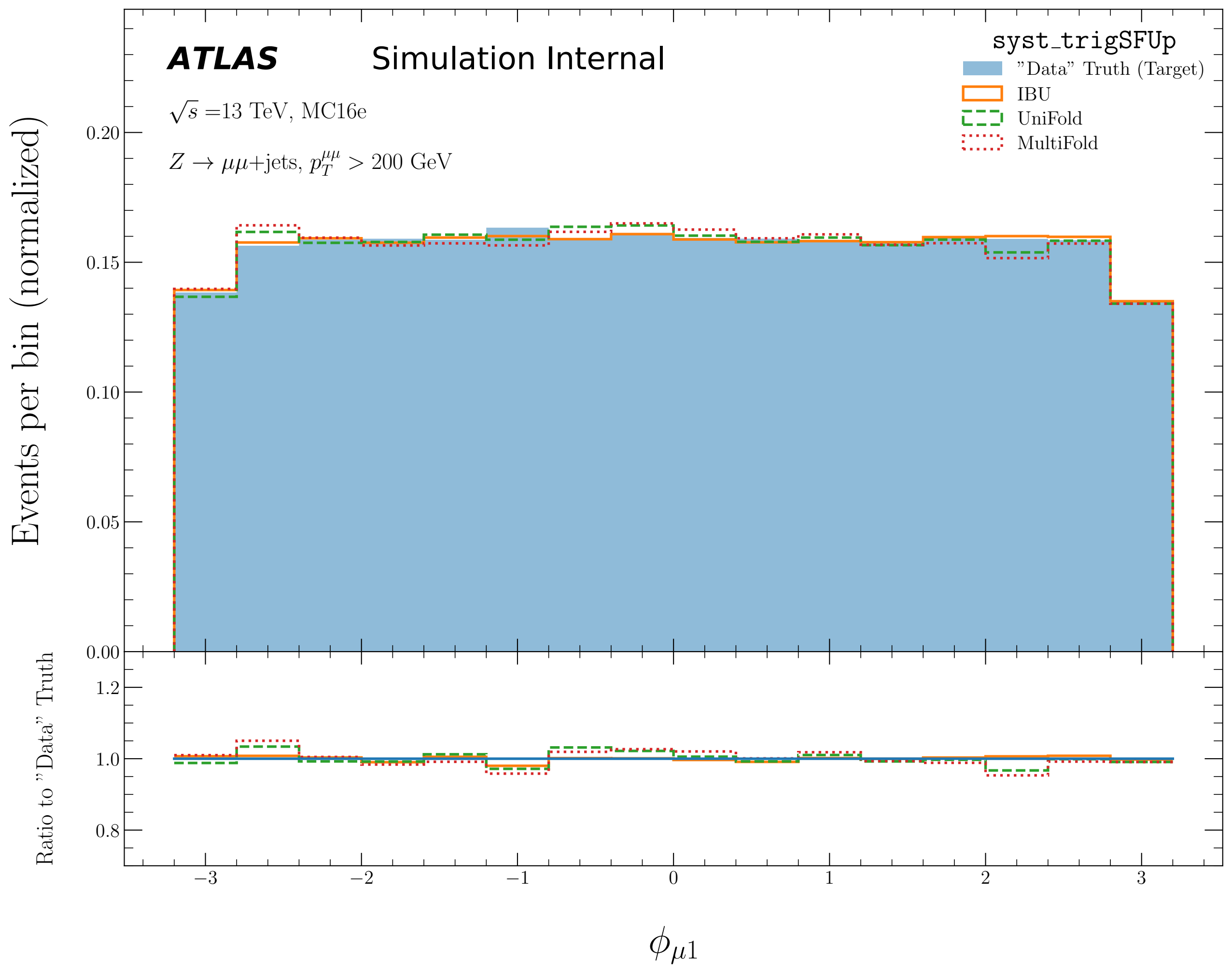
1

2

3

$\phi_{\mu 1}$





Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_trigSFDown

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

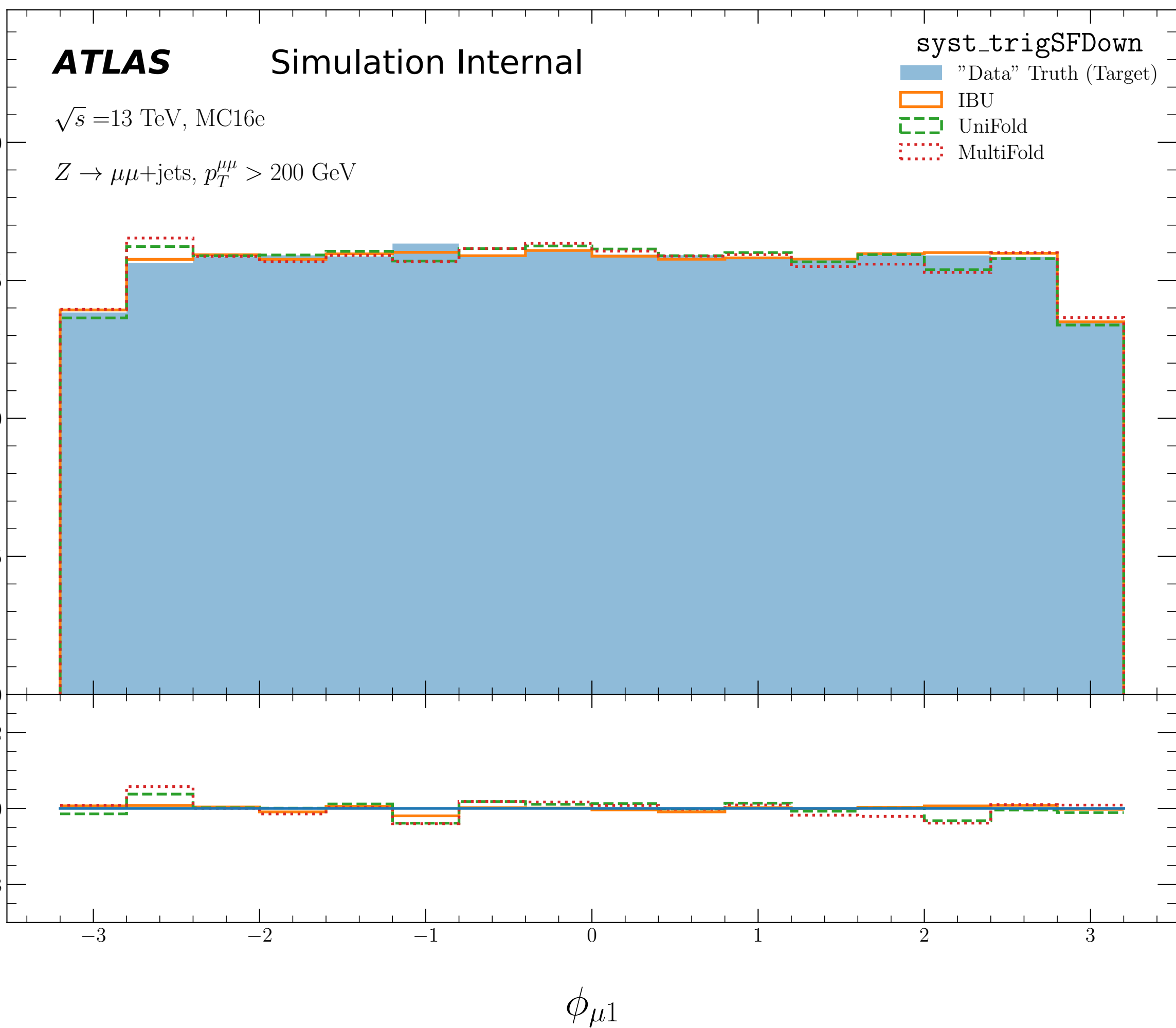
