

# HEP Weekly Report

## NTUA

### 10/6/2020

George Bakas



# Status Report

- Signal Extraction:
  - Contamination in CR
  - Mass Fit: remove  $t\bar{t}$  and subdominant bkg contamination from Control Region from data
- Differential Cross Section measurements
  - Data vs Theory Comparison
  - 2016 comparison with TOP-18-013 results

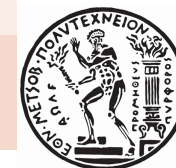


## Signal Selection

Variables	Selected Cut
pT (both leading jets)	> 400 GeV
Njets	> 1
N leptons	= 0
eta  (both leading jets)	< 2.4
mJJ	> 1000 GeV
jetMassSoftDrop (only for fit)	(50,300) GeV
Top Tagger	> 0.2
B tagging (2 btagged jets)	> <b>Medium</b> WP
Signal Trigger	

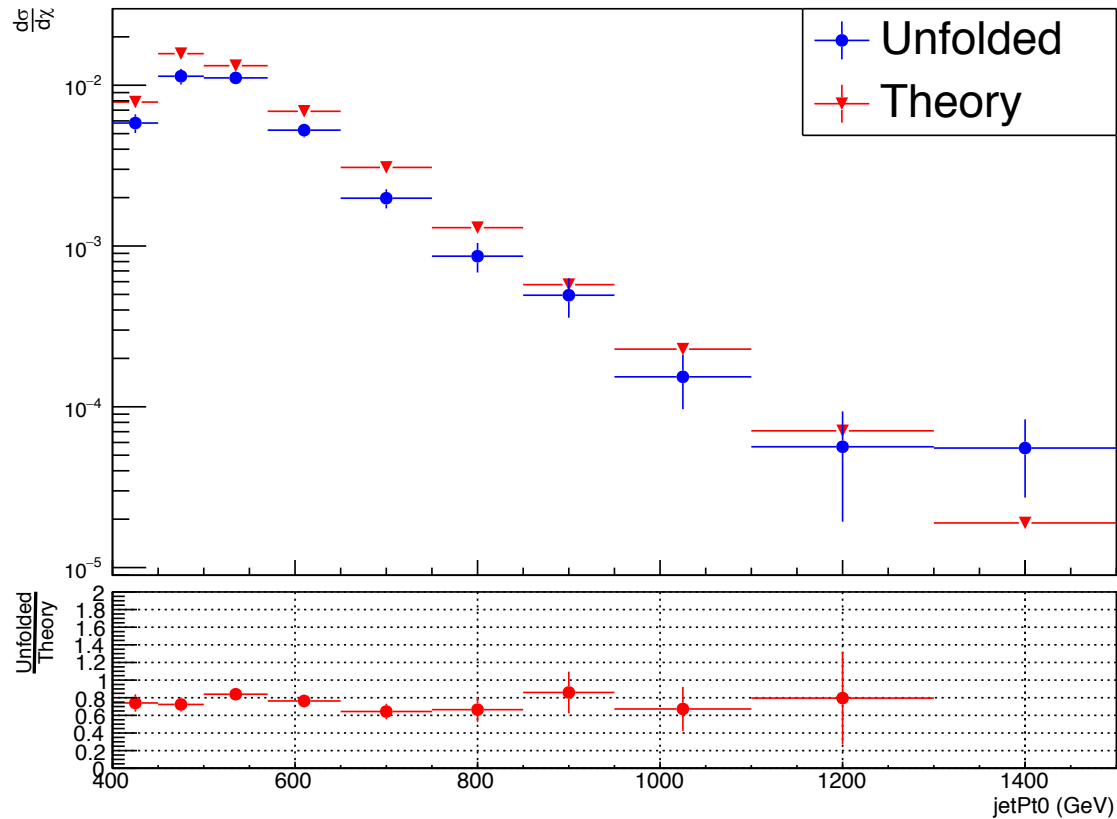
## Control Region Selection

Variables	Selected Cut
pT (both leading jets)	> 400 GeV
Njets	> 1
N leptons	= 0
eta  (both leading jets)	< 2.4
mJJ	> 1000 GeV
jetMassSoftDrop (only for fit)	(50,300) GeV
Top Tagger	> 0.2
B tagging (0 btagged jets)	< <b>Medium</b> WP
Control Trigger	

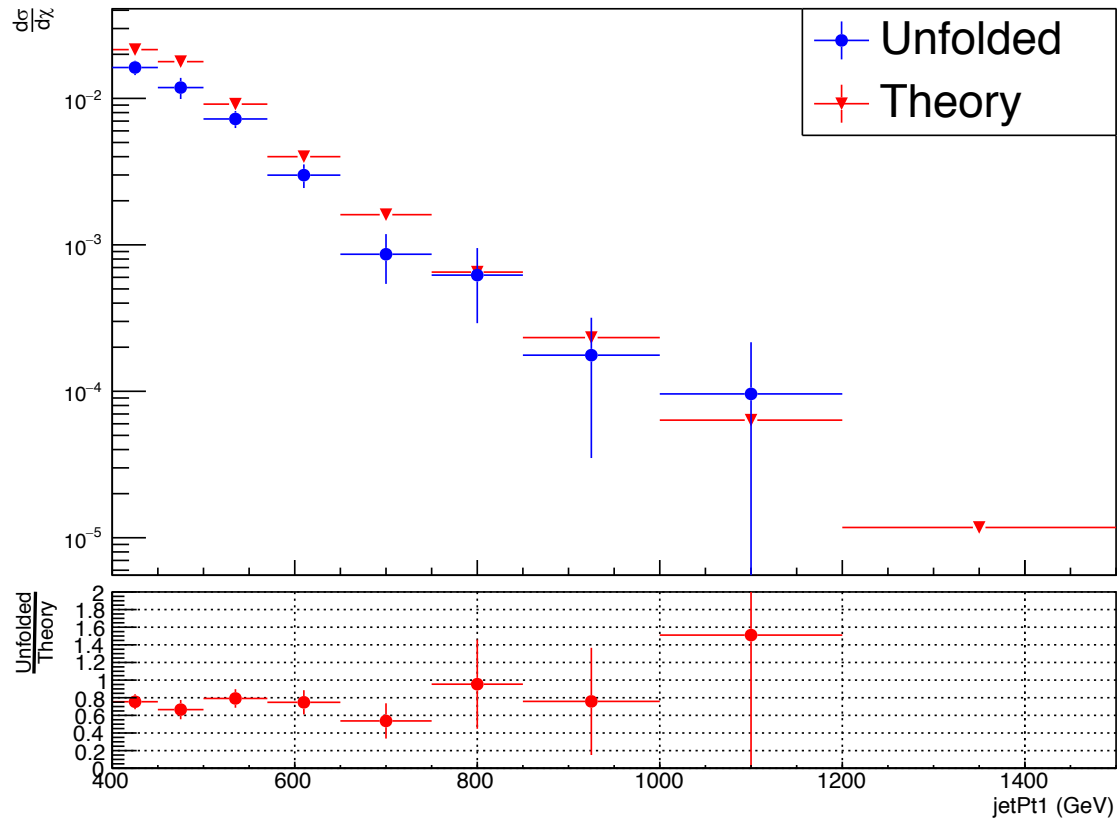


# Differential Cross Section Measurements (Parton) 2016

Parton Unfolded vs Theory jetPt0 2016

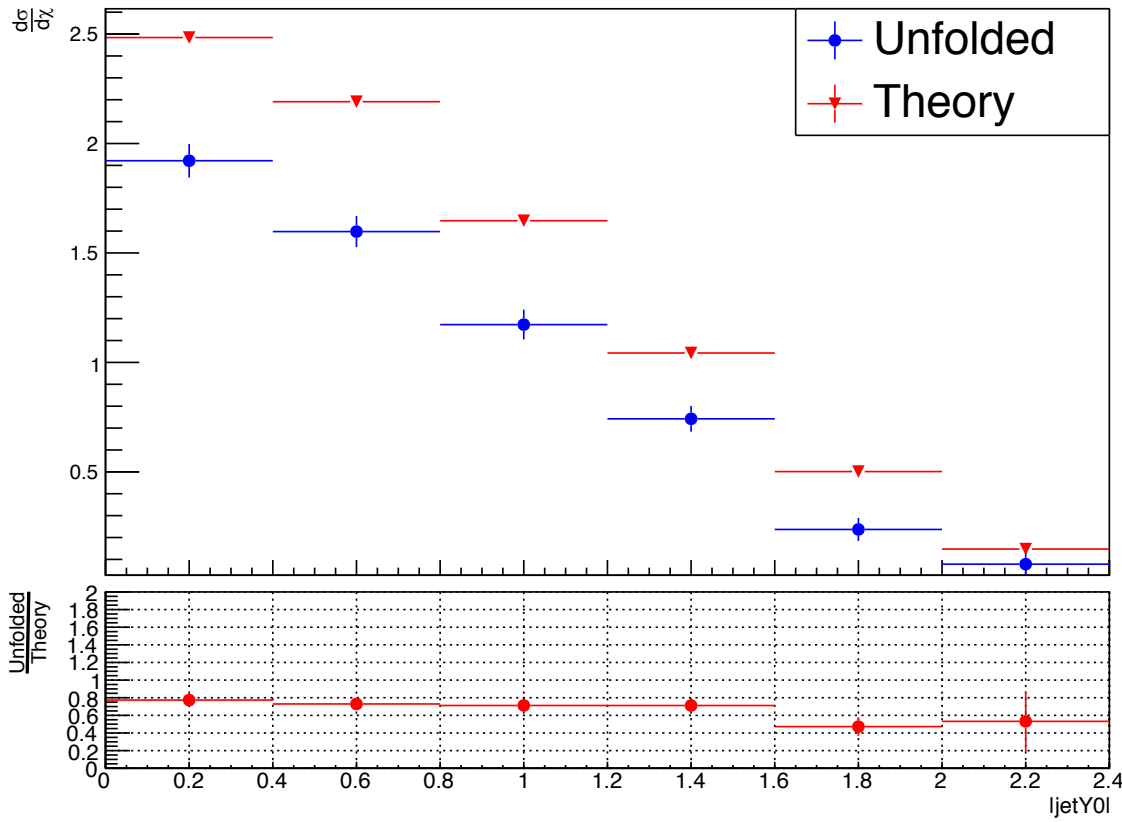


Parton Unfolded vs Theory jetPt1 2016

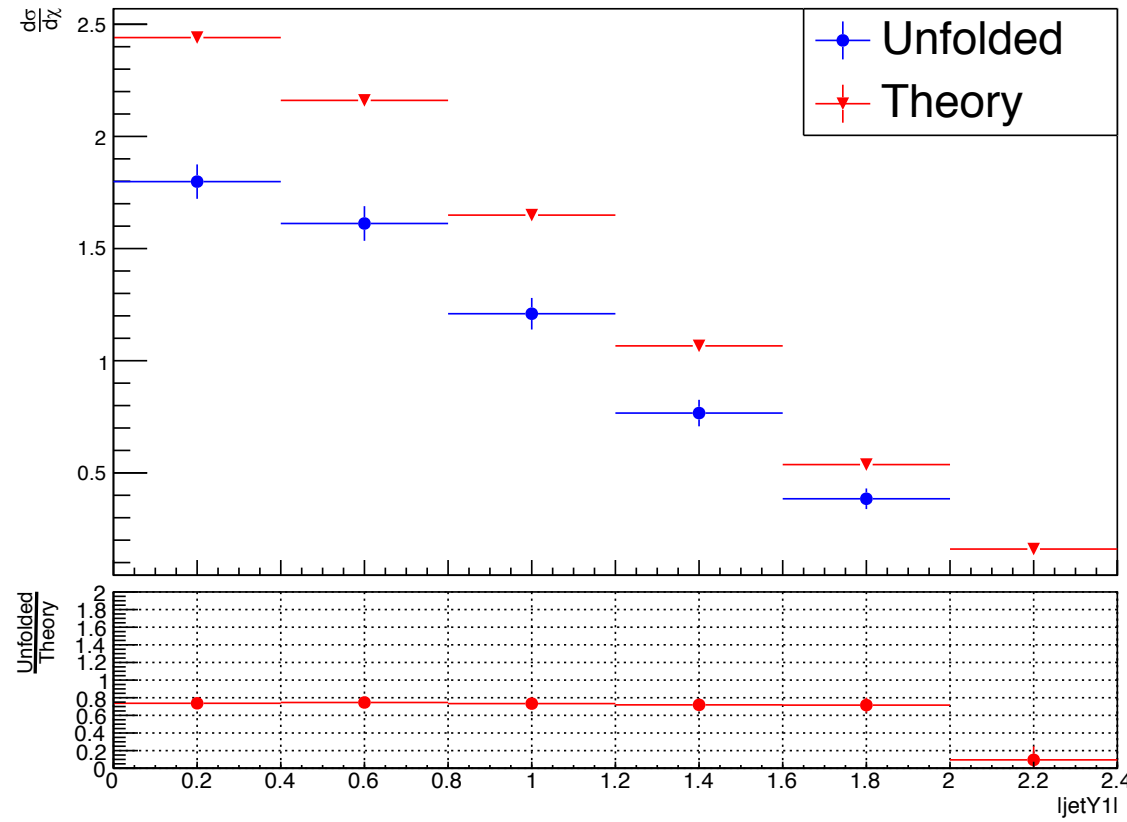


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Parton Unfolded vs Theory jetY0 2016

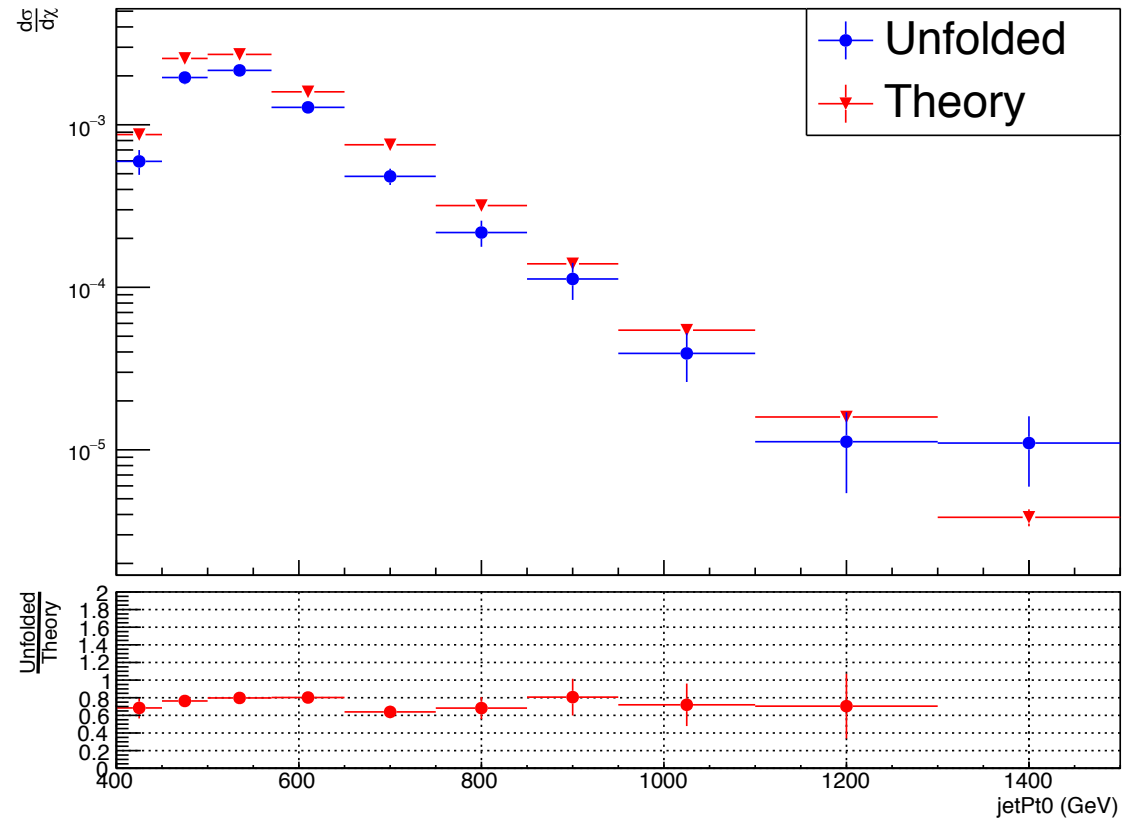


Parton Unfolded vs Theory jetY1 2016

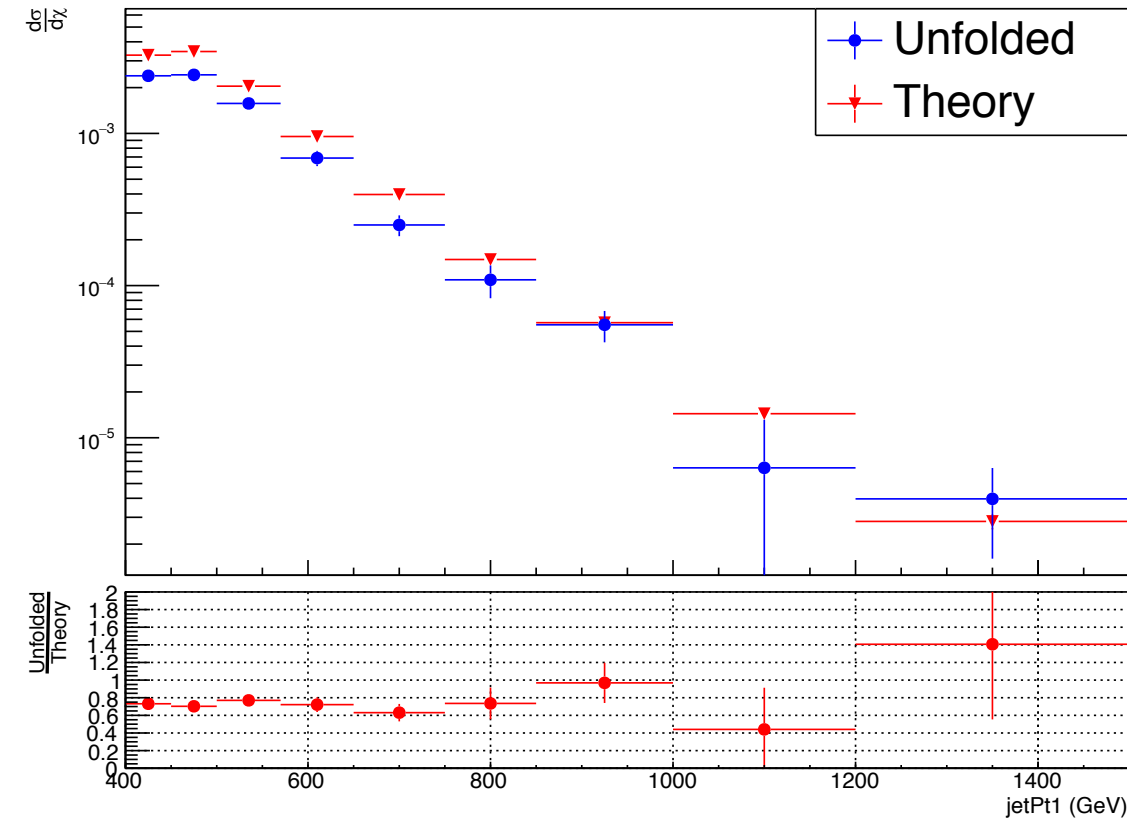


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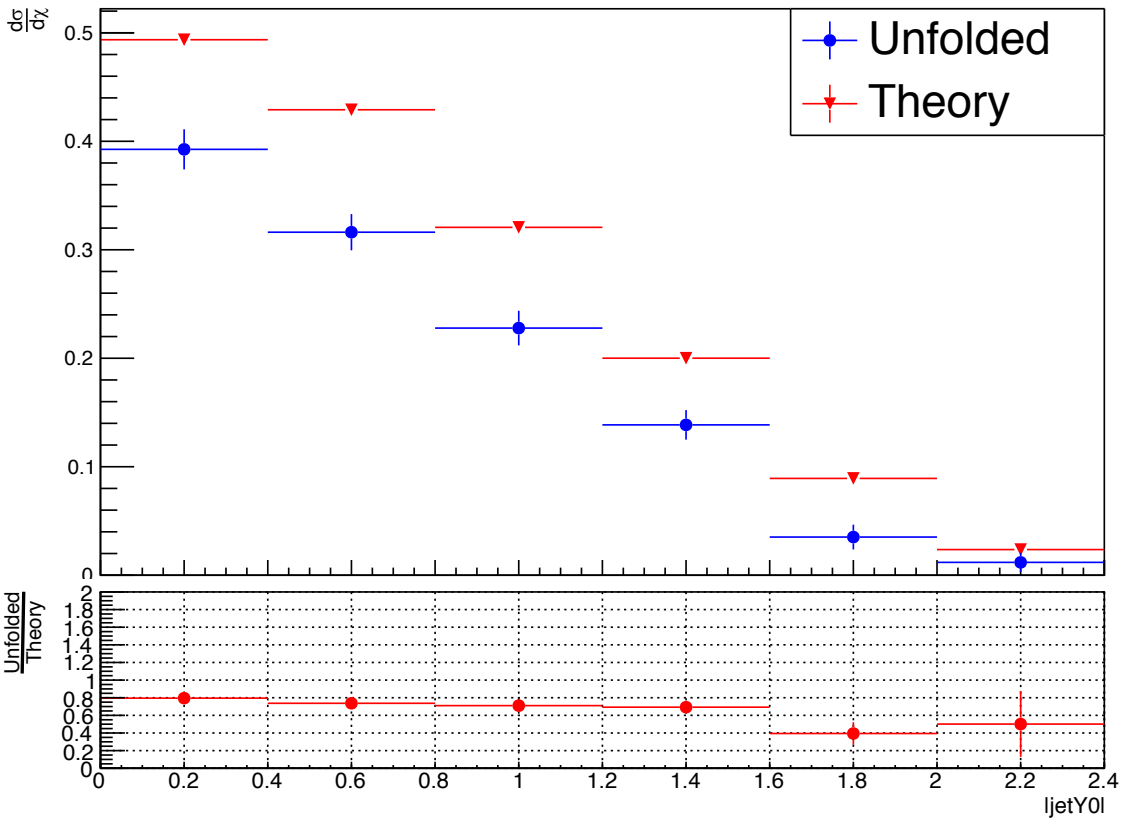


Particle Unfolded vs Theory jetPt1 2016

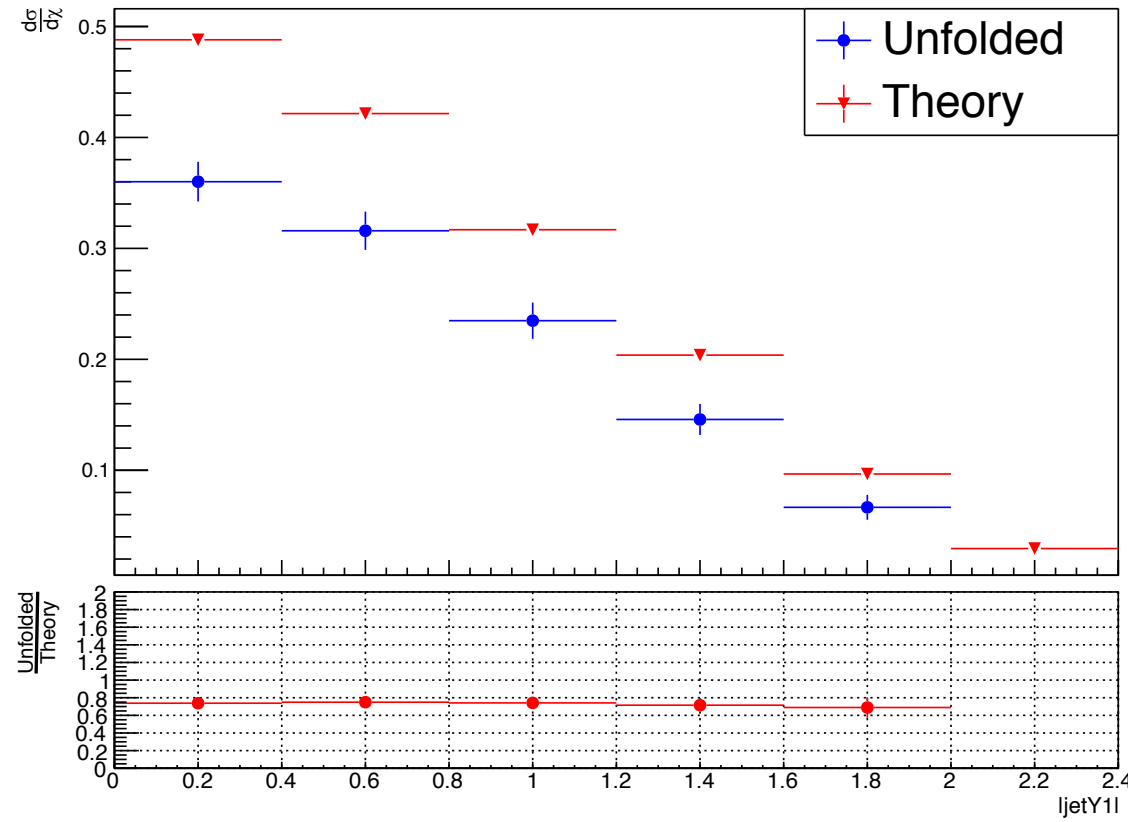


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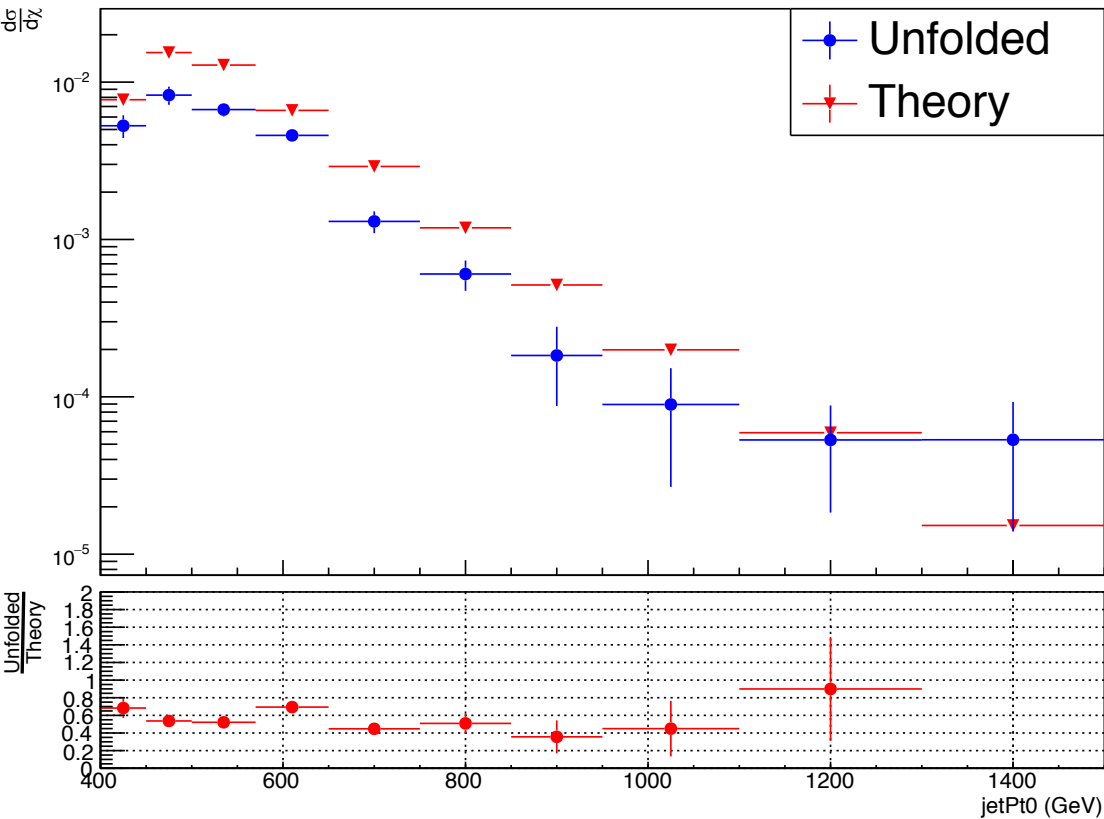


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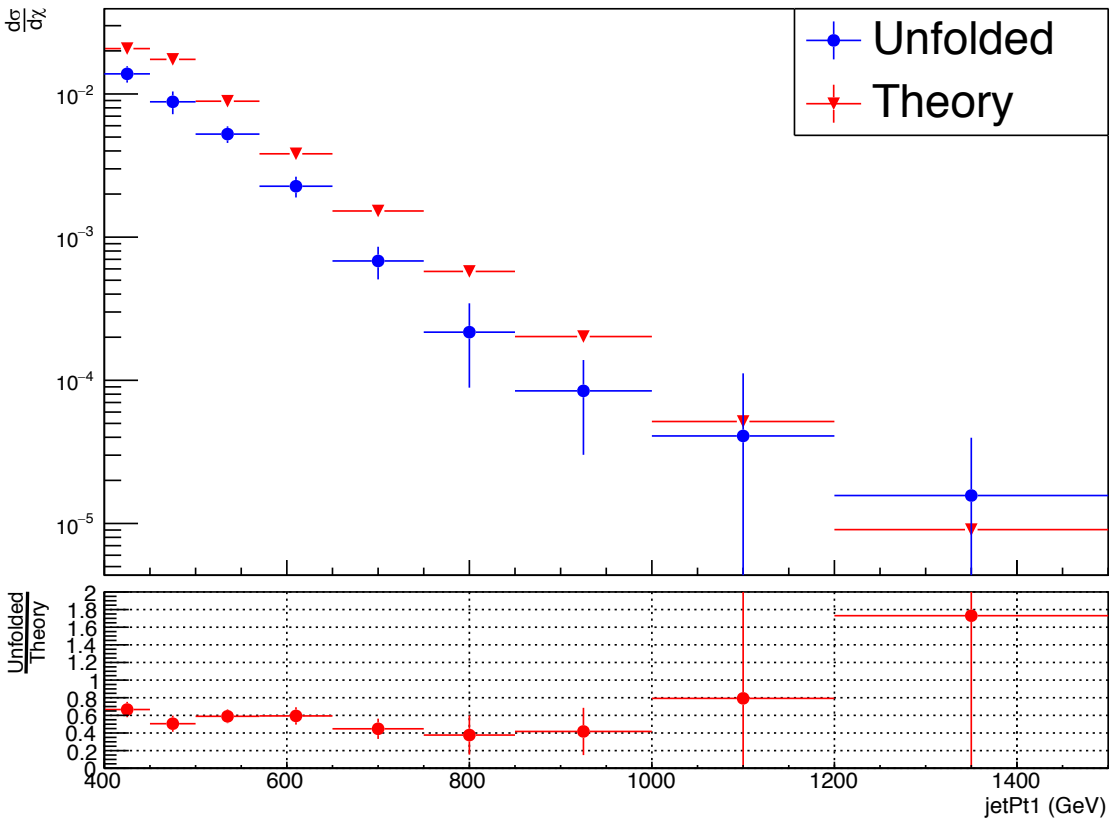


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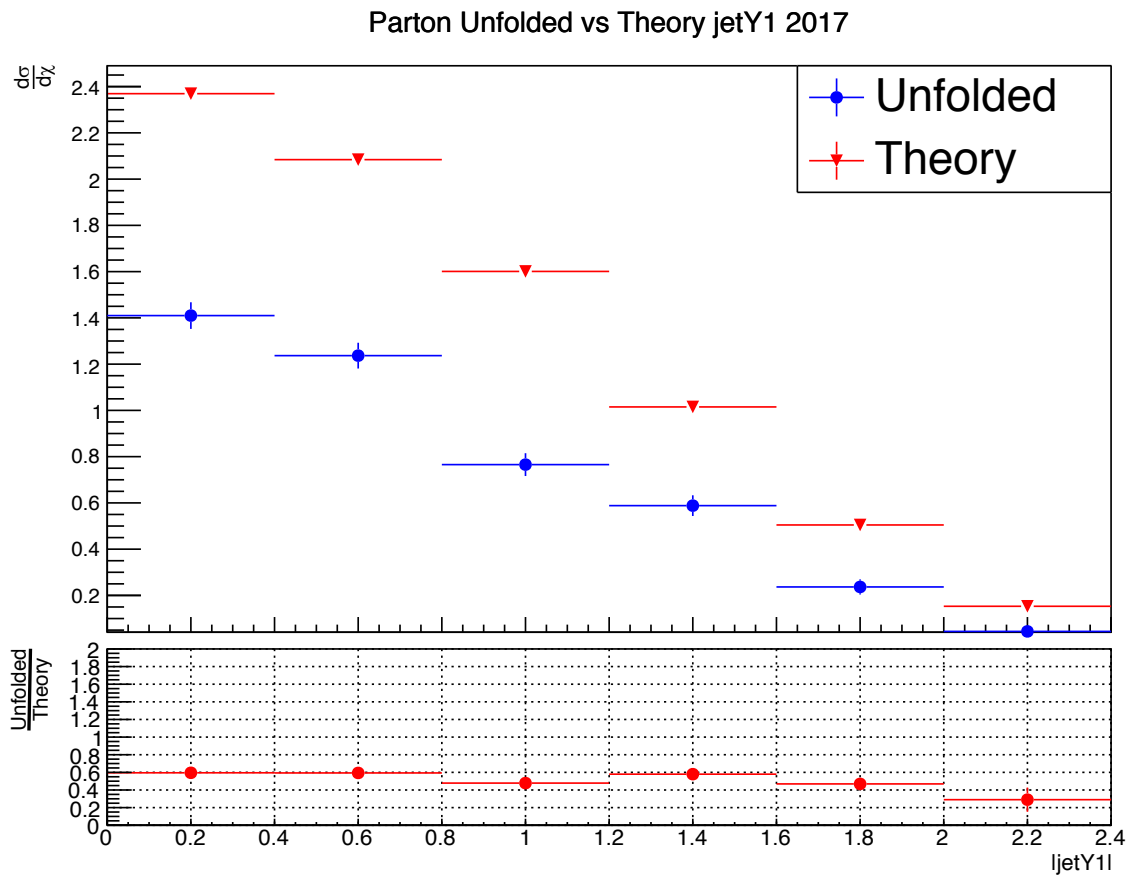
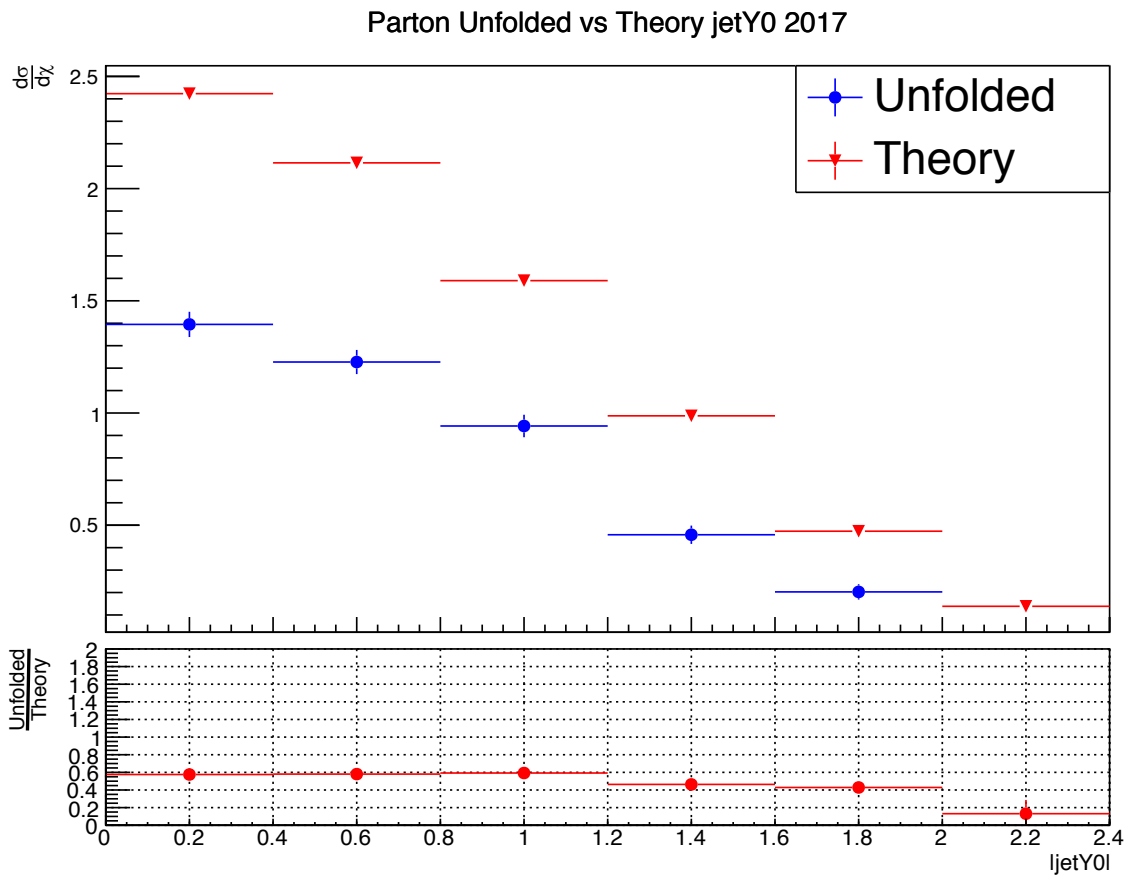


Parton Unfolded vs Theory jetPt1 2017



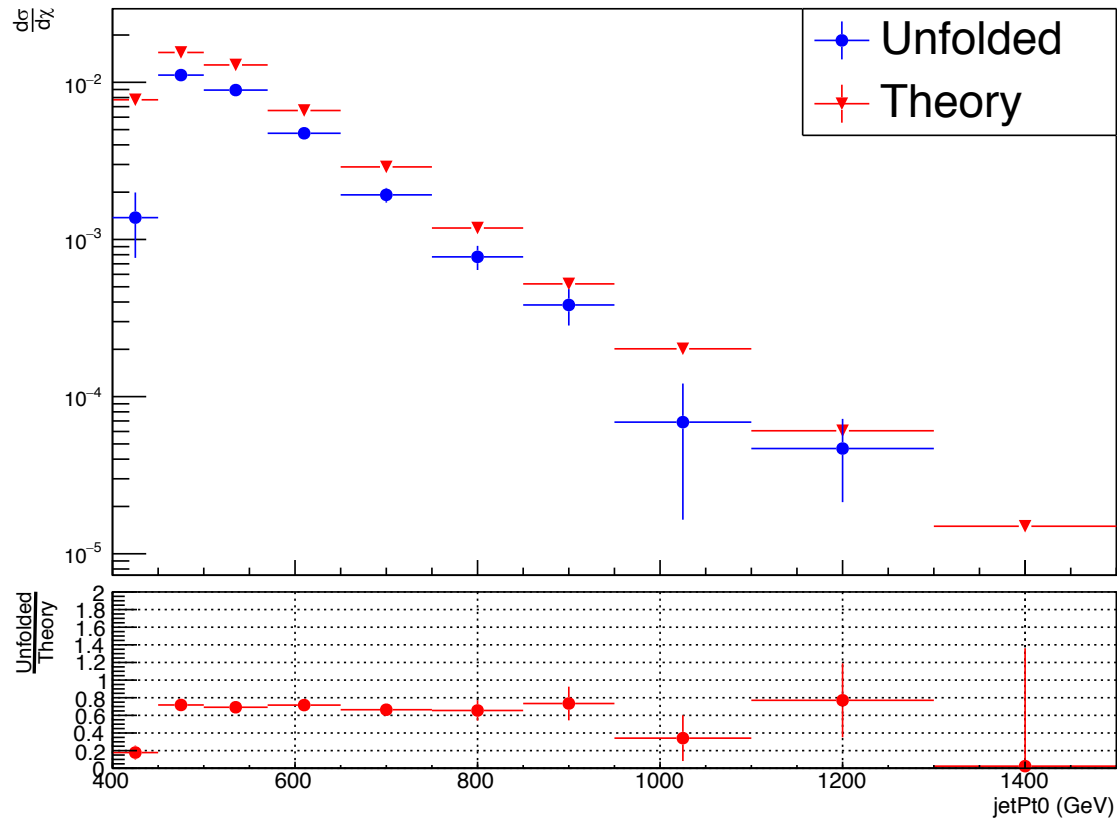


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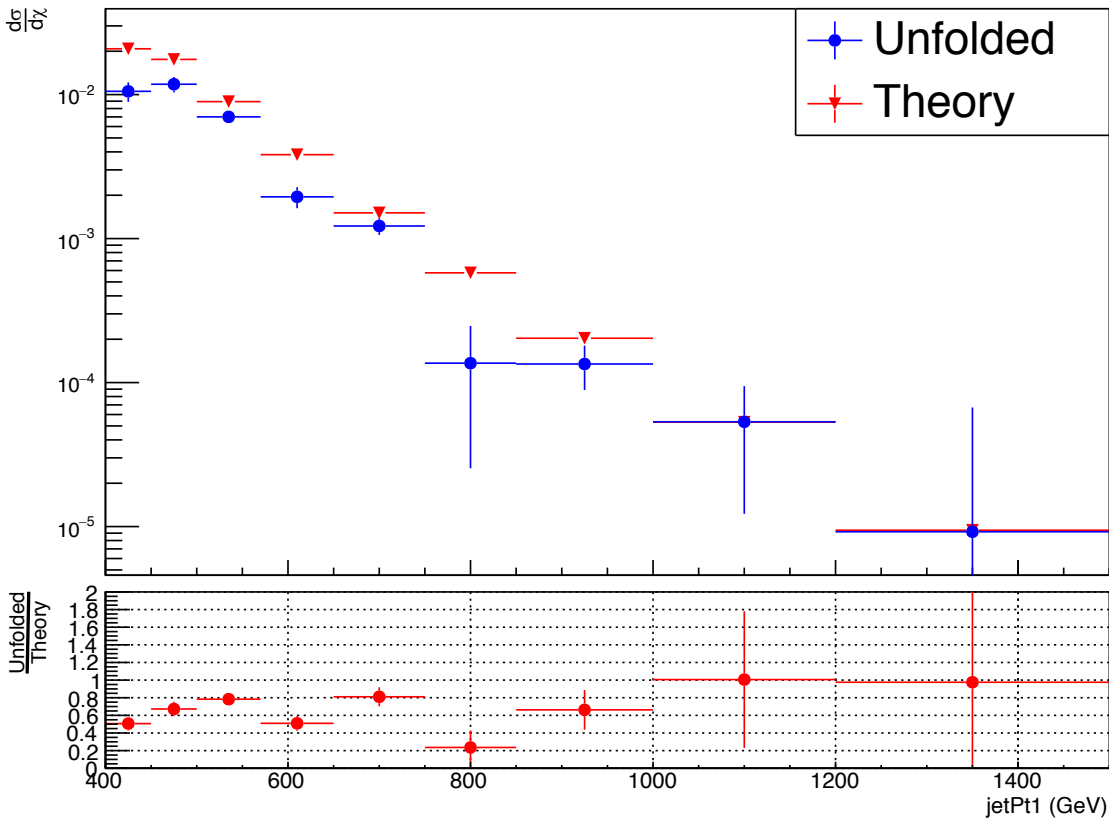