0

1

2

3

$\phi_{\mu 1}$



Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_prwUp

- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

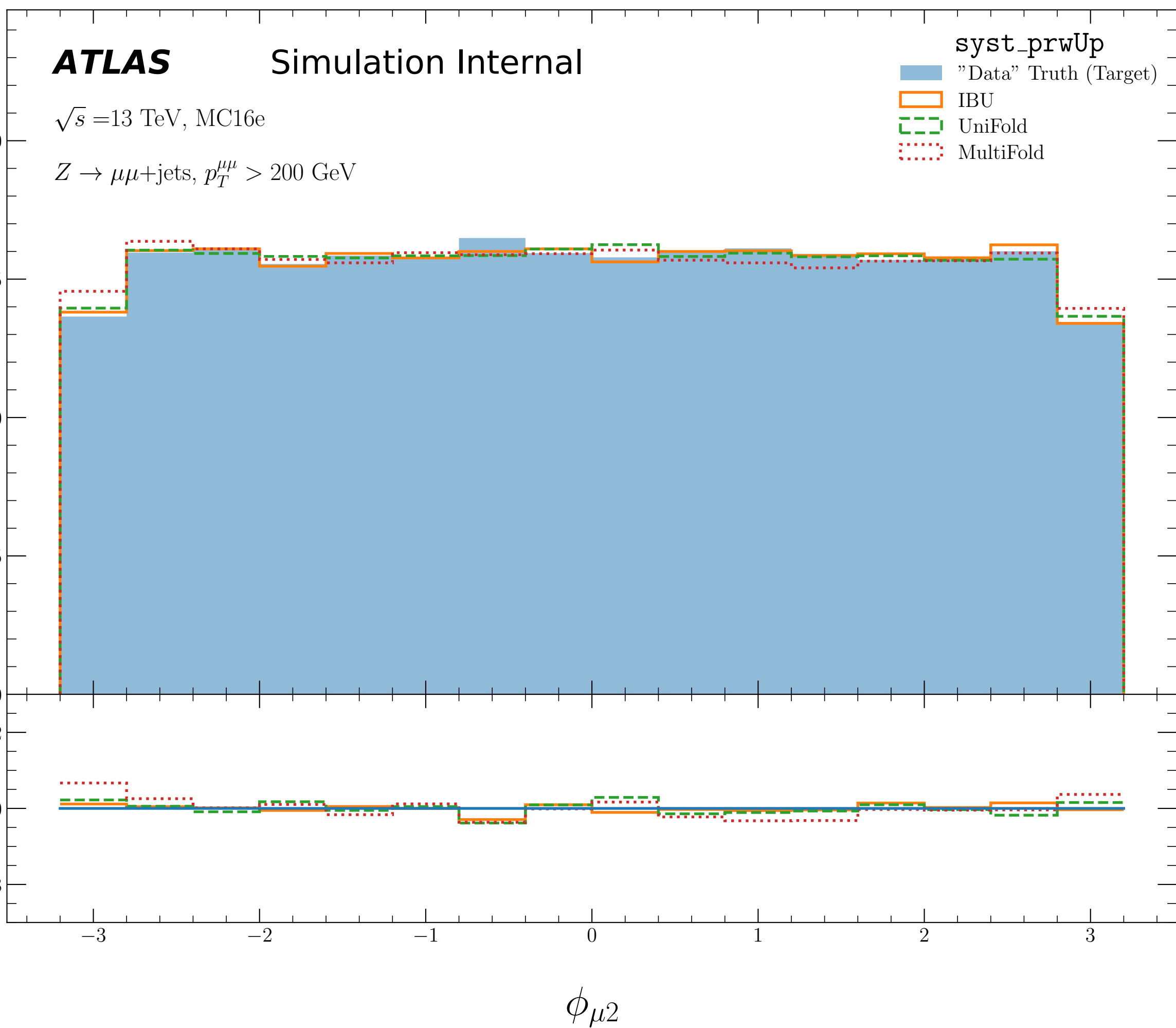
0

1

2

3