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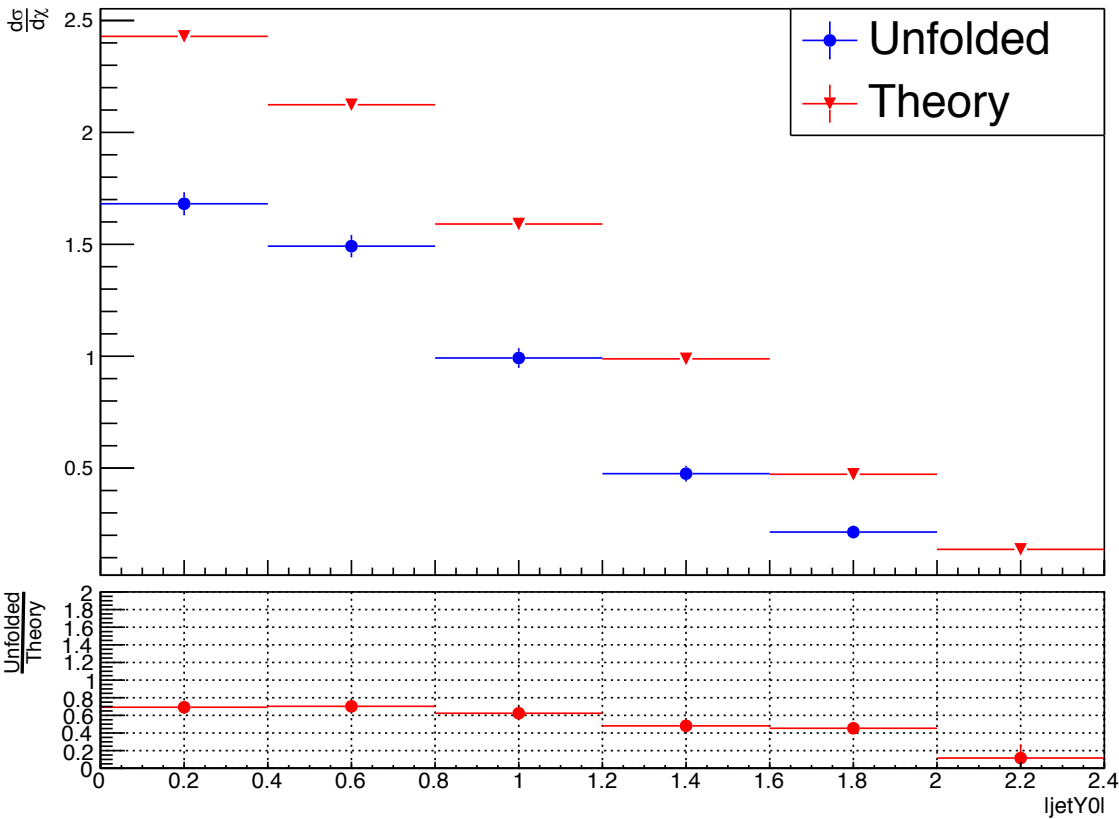


Parton Unfolded vs Theory jetPt1 2018

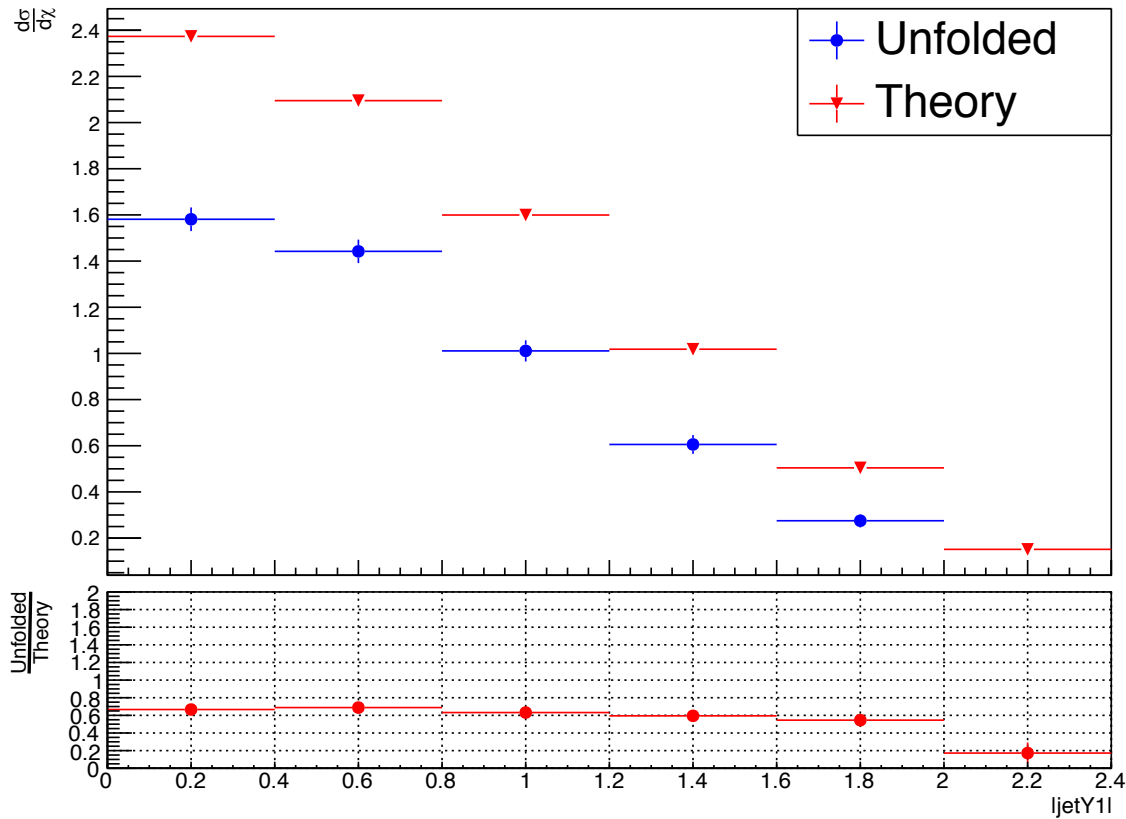


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Parton Unfolded vs Theory jetY0 2018

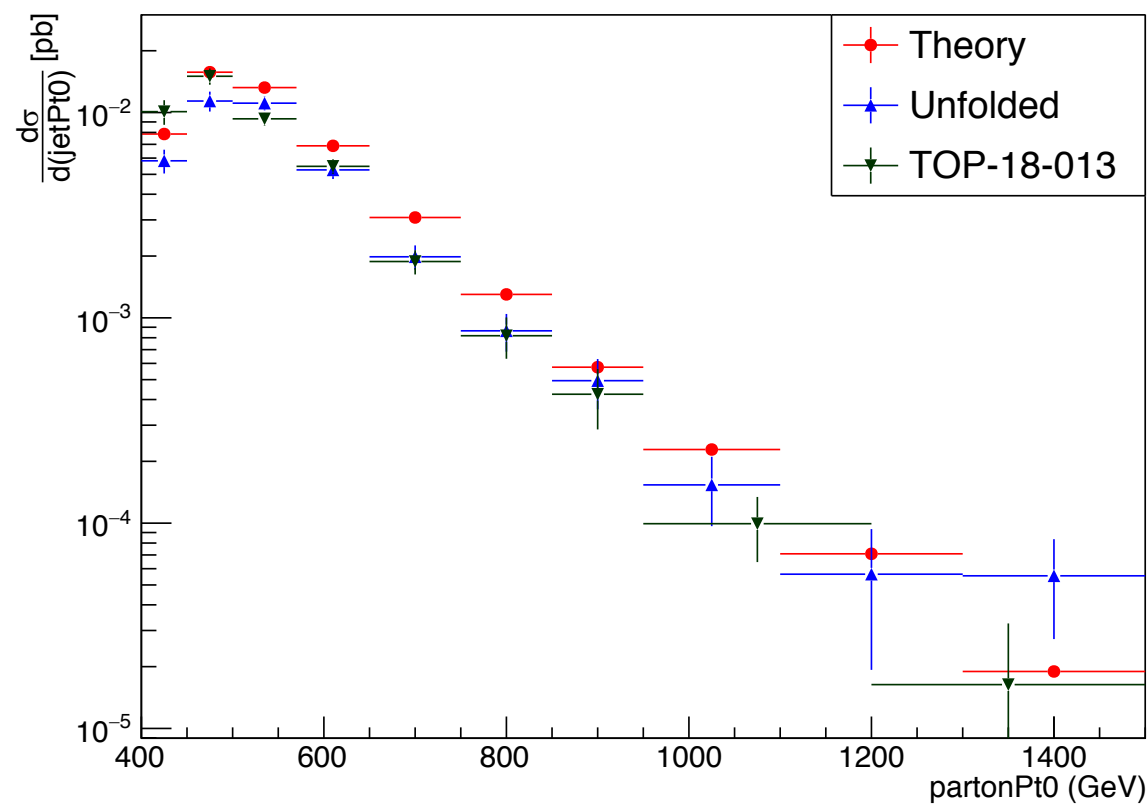


Parton Unfolded vs Theory jetY1 2018

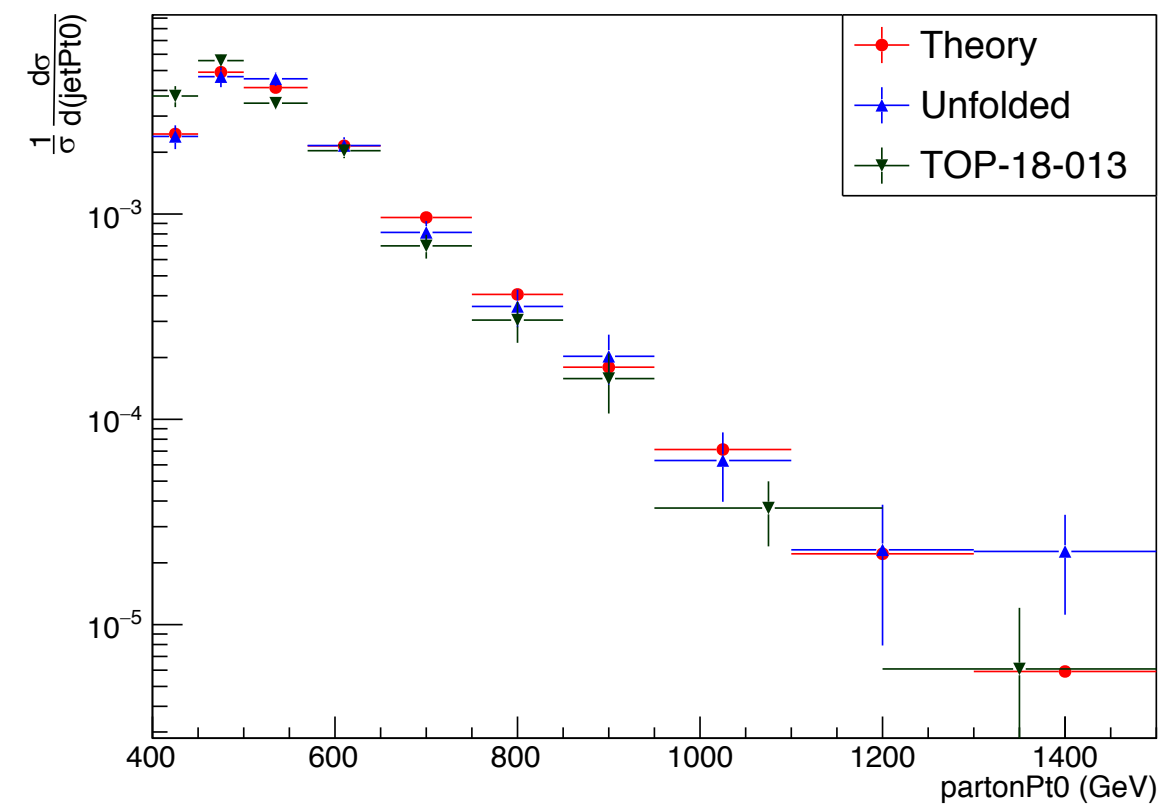


# Comparison - Differential Cross Section Measurements (Parton) 2016

Parton Unfolded vs TOP-18-013 2016

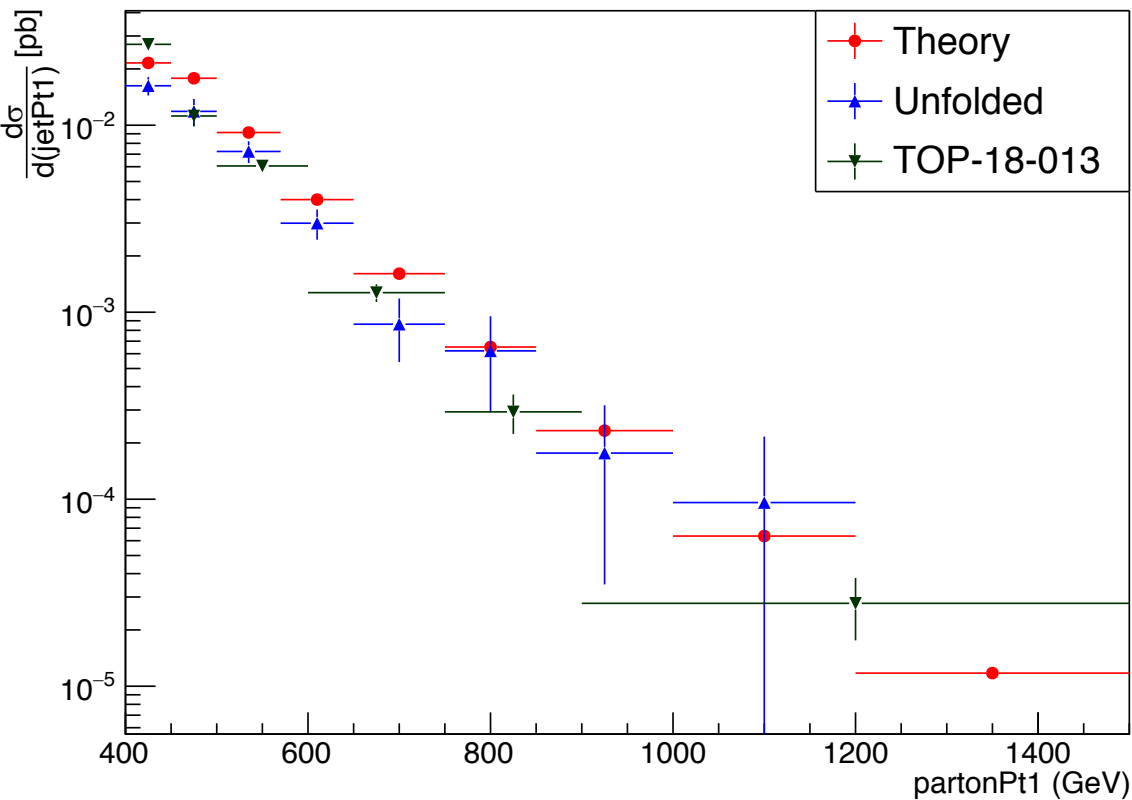


Normalised Parton Unfolded vs TOP-18-013 2016

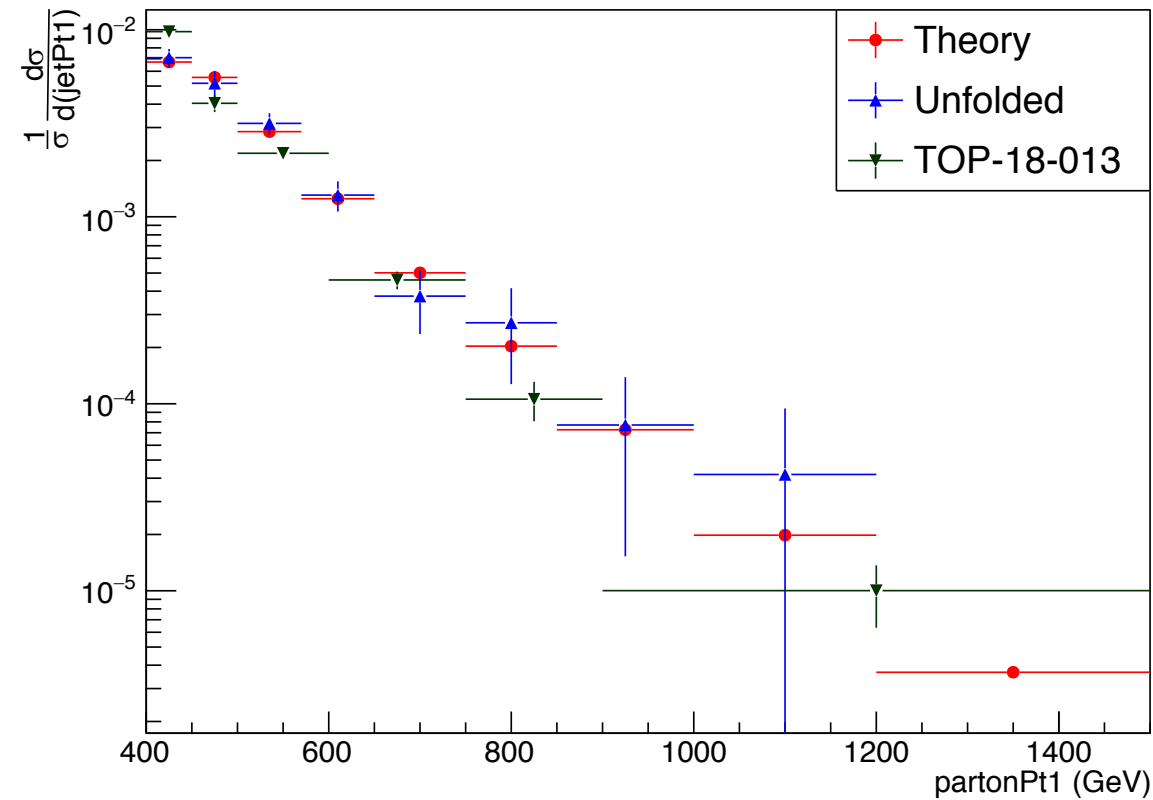


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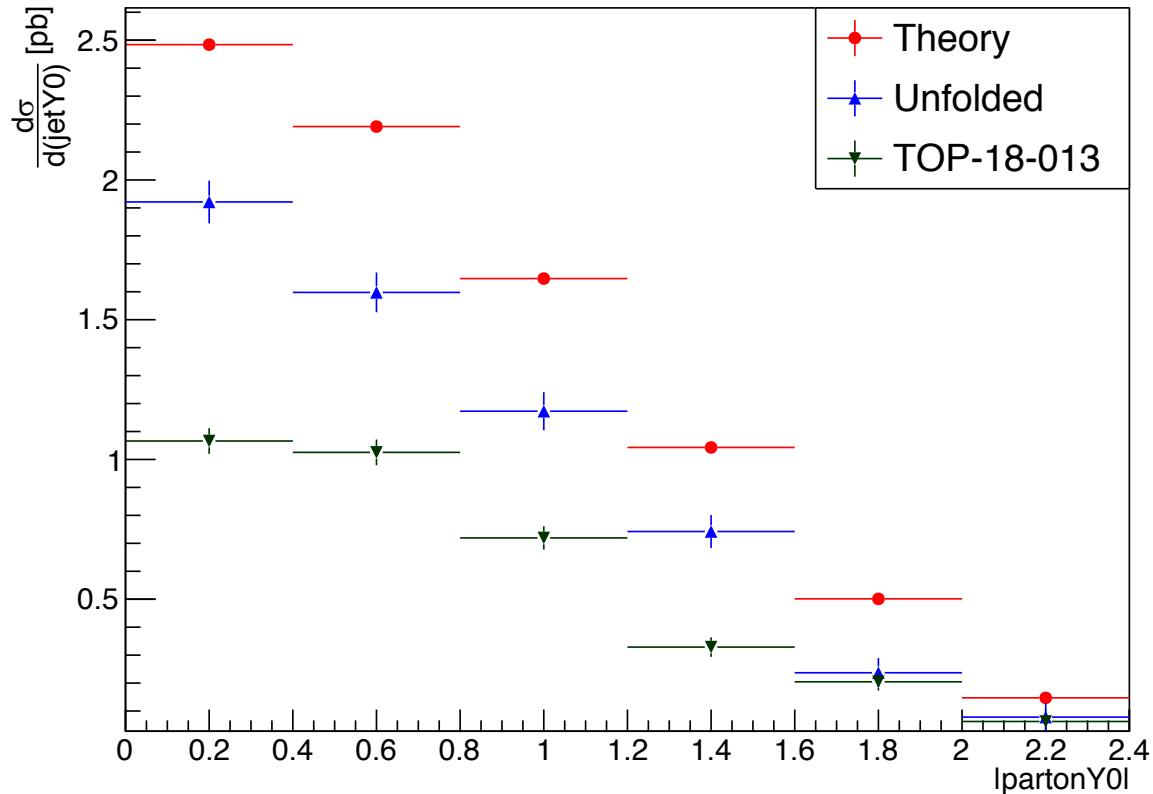


Normalised Parton Unfolded vs TOP-18-013 2016

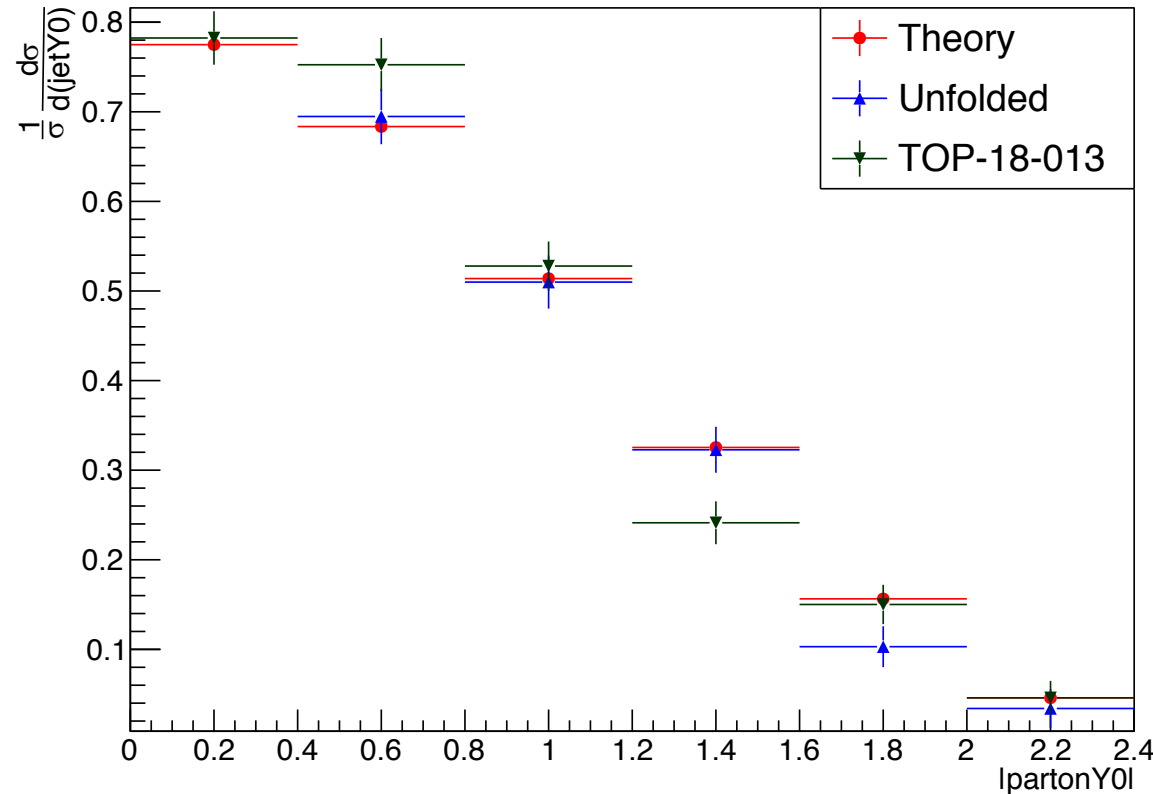


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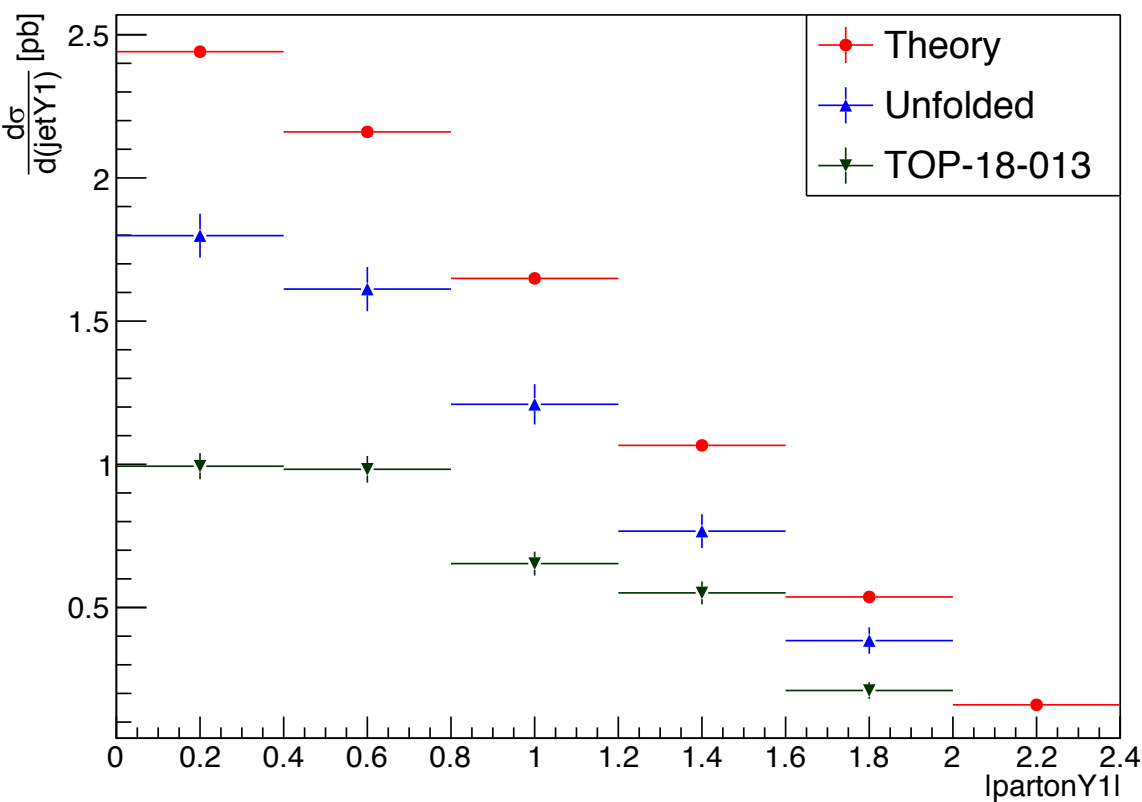


Normalised Parton Unfolded vs TOP-18-013 2016

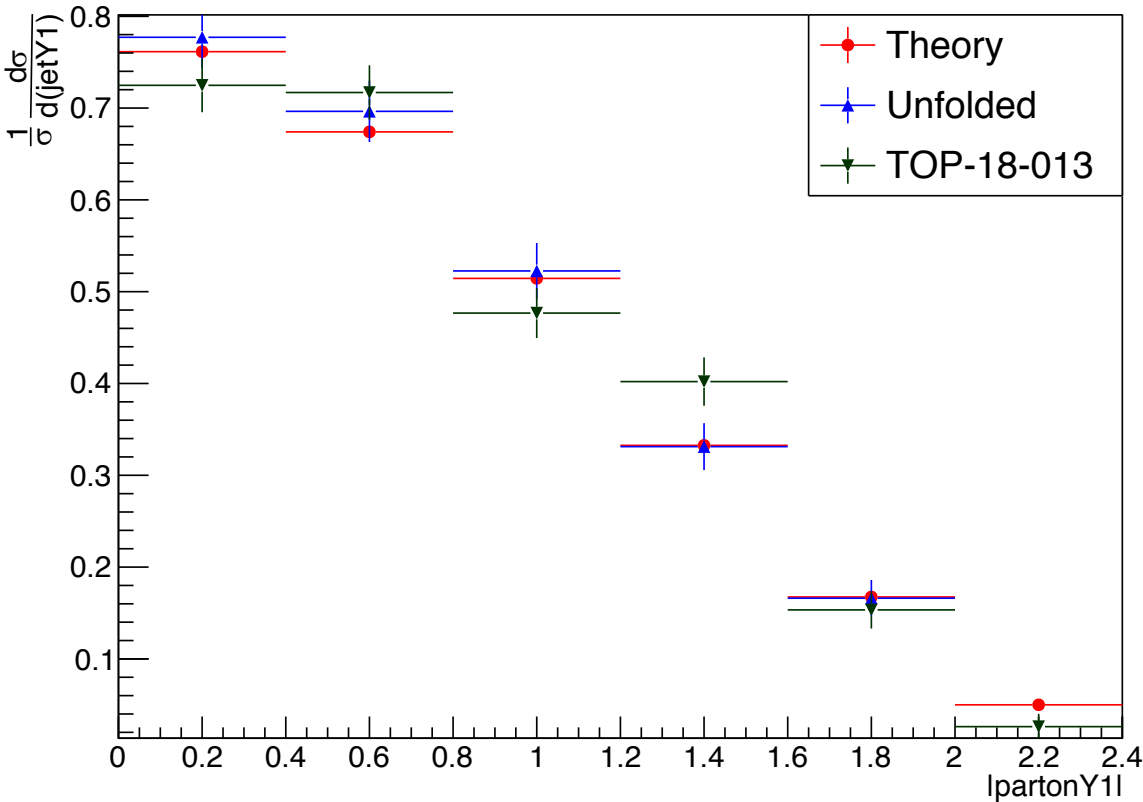


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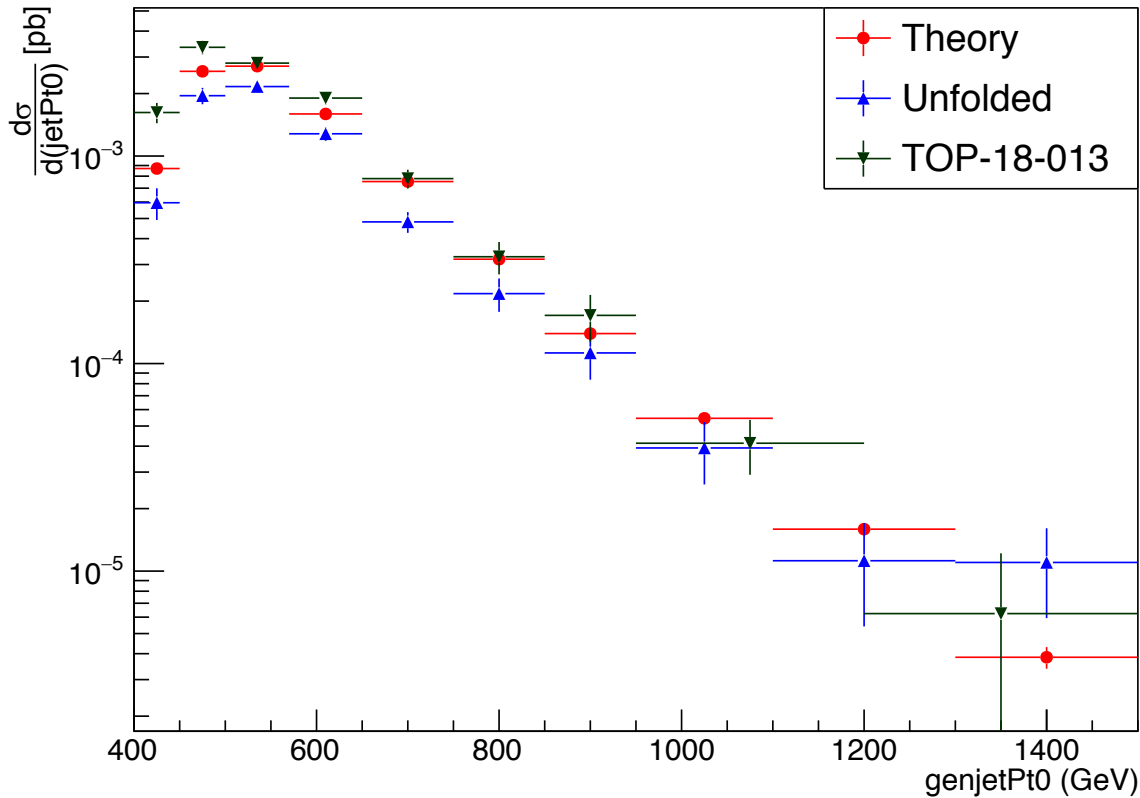


Normalised Parton Unfolded vs TOP-18-013 2016

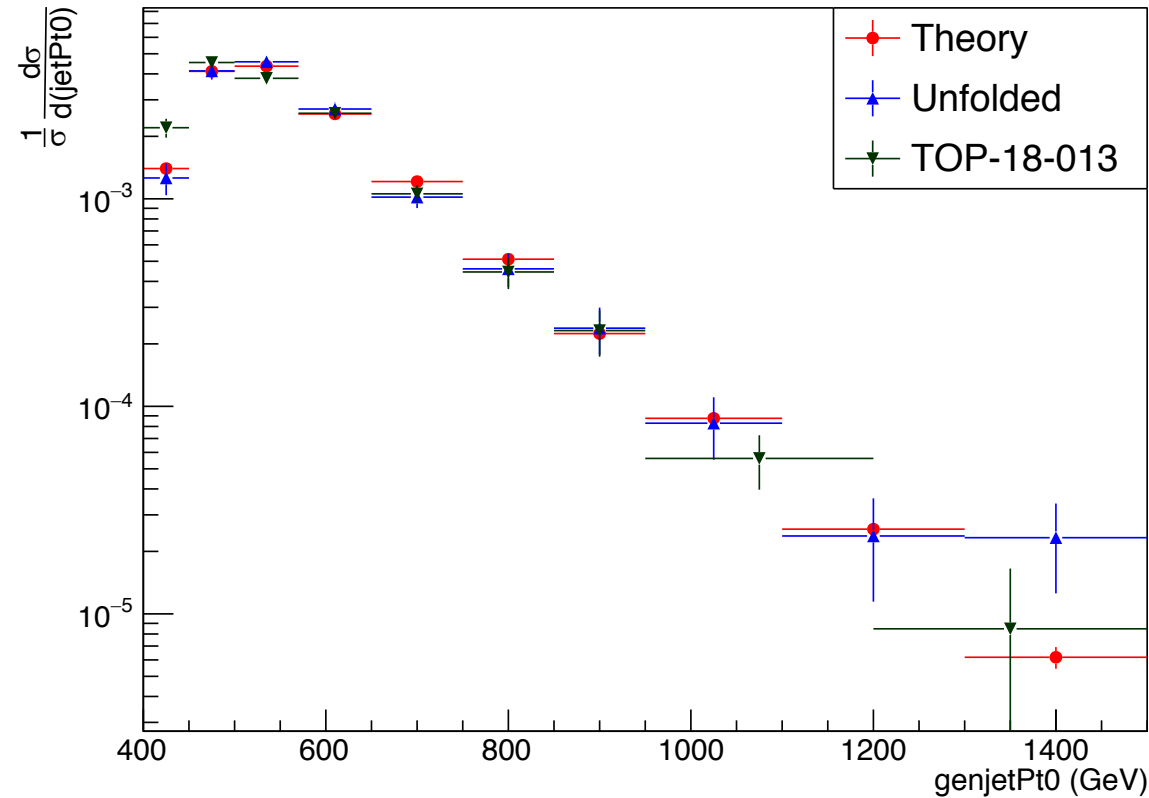


# Comparison - Differential Cross Section Measurements (Particle) 2016

Particle Unfolded vs TOP-18-013 2016



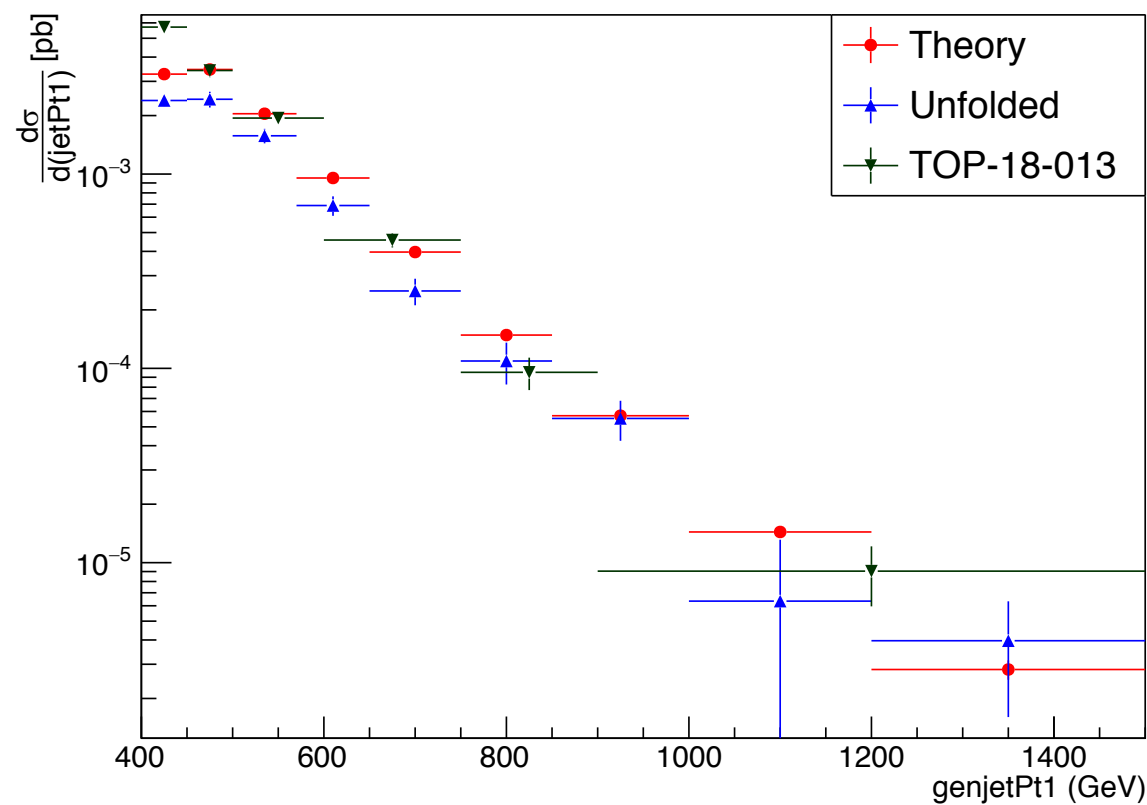
Normalised Particle Unfolded vs TOP-18-013 2016



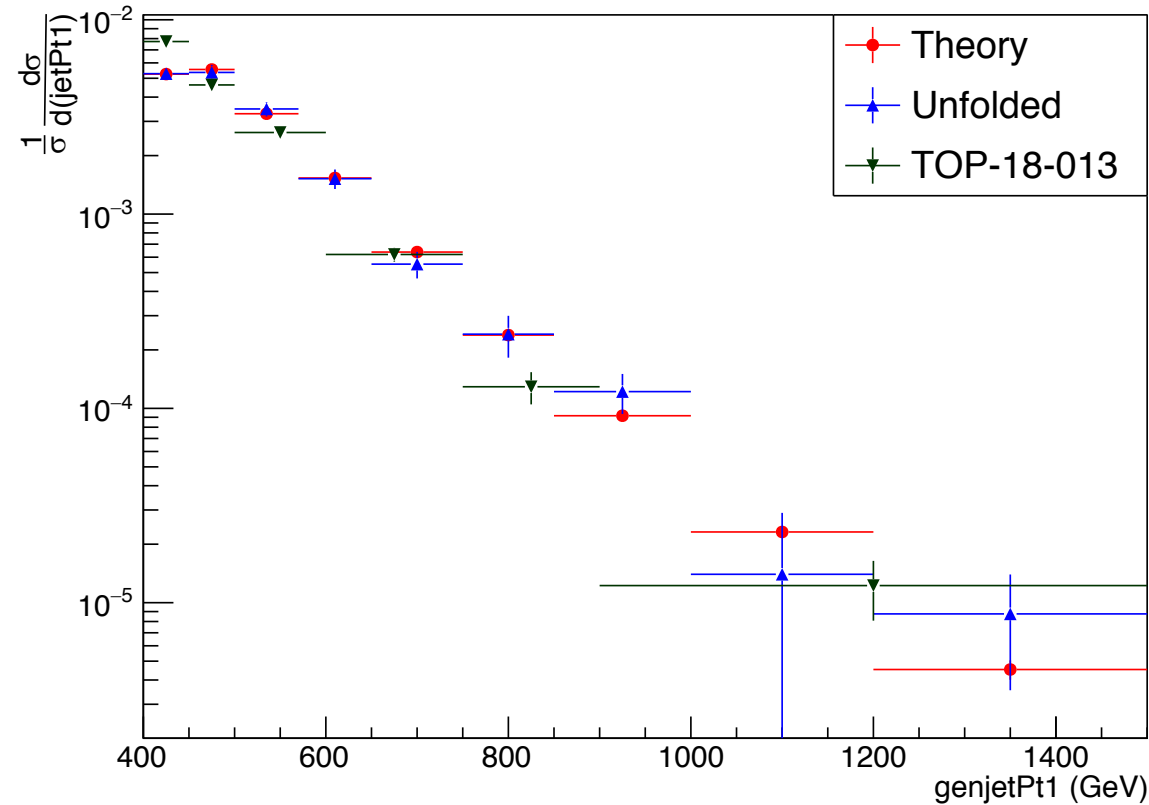


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Particle Unfolded vs TOP-18-013 2016