$\phi_{\mu 2}$



Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

sys\_prwDown

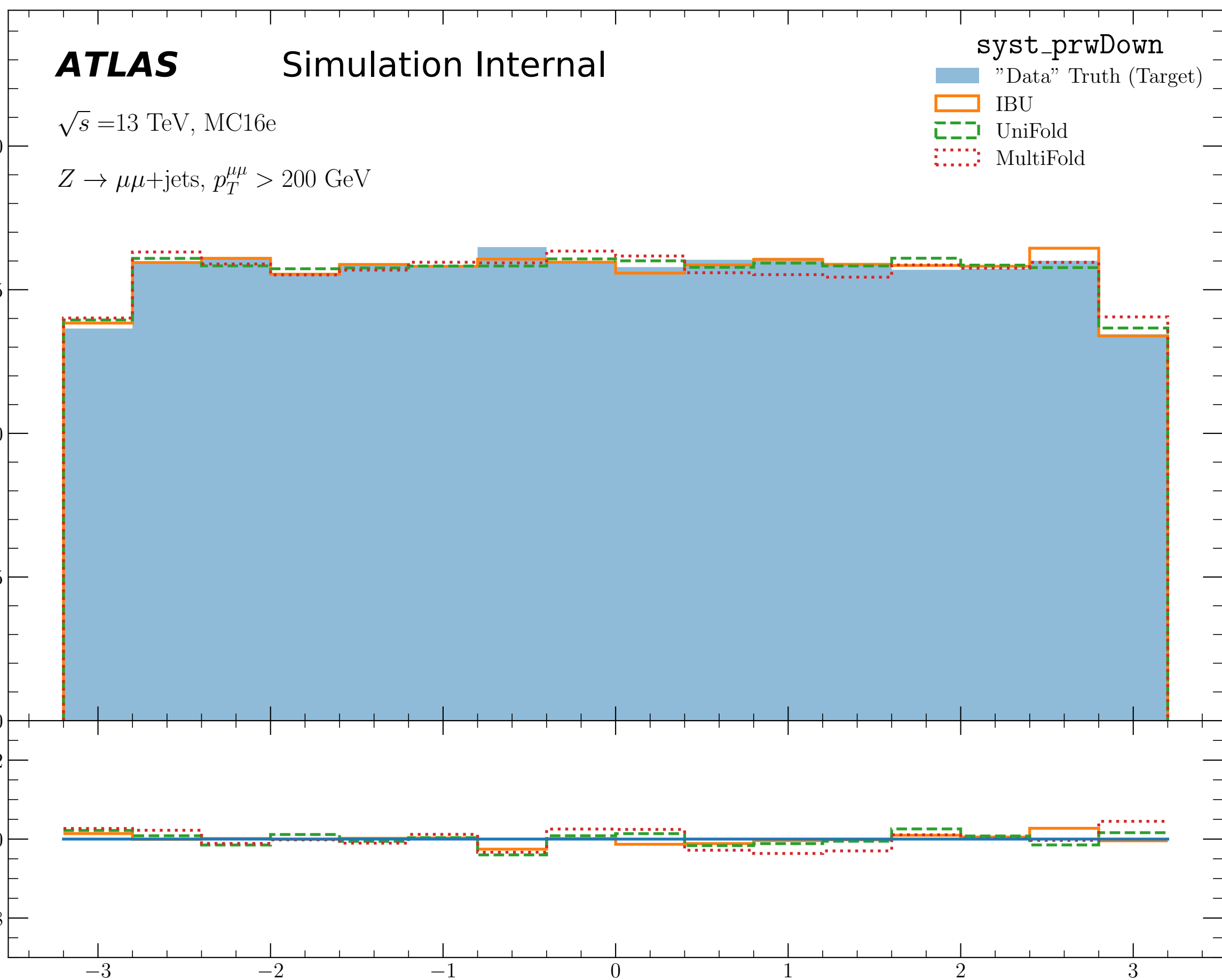
- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20  
0.15  
0.10  
0.05  
0.00

Ratio to "Data" Truth

1.2  
1.0  
0.8

$\phi_{\mu 2}$





Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_recoSFUp

- "Data" Truth (Target)
- IBU
- UniFold
- MultiFold

0.20

0.15

0.10

0.05

0.00

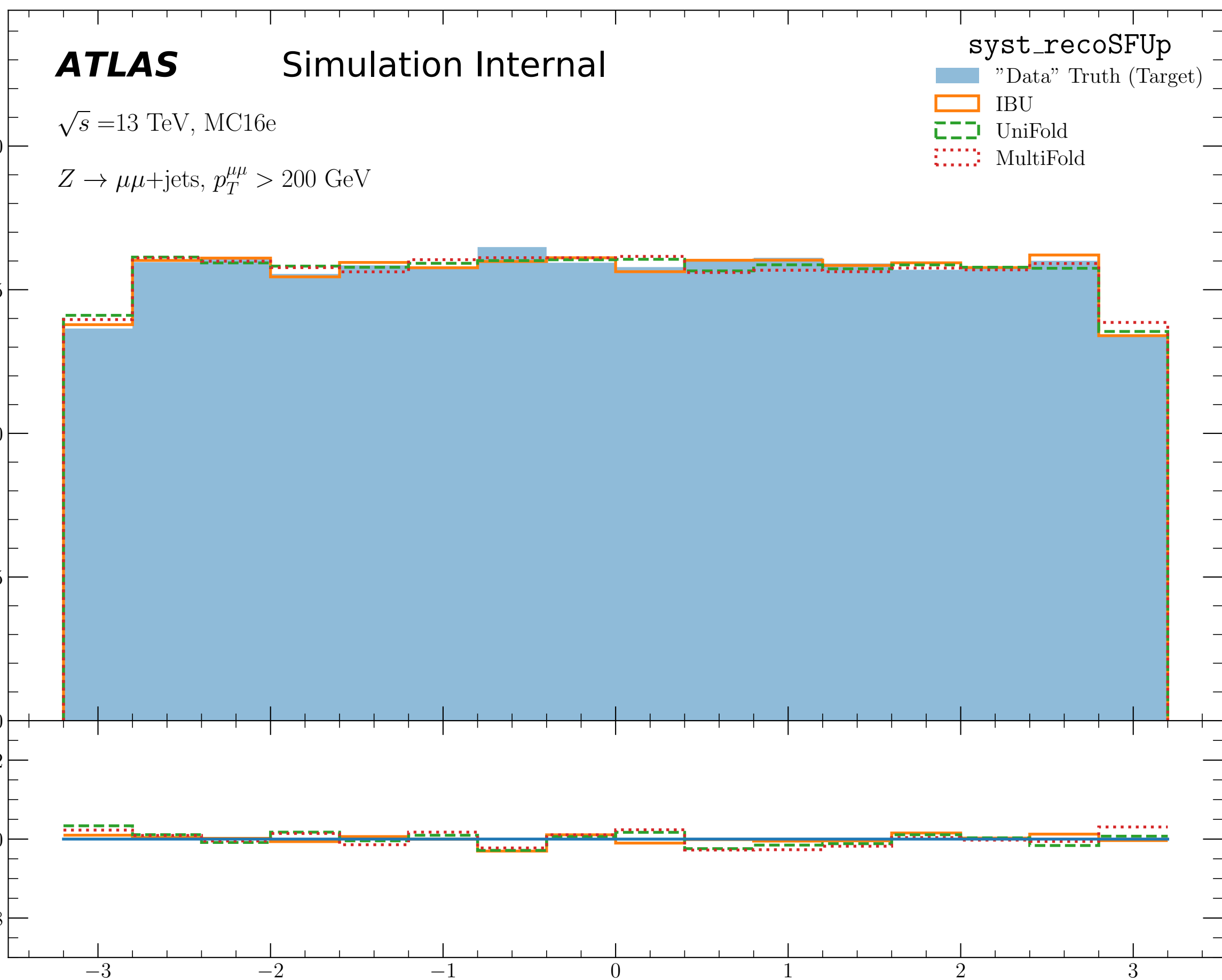