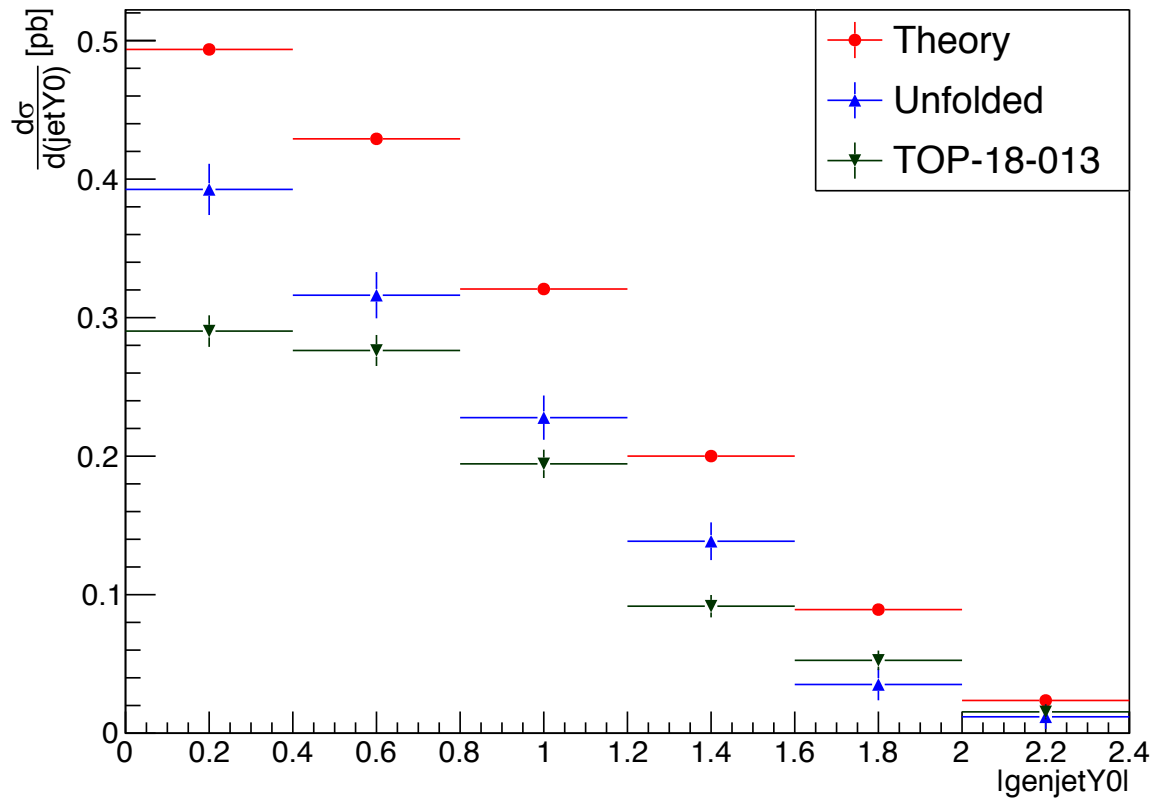


Normalised Particle Unfolded vs TOP-18-013 2016

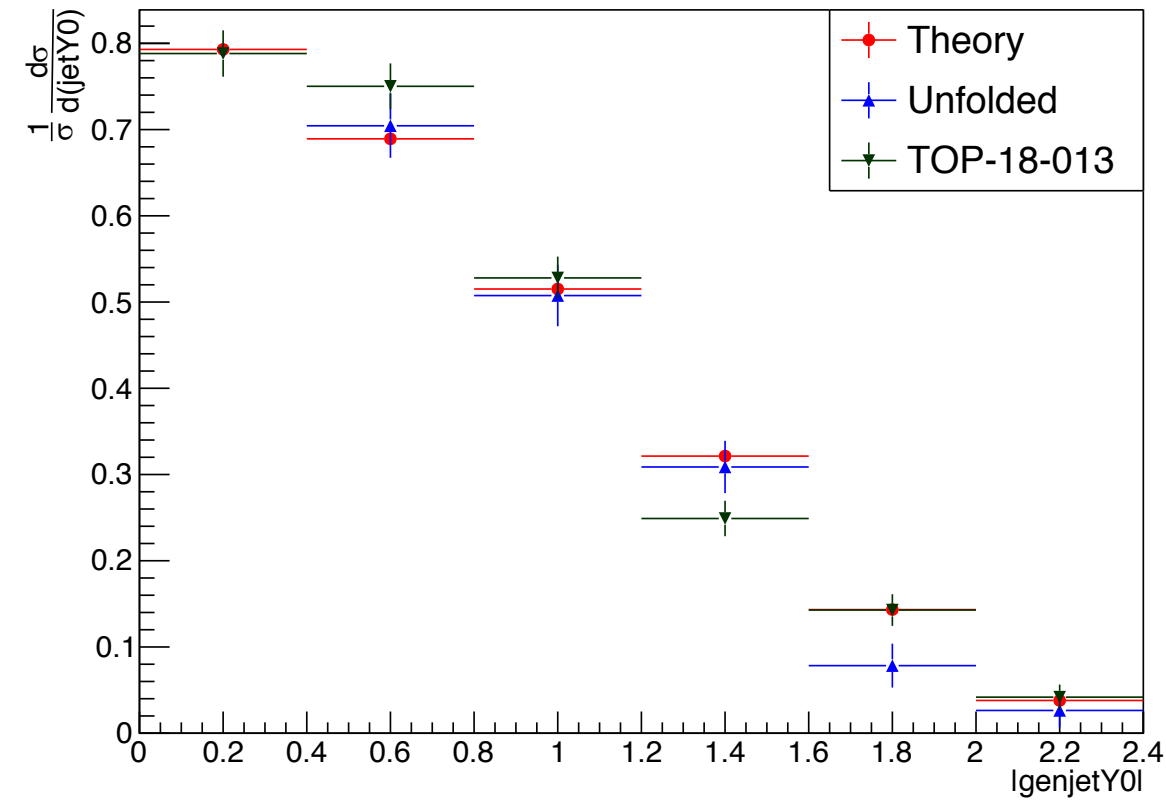


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Particle Unfolded vs TOP-18-013 2016

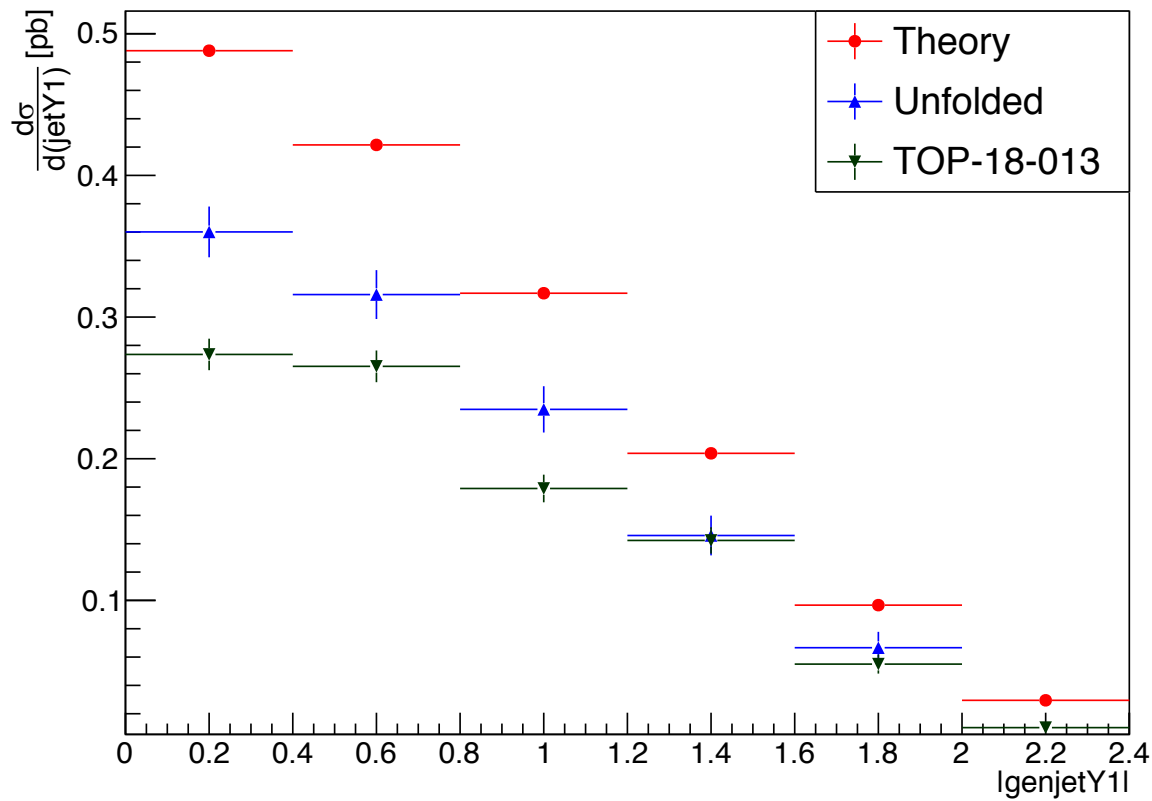


Normalised Particle Unfolded vs TOP-18-013 2016

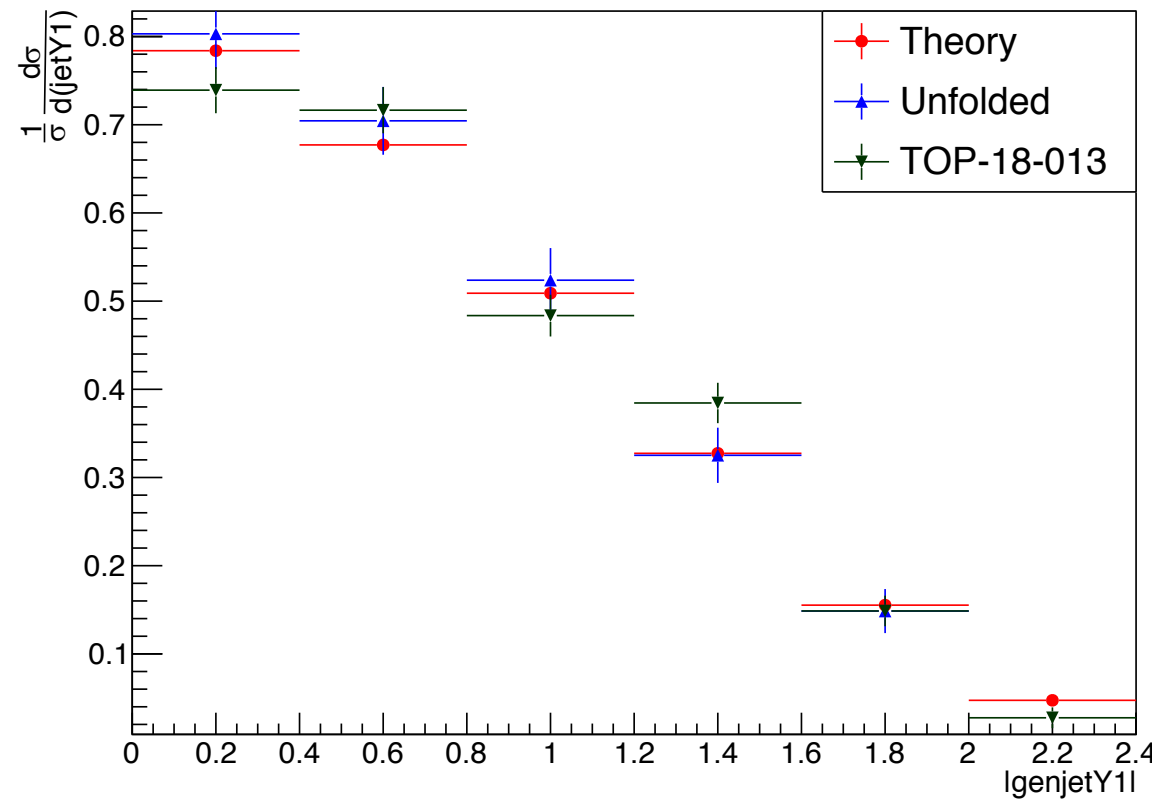


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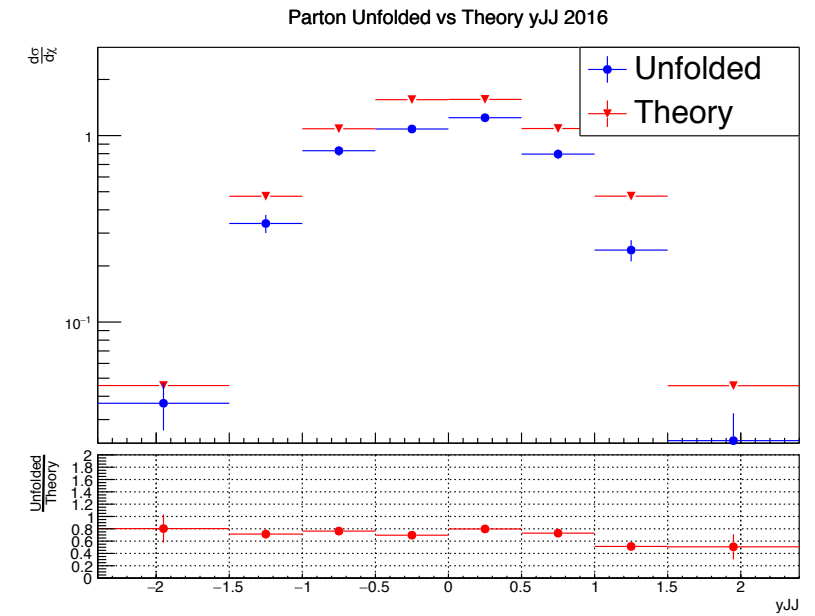
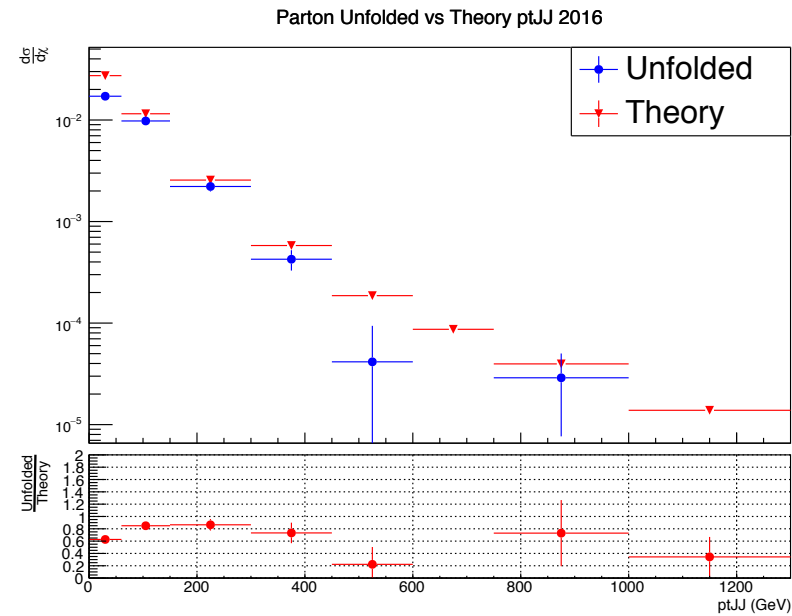
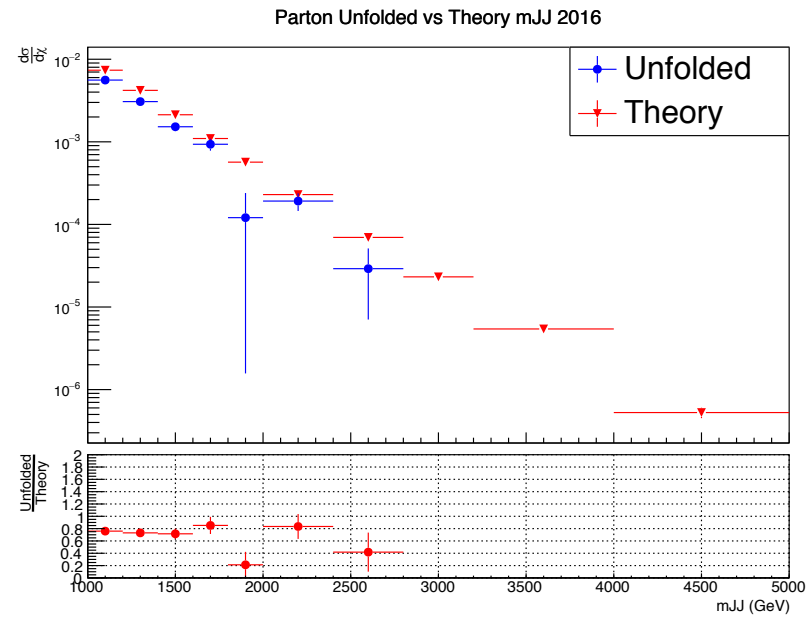
Normalised Particle Unfolded vs TOP-18-013 2016



# BACKUP

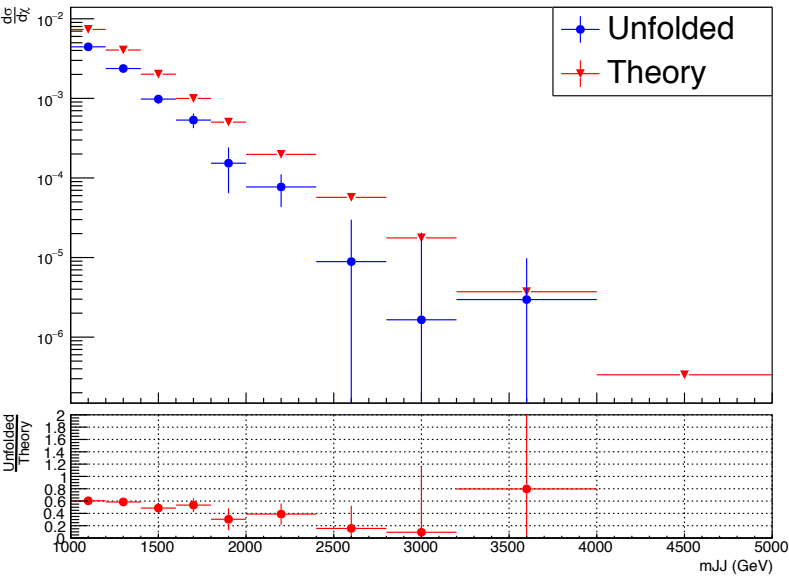


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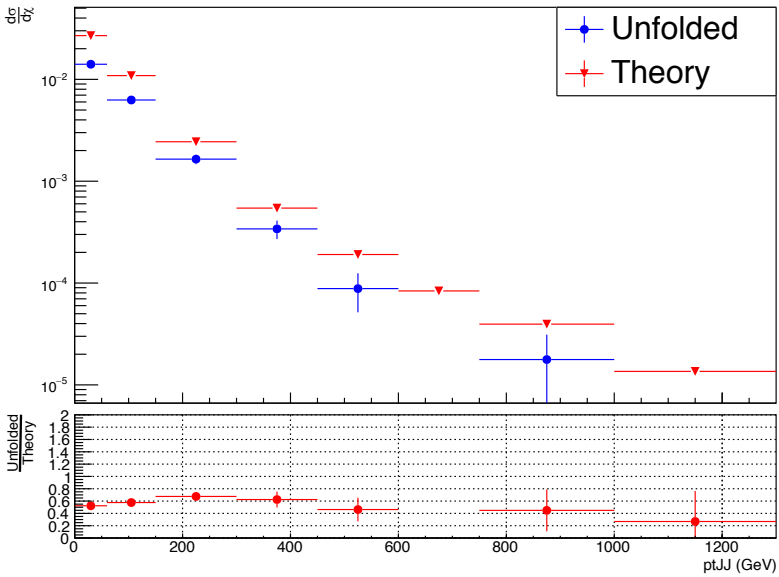


# Differential Cross Section Measurements (Parton) 2017

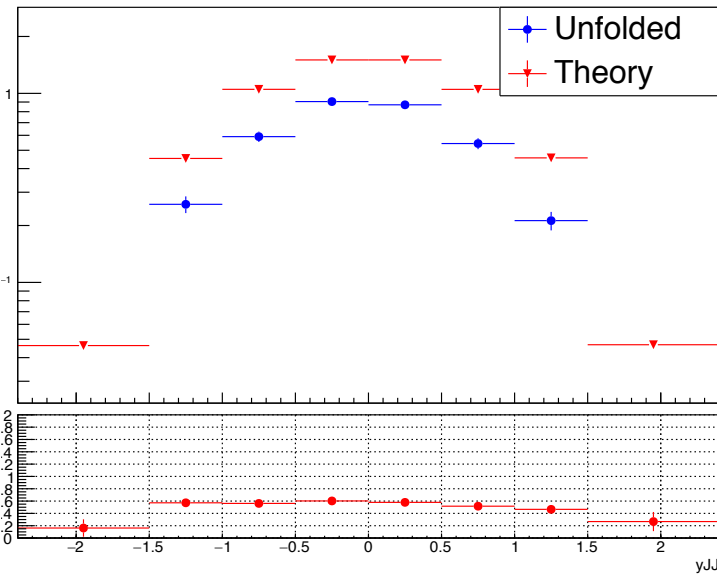
Parton Unfolded vs Theory mJJ 2017



Parton Unfolded vs Theory ptJJ 2017

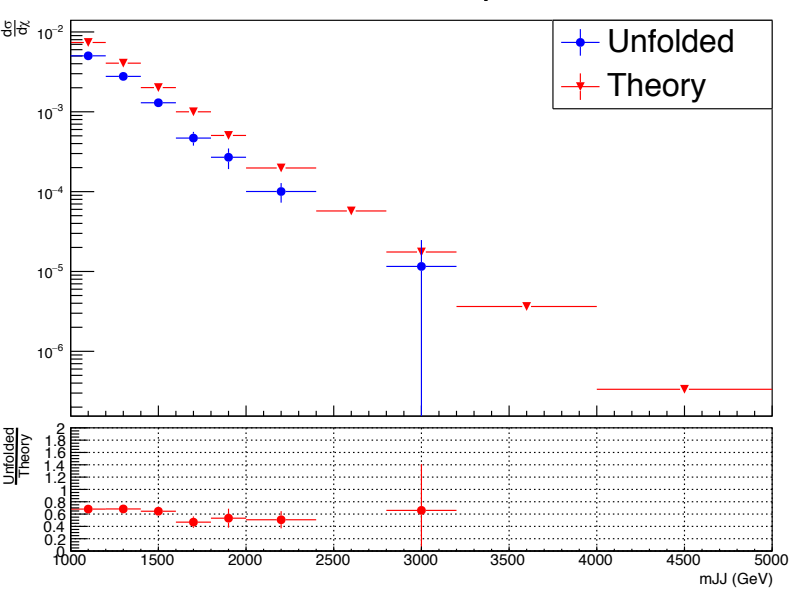


Parton Unfolded vs Theory yJJ 2017

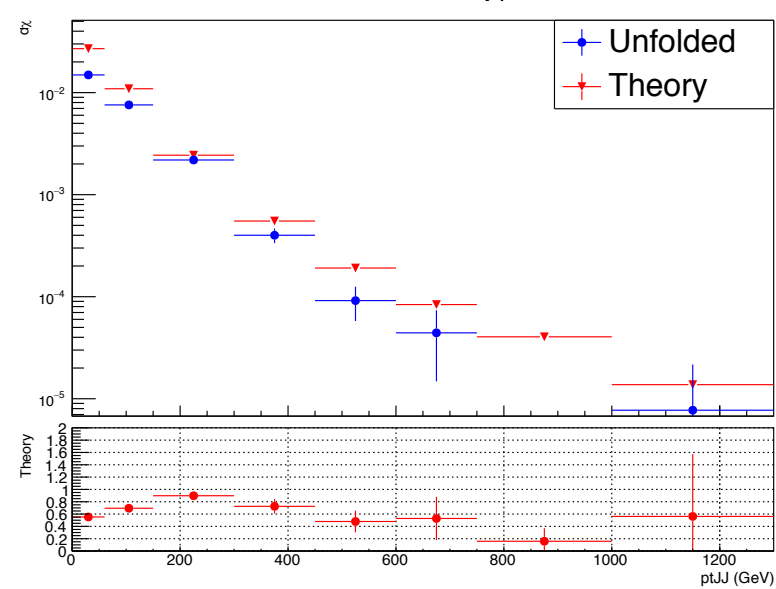


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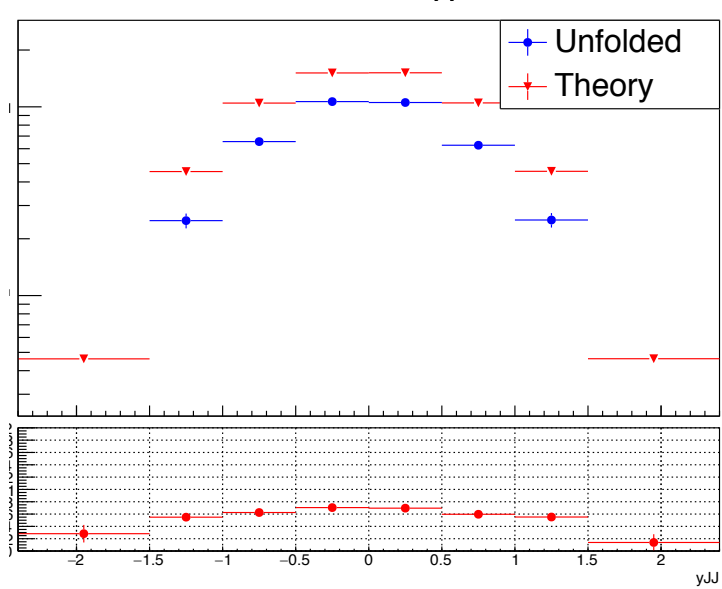
Parton Unfolded vs Theory mJJ 2018



Parton Unfolded vs Theory ptJJ 2018

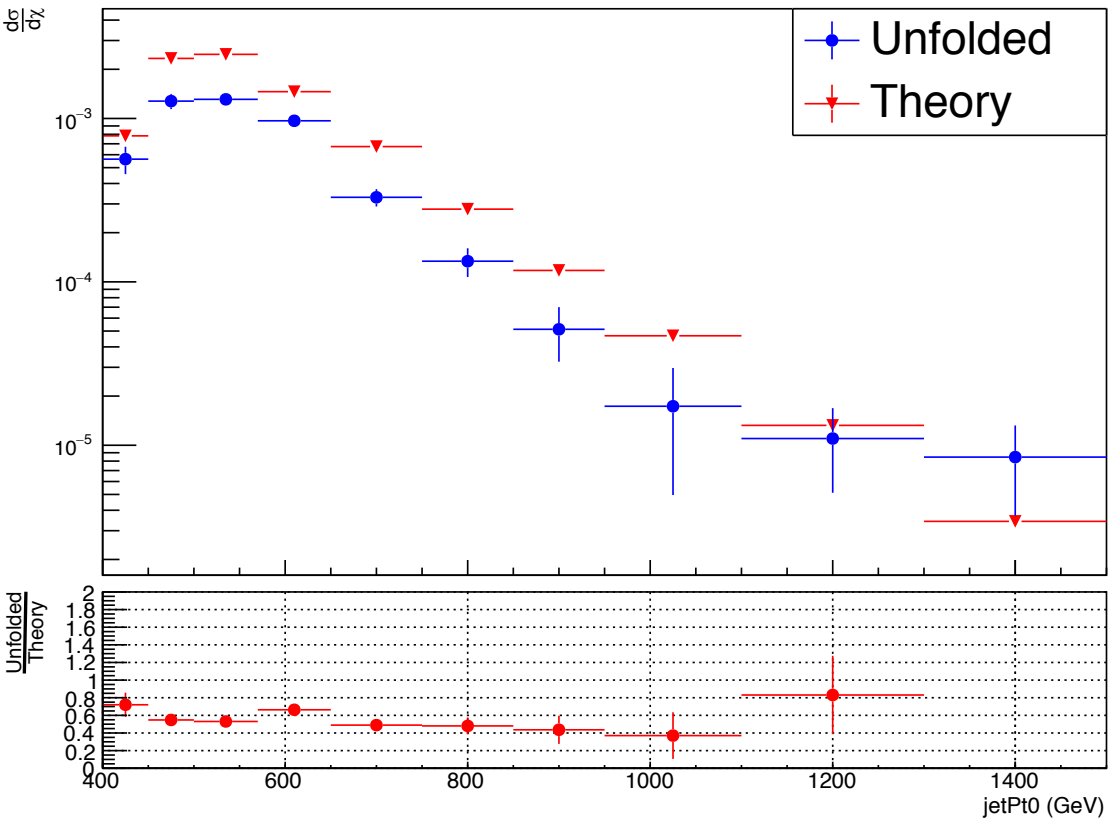


Parton Unfolded vs Theory yJJ 2018



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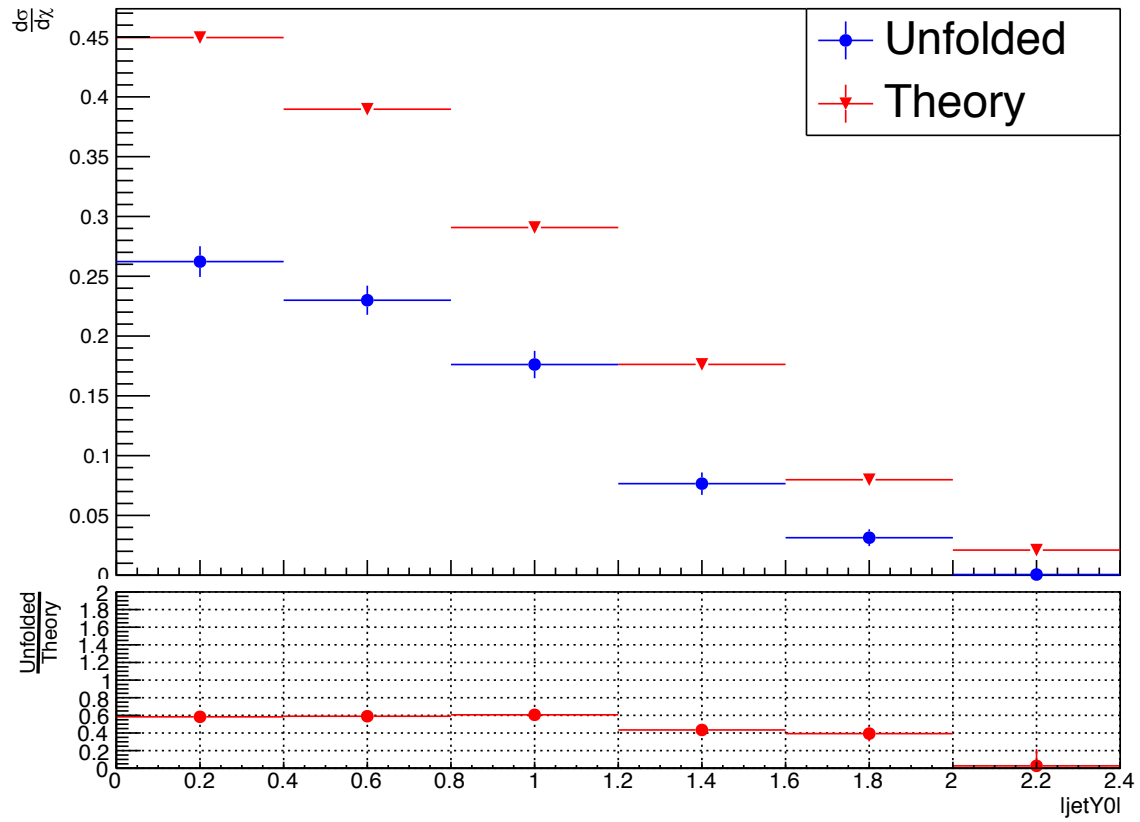
Particle Unfolded vs Theory jetPt0 2017



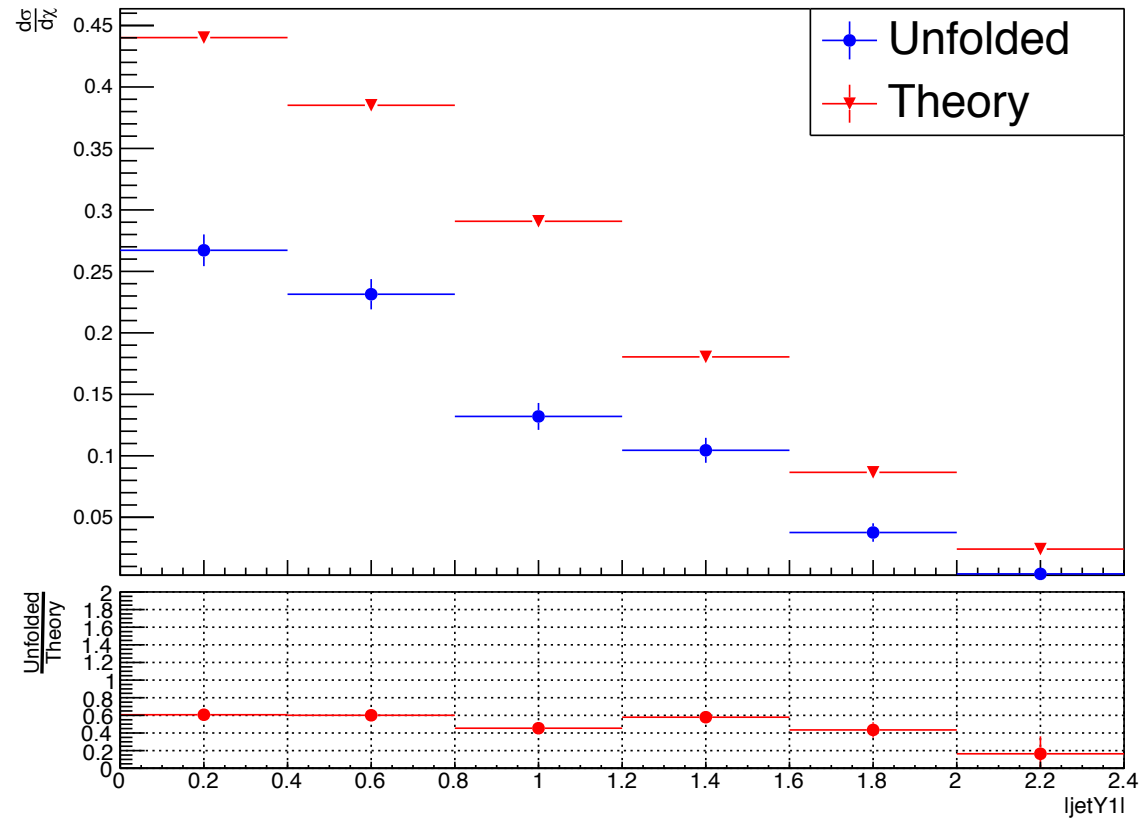


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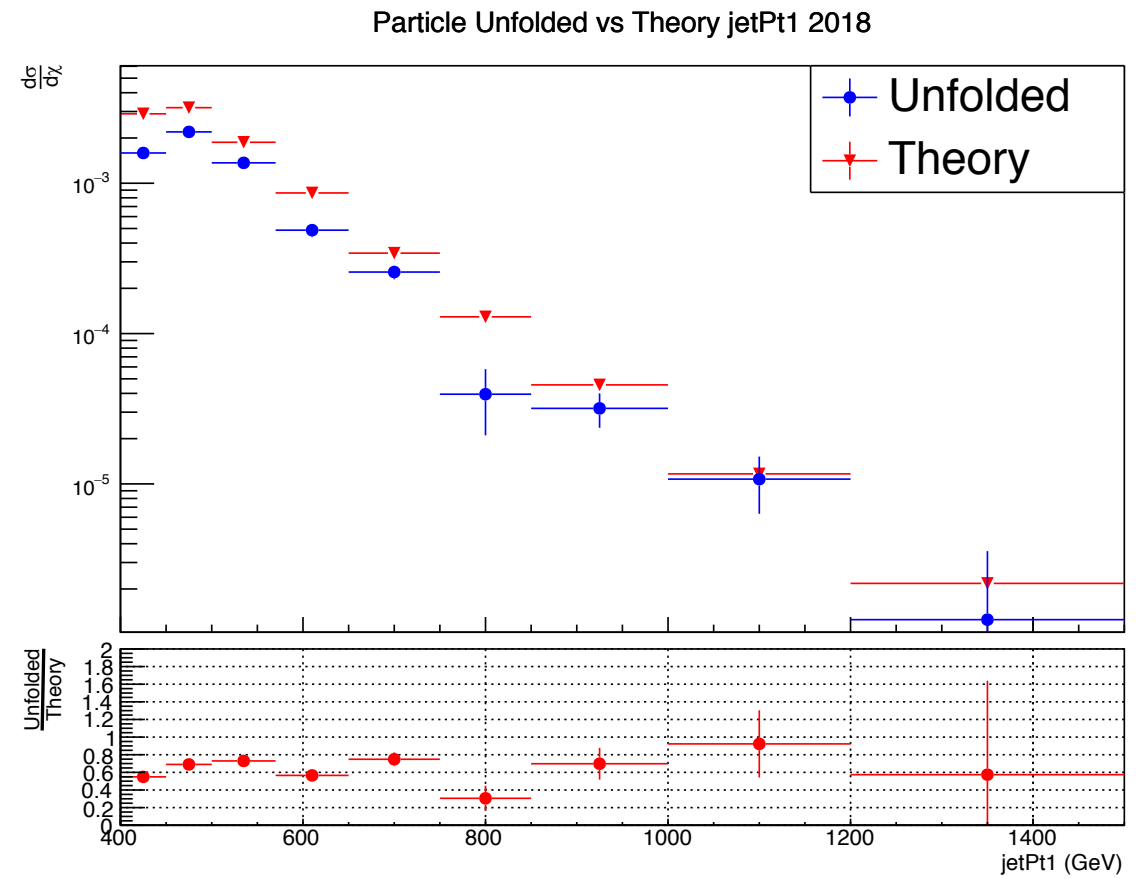
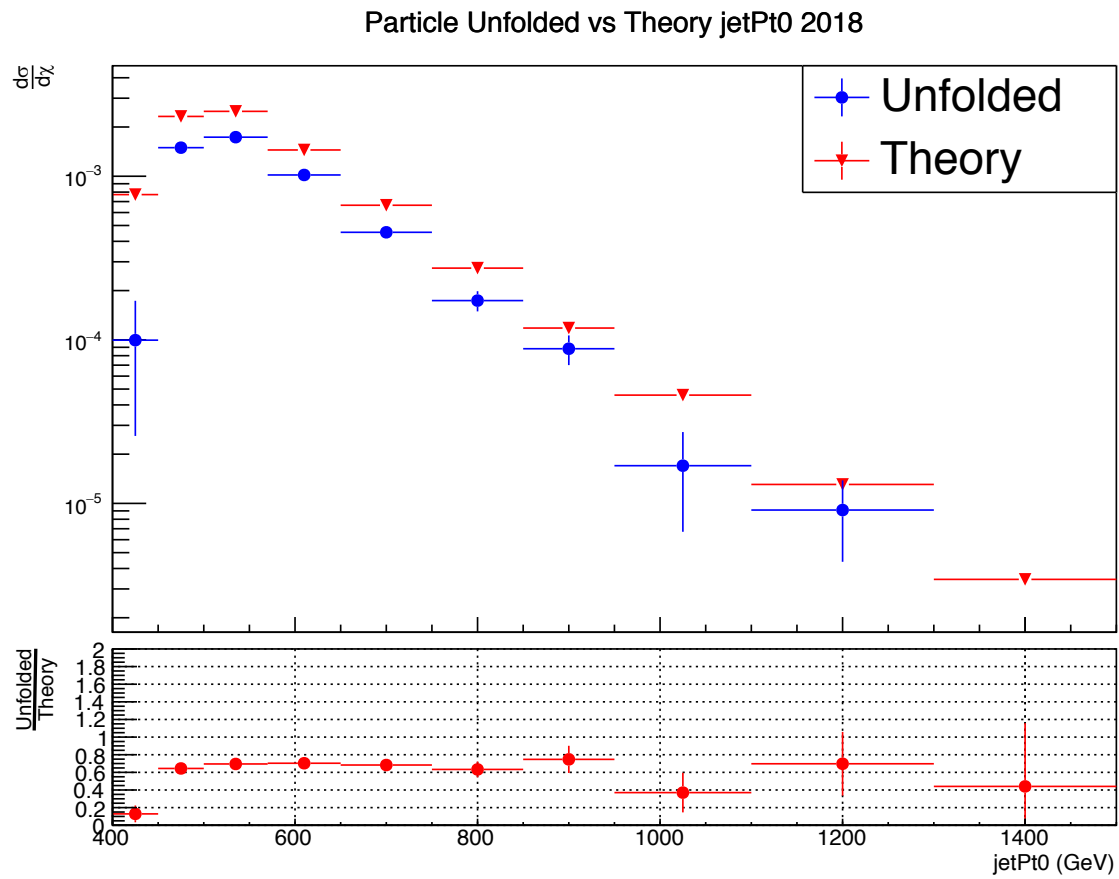
Particle Unfolded vs Theory jetY0 2017



Particle Unfolded vs Theory jetY1 2017

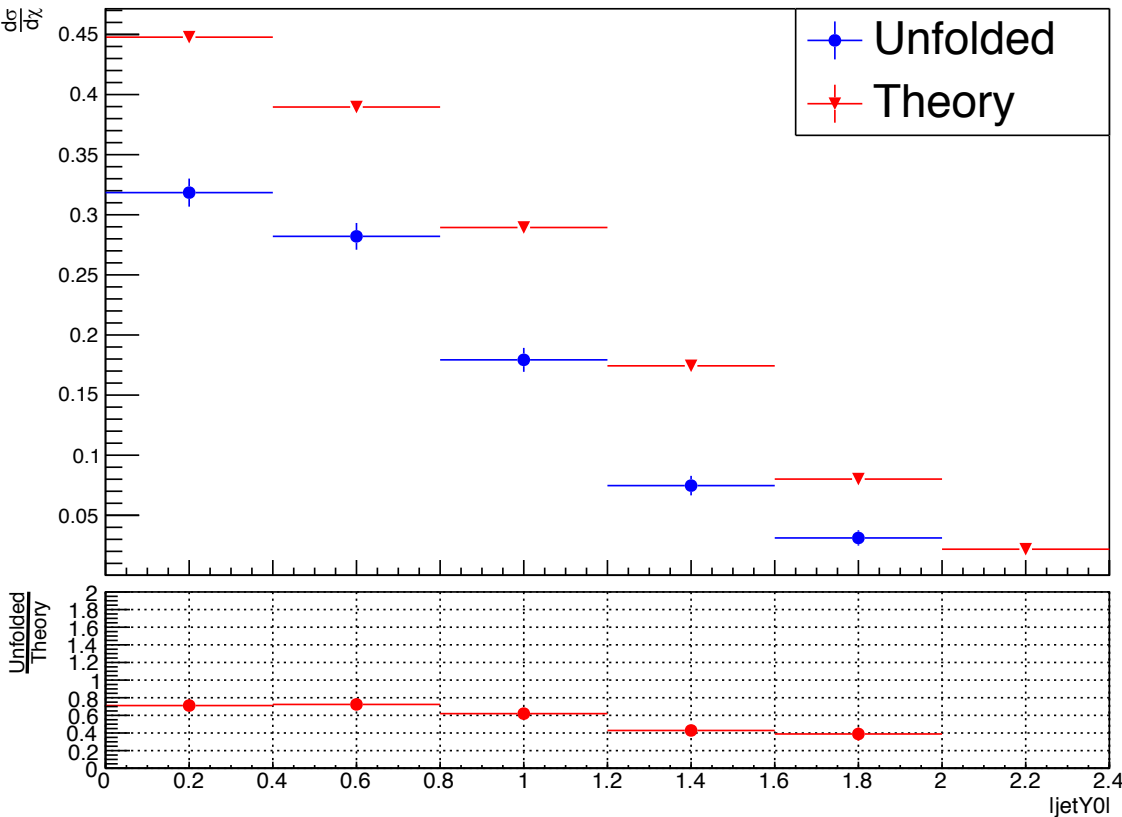


# Differential Cross Section Measurements (Particle) 2018

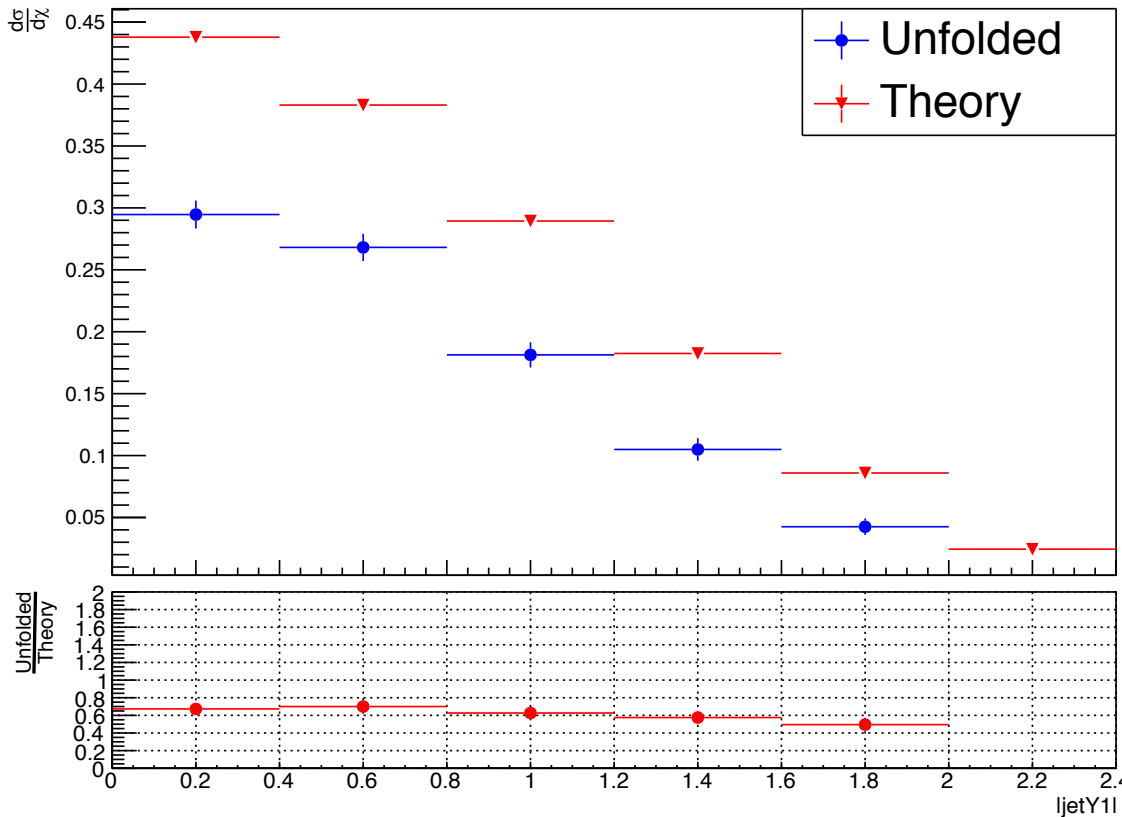


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Particle Unfolded vs Theory jetY0 2018