Ratio to "Data" Truth

1.2

1.0

0.8

$\phi_{\mu 2}$



Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_recoSFDown

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

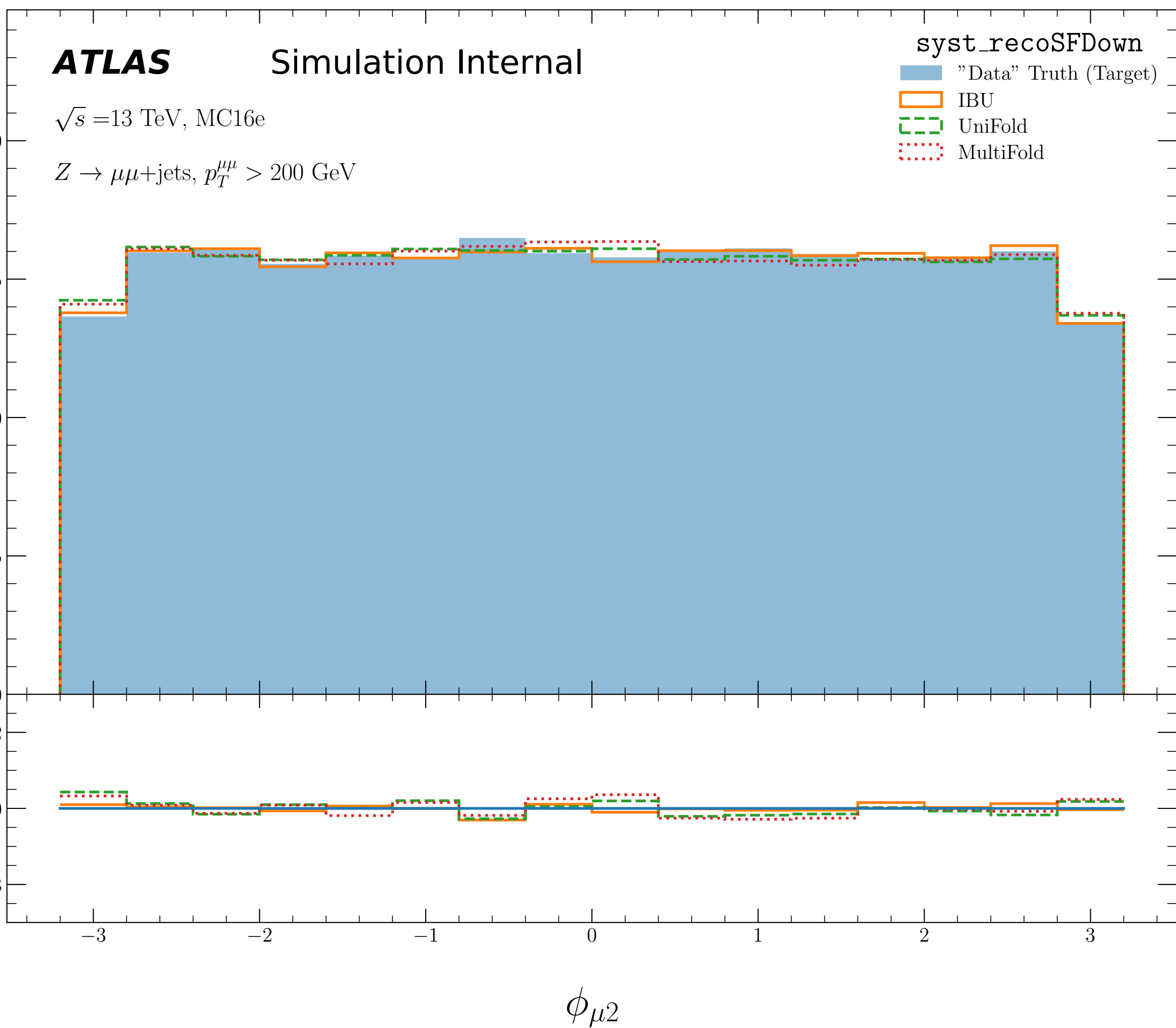
0

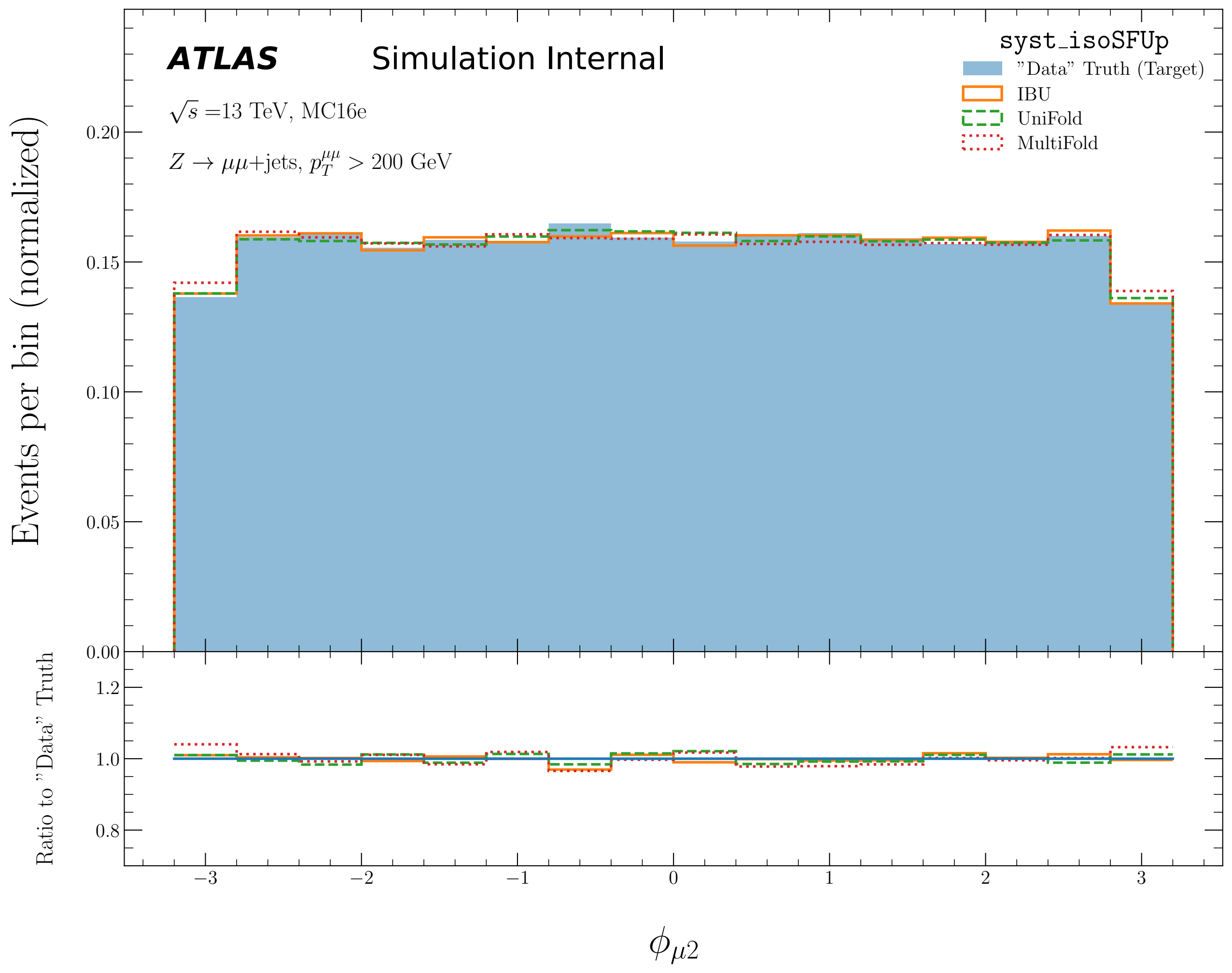
1

2

3

$\phi_{\mu 2}$





Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_isoSFDown

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

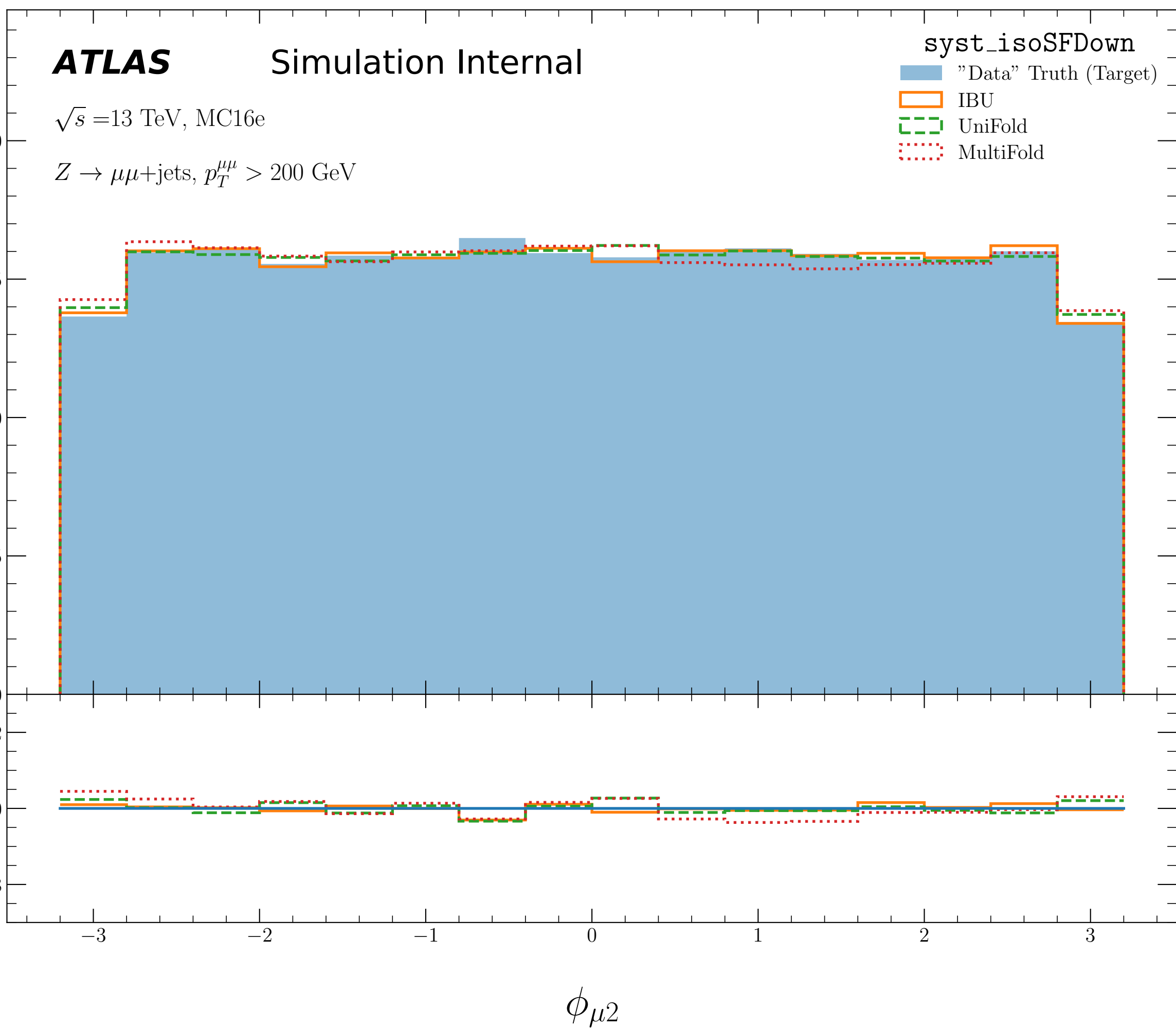
0