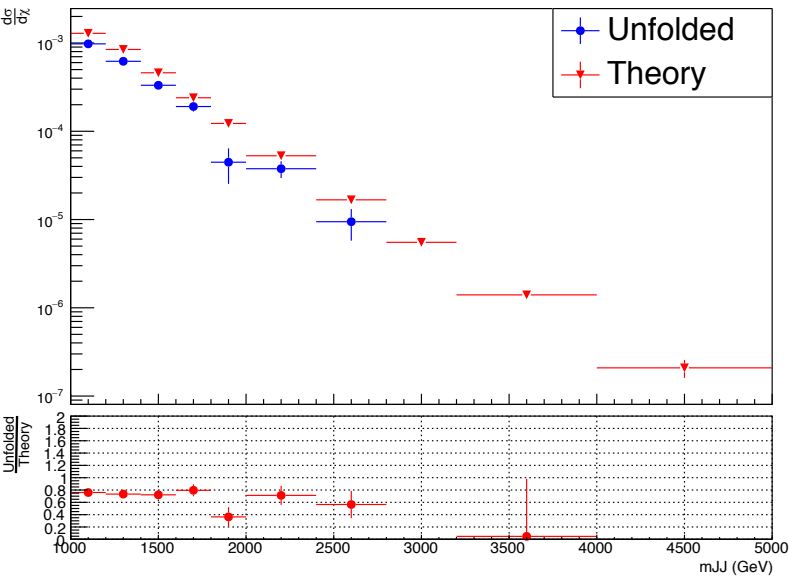


Particle Unfolded vs Theory jetY1 2018

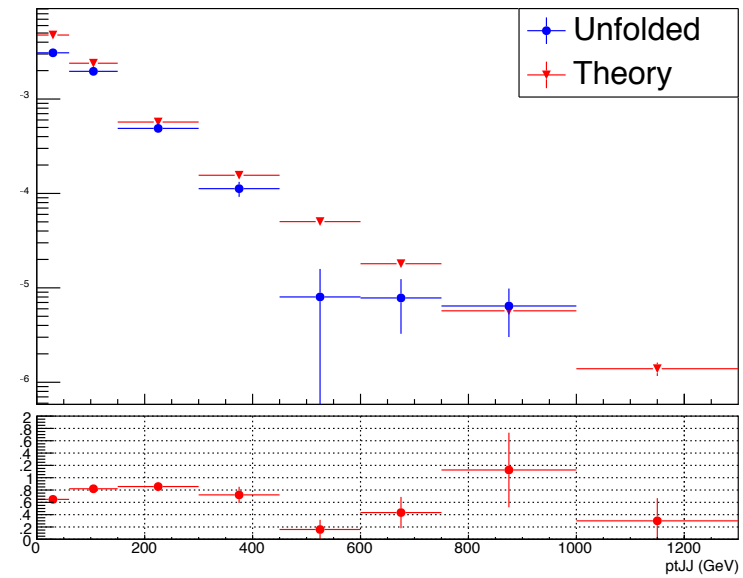


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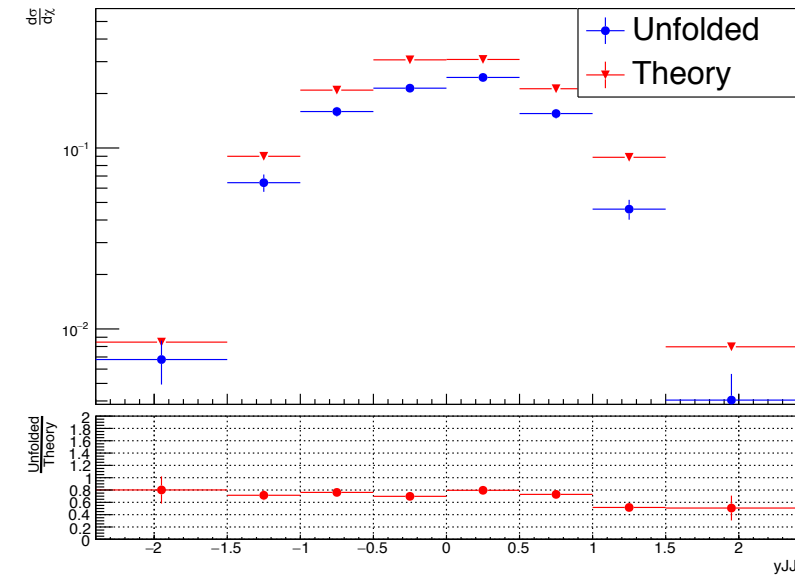
Particle Unfolded vs Theory mJJ 2016



Particle Unfolded vs Theory ptJJ 2016

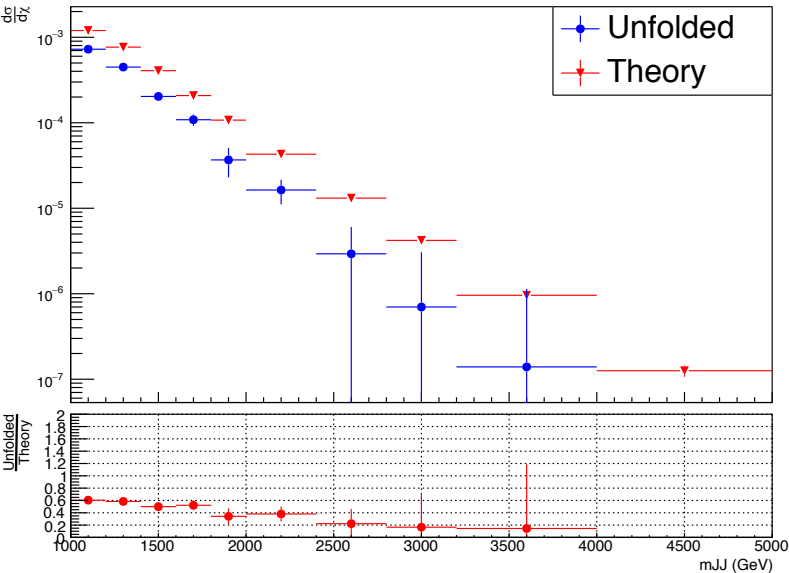


Particle Unfolded vs Theory yJJ 2016

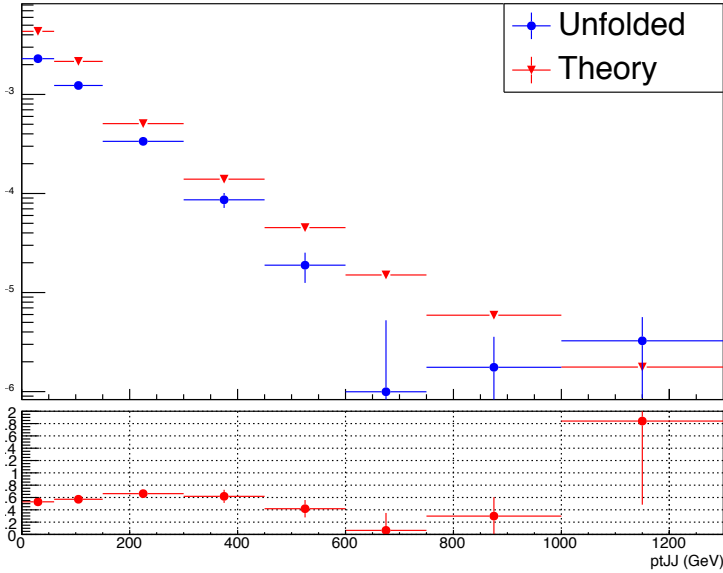


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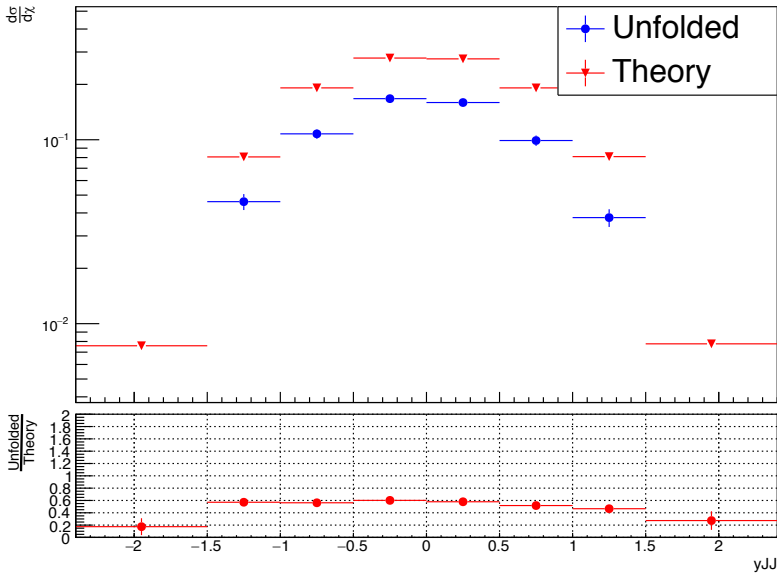
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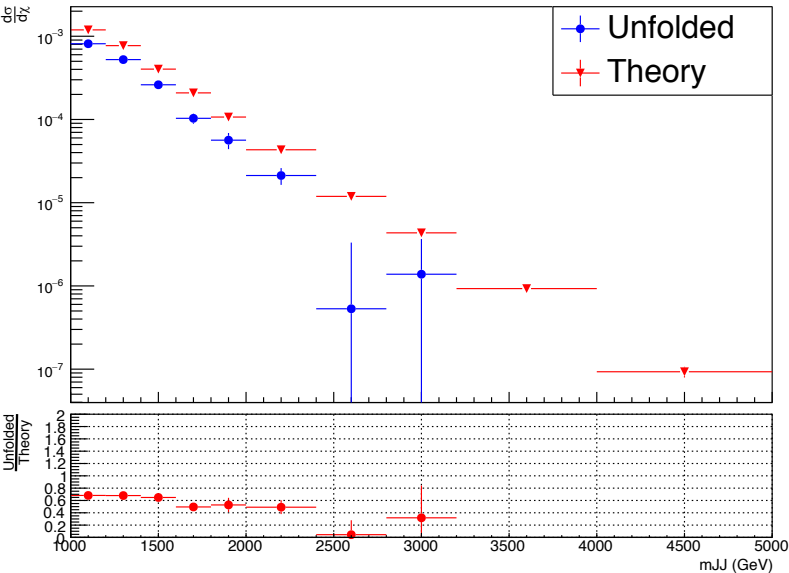


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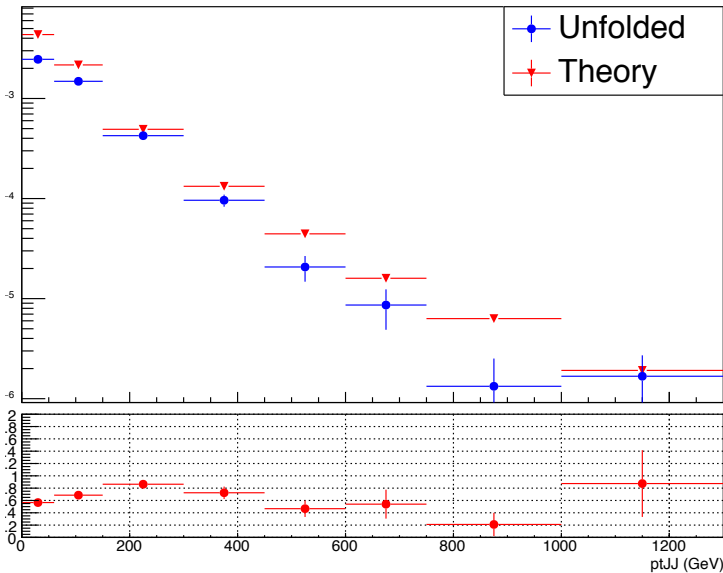


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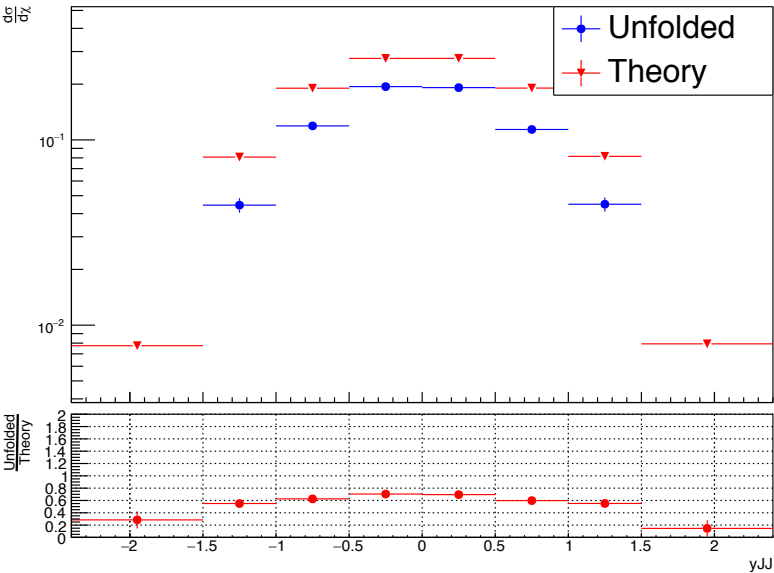
Particle Unfolded vs Theory mJJ 2018



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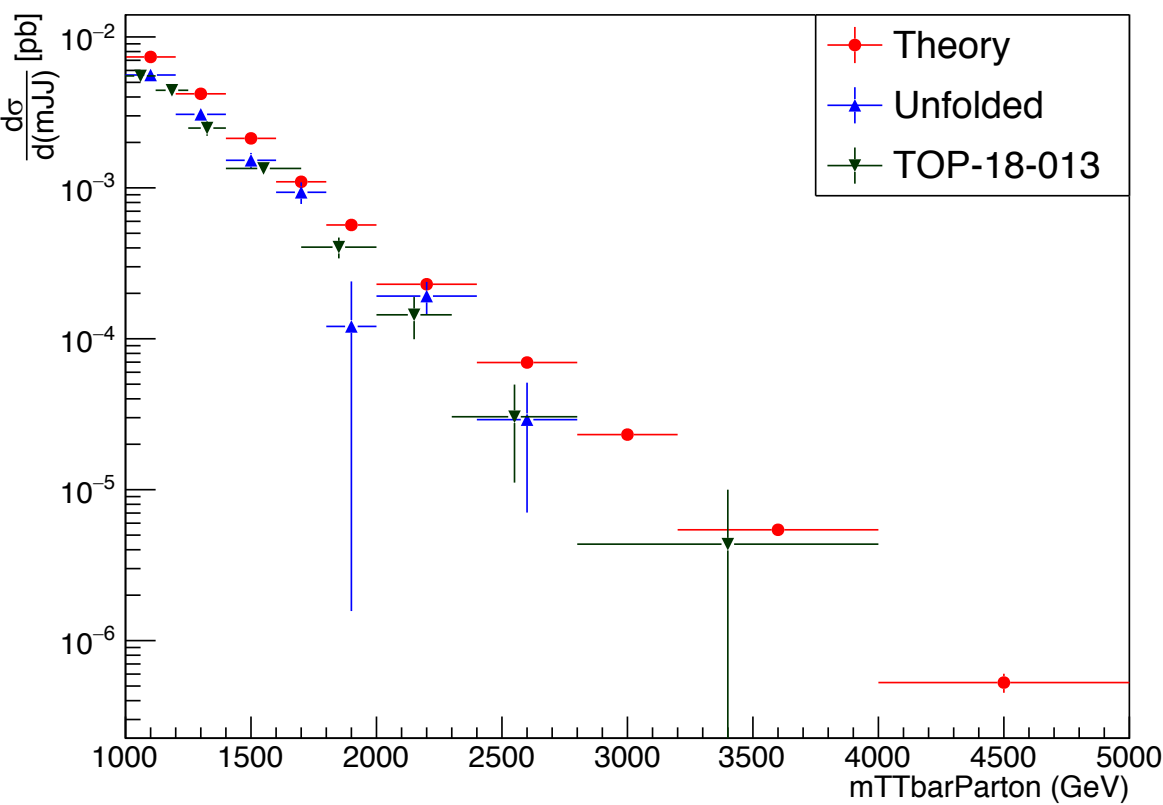