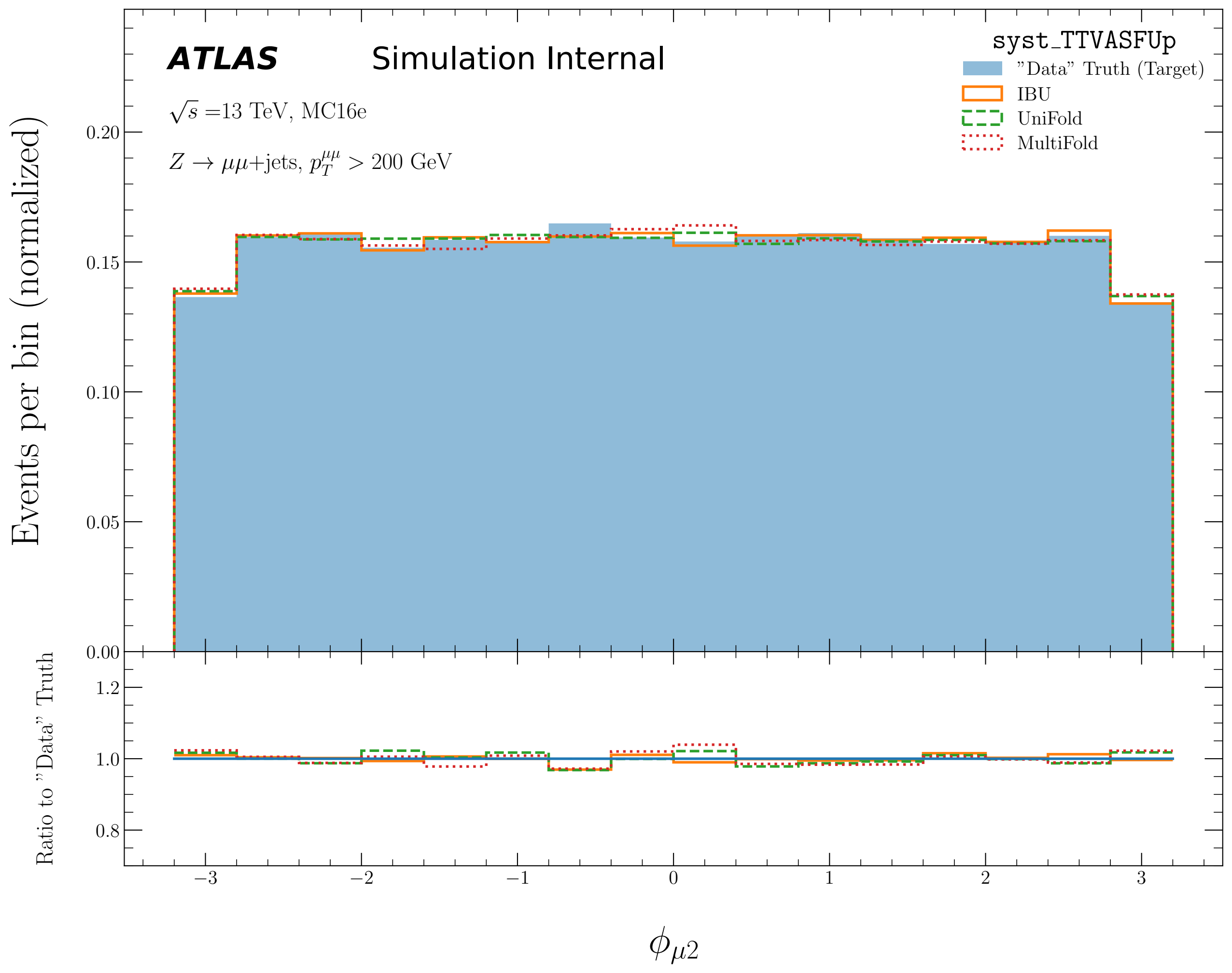
1

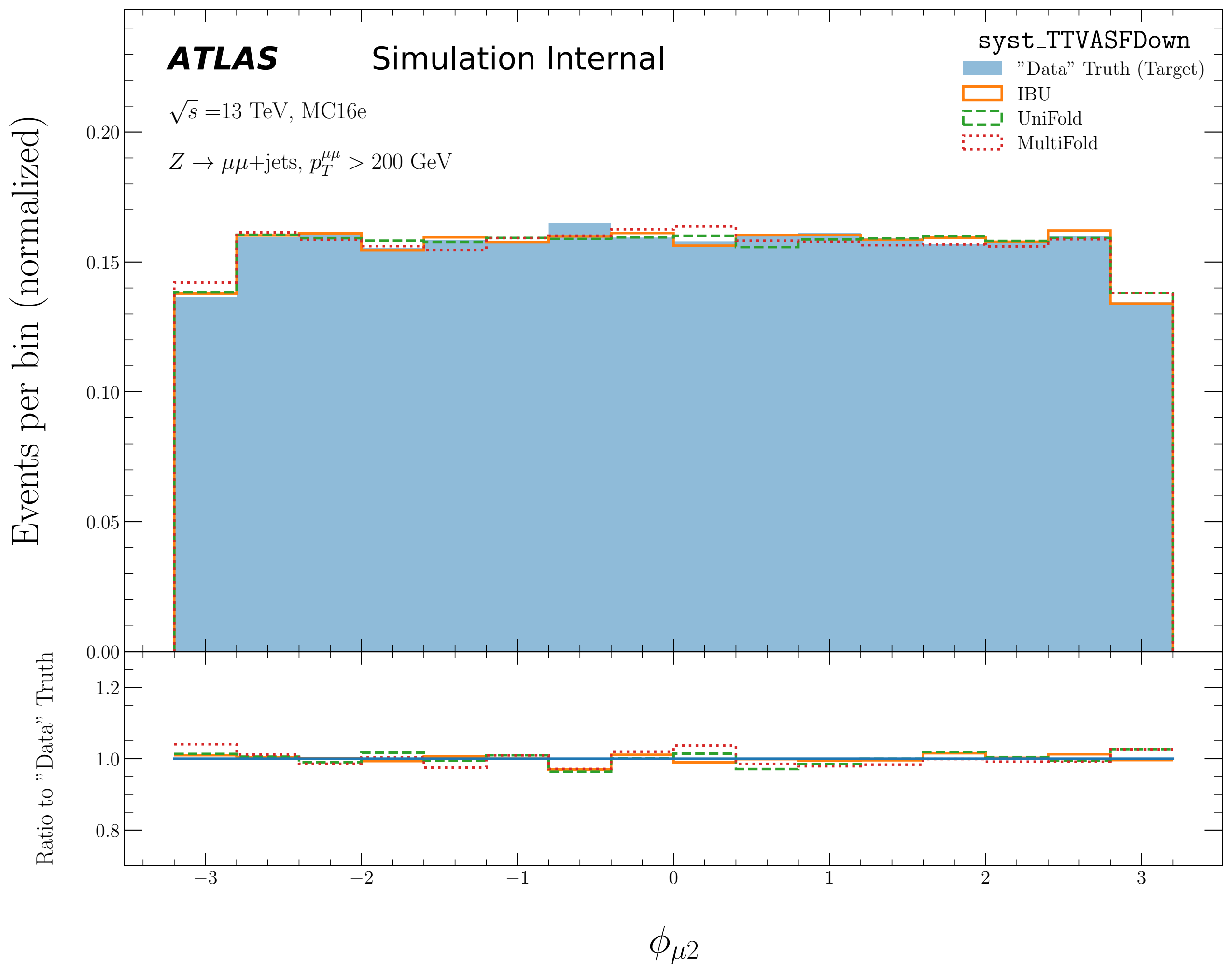
2

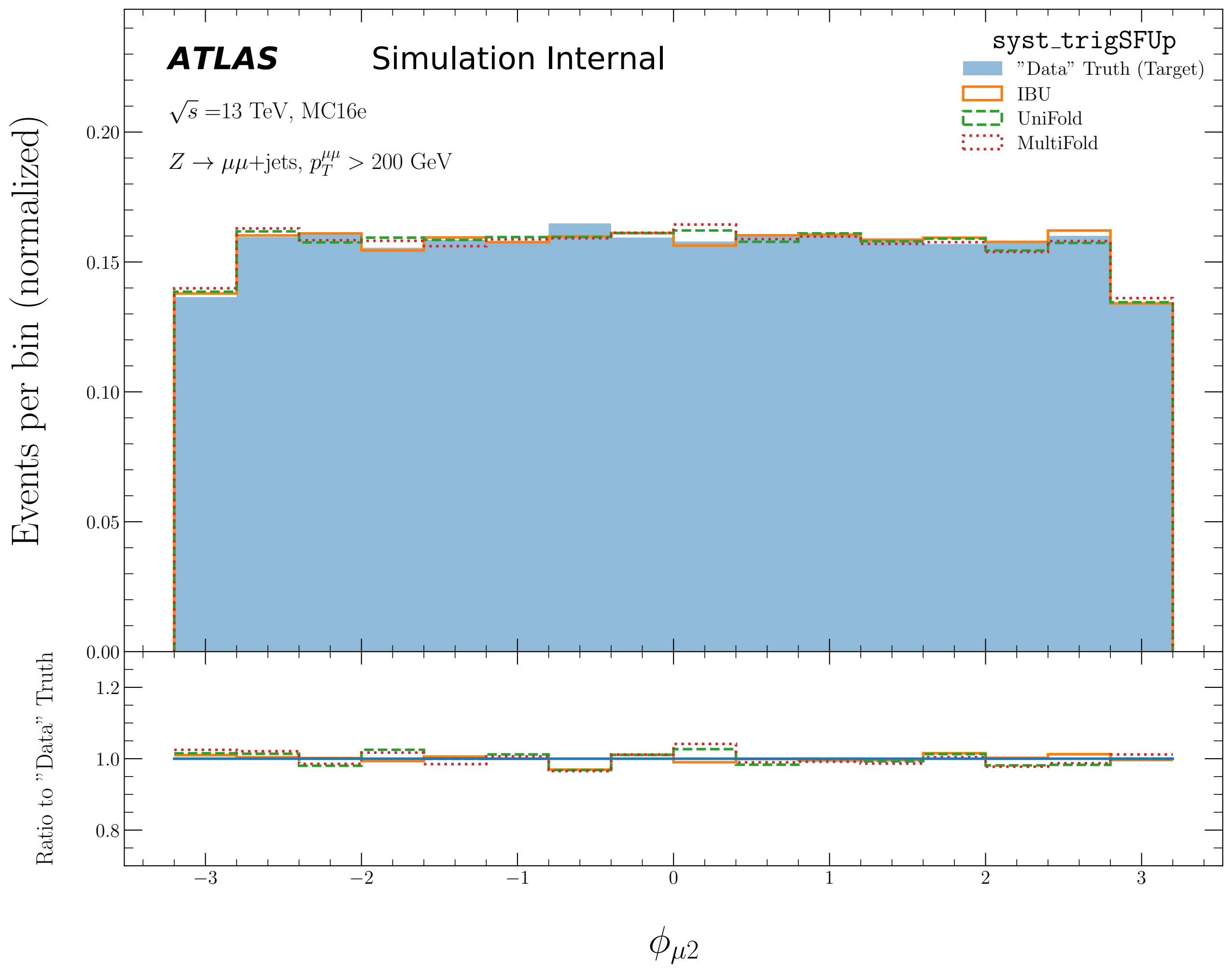
3

$\phi_{\mu 2}$









Events per bin (normalized)

**ATLAS**

Simulation Internal

$\sqrt{s} = 13$  TeV, MC16e

$Z \rightarrow \mu\mu + \text{jets}, p_T^{\mu\mu} > 200$  GeV

syst\_trigSFDown

"Data" Truth (Target)

IBU

UniFold

MultiFold

0.20

0.15

0.10

0.05

0.00

Ratio to "Data" Truth

1.2

1.0

0.8

-3

-2

-1

0

1

2

3

$\phi_{\mu 2}$