Particle Unfolded vs Theory yJJ 2018

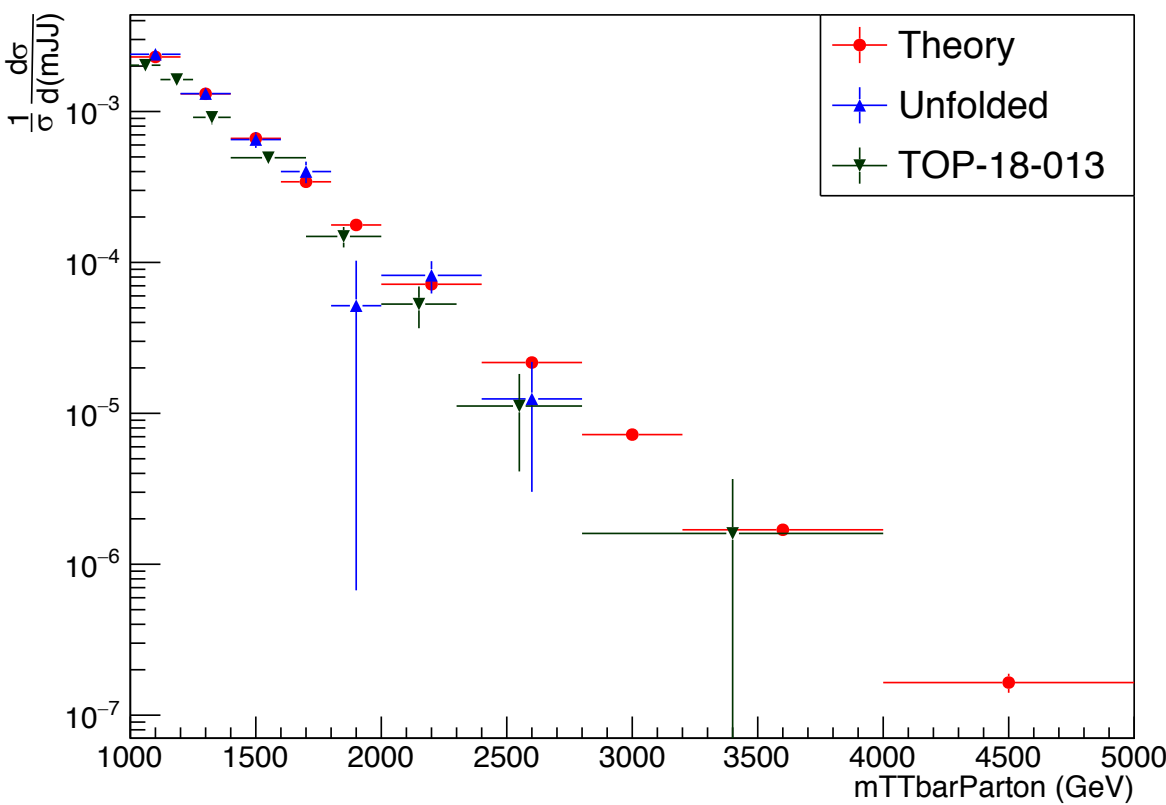


# Comparison - Differential Cross Section Measurements (Parton) 2016

Parton Unfolded vs TOP-18-013 2016

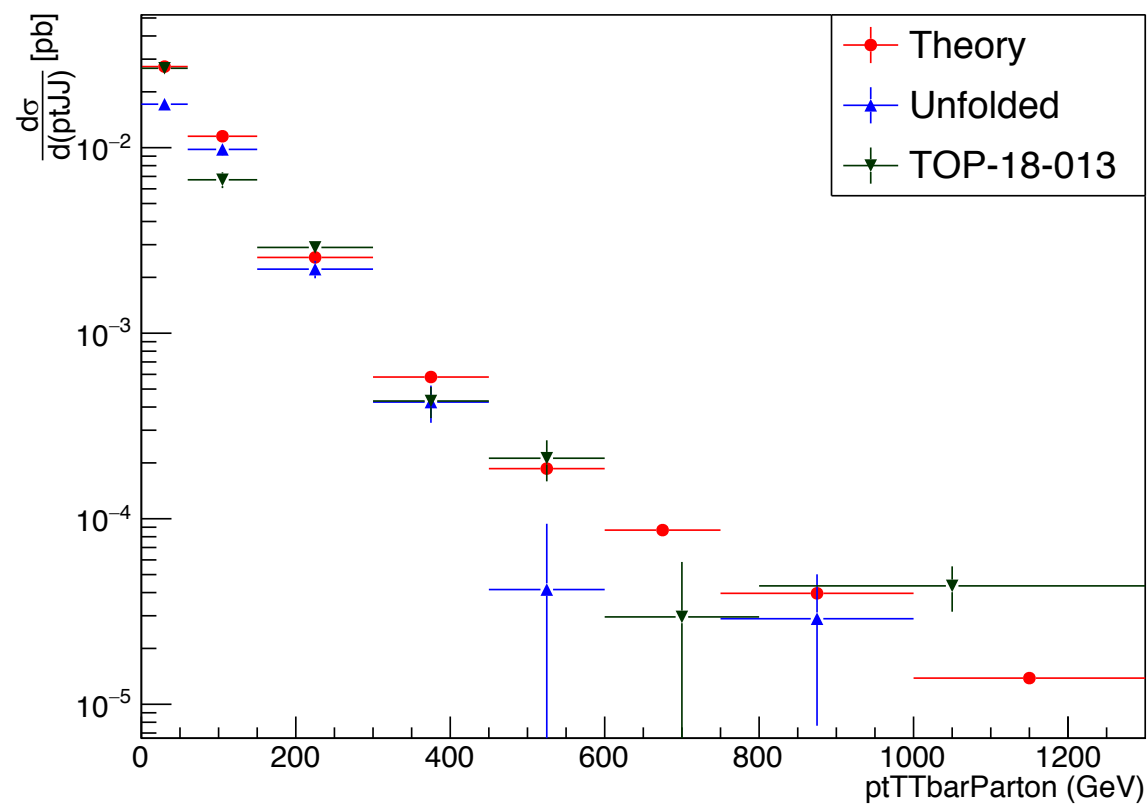


Normalised Parton Unfolded vs TOP-18-013 2016

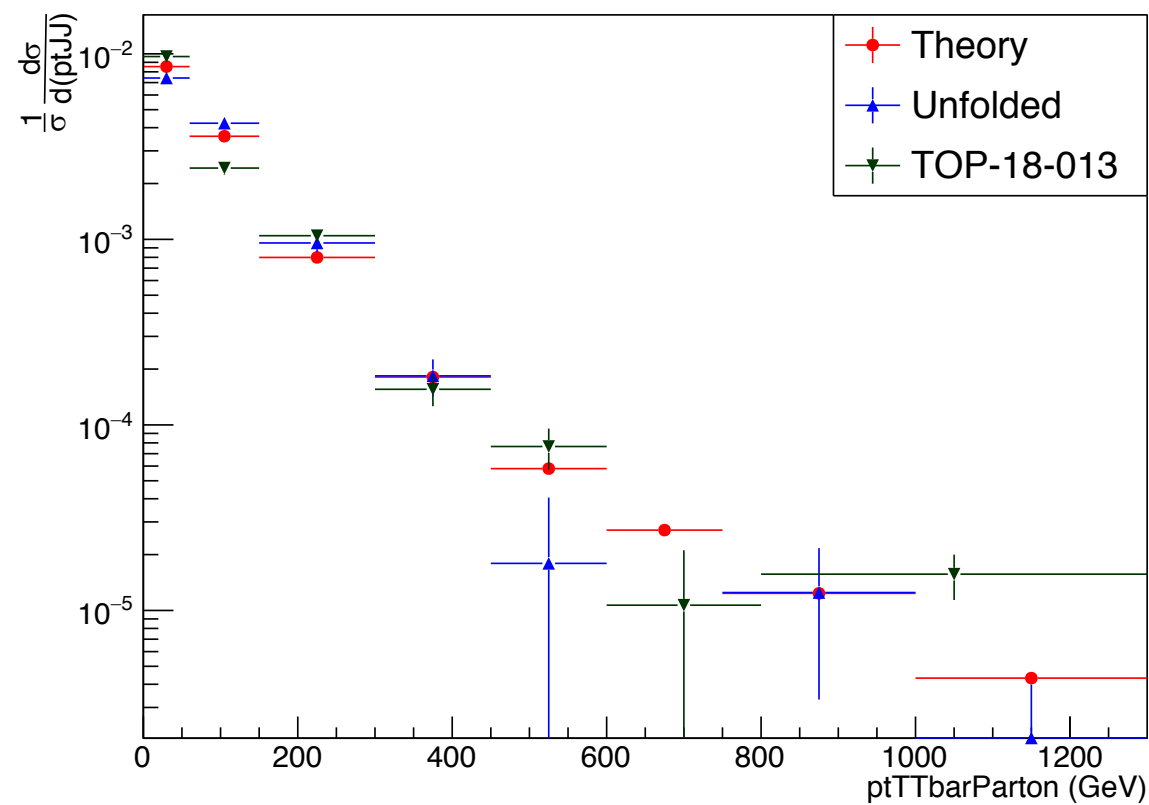


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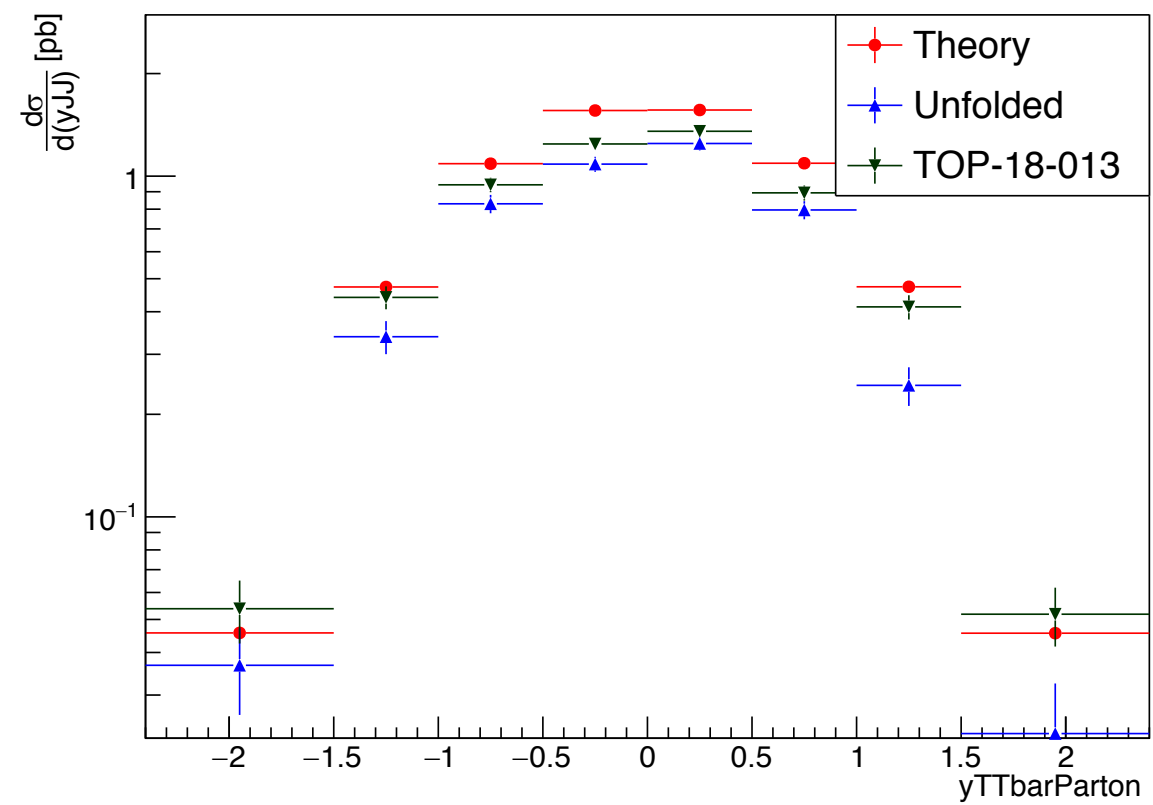
Normalised Parton Unfolded vs TOP-18-013 2016



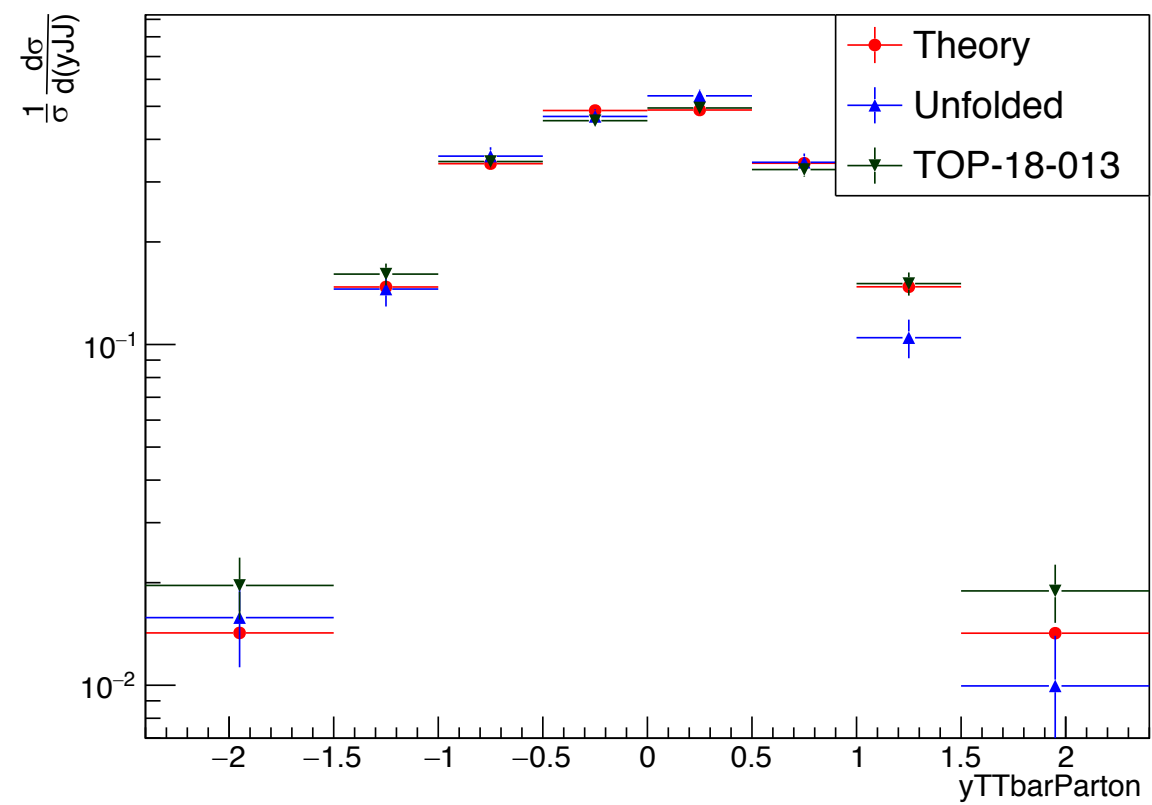


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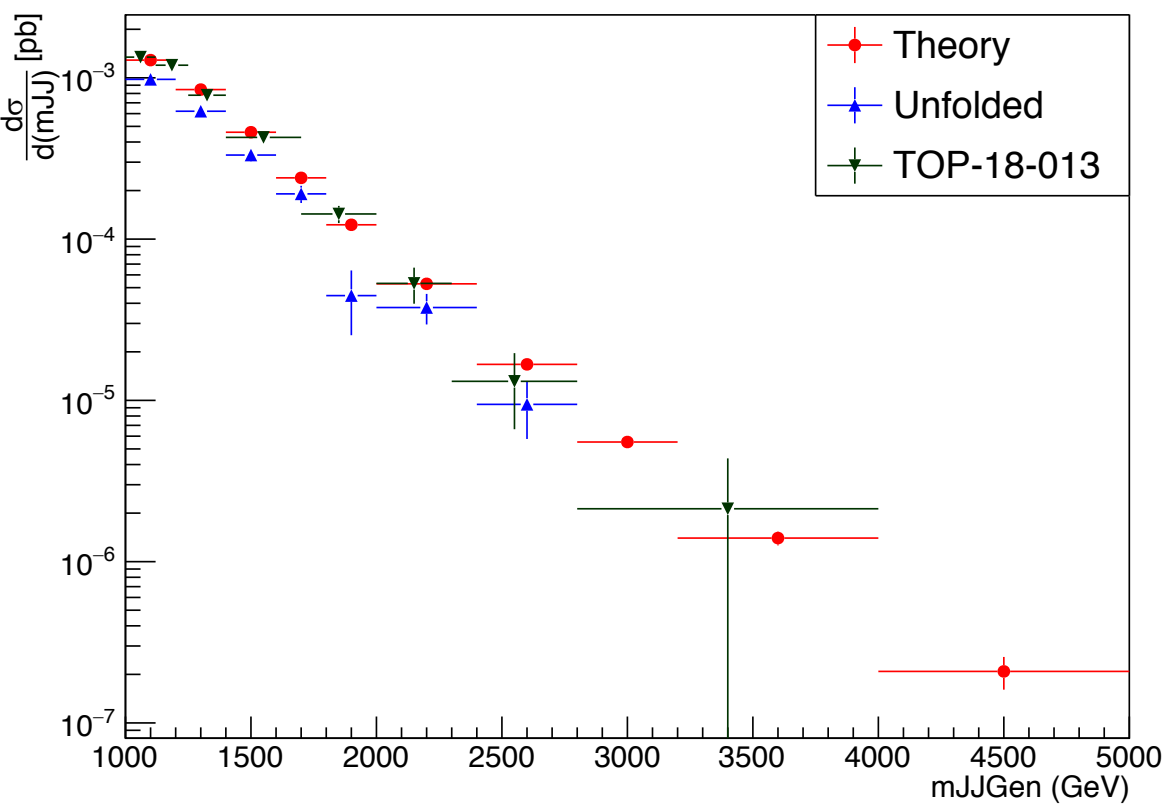


Normalised Parton Unfolded vs TOP-18-013 2016

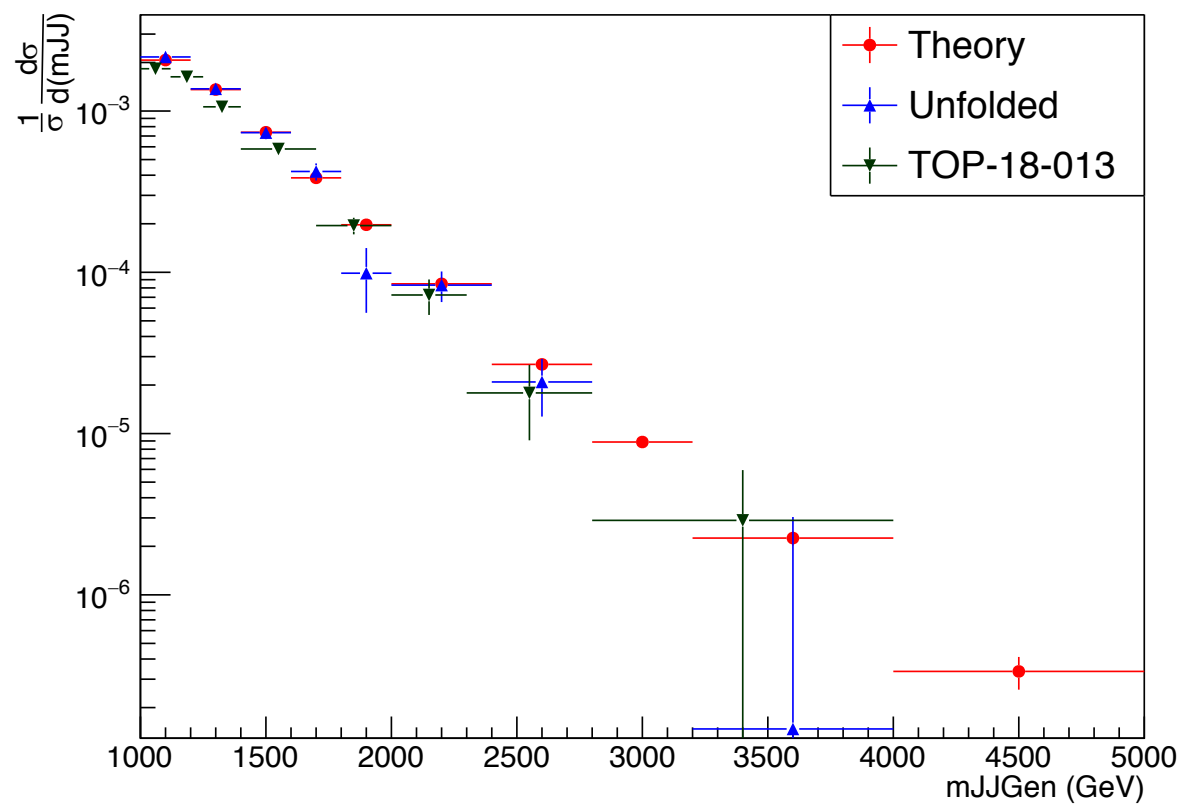


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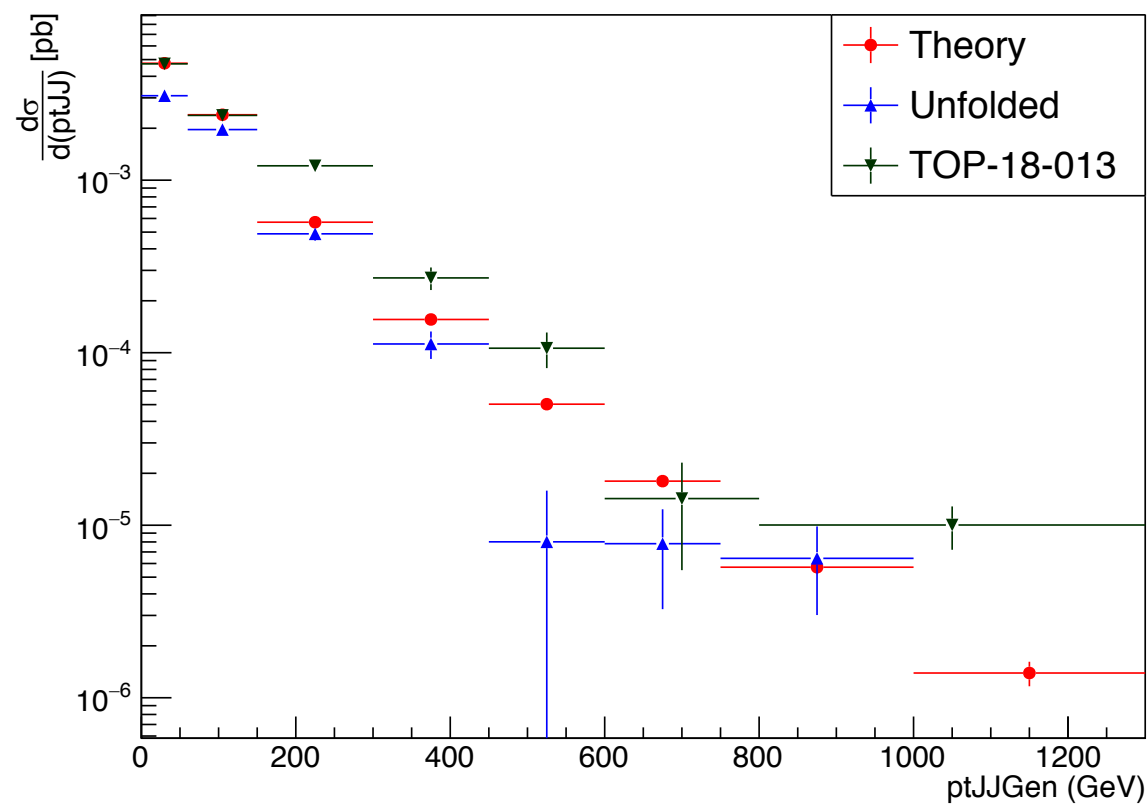


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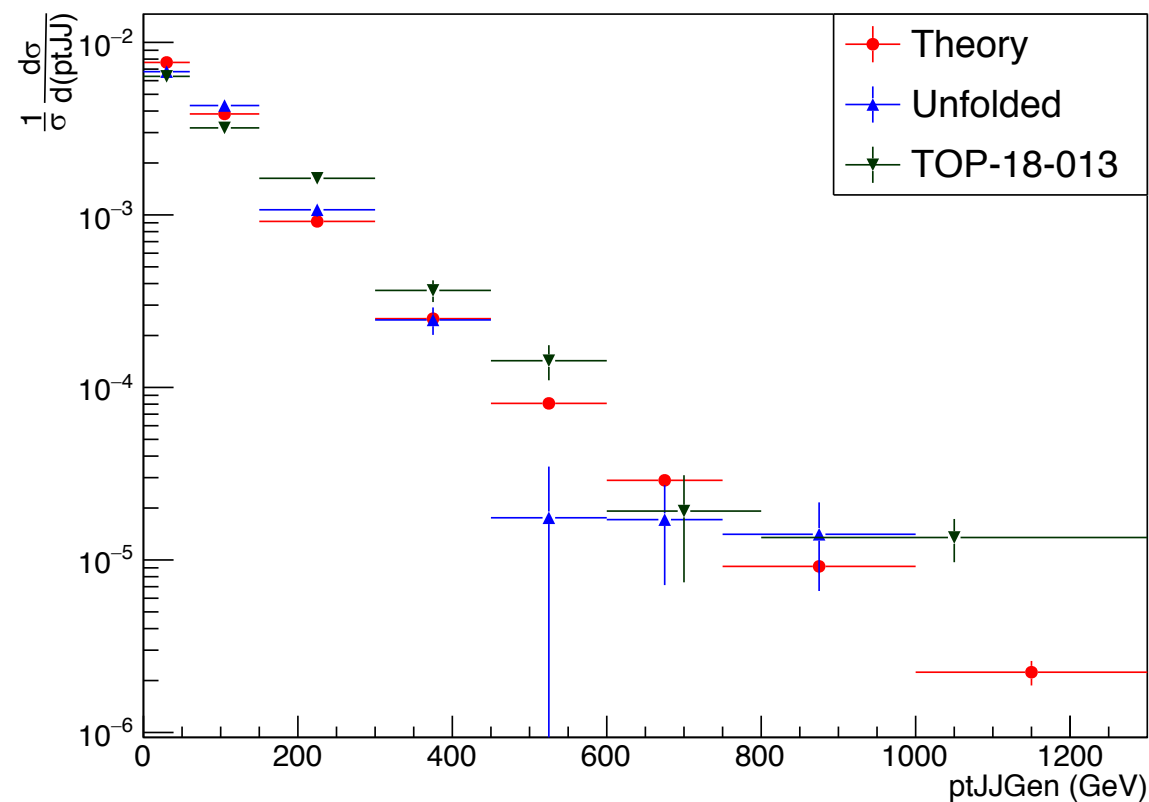


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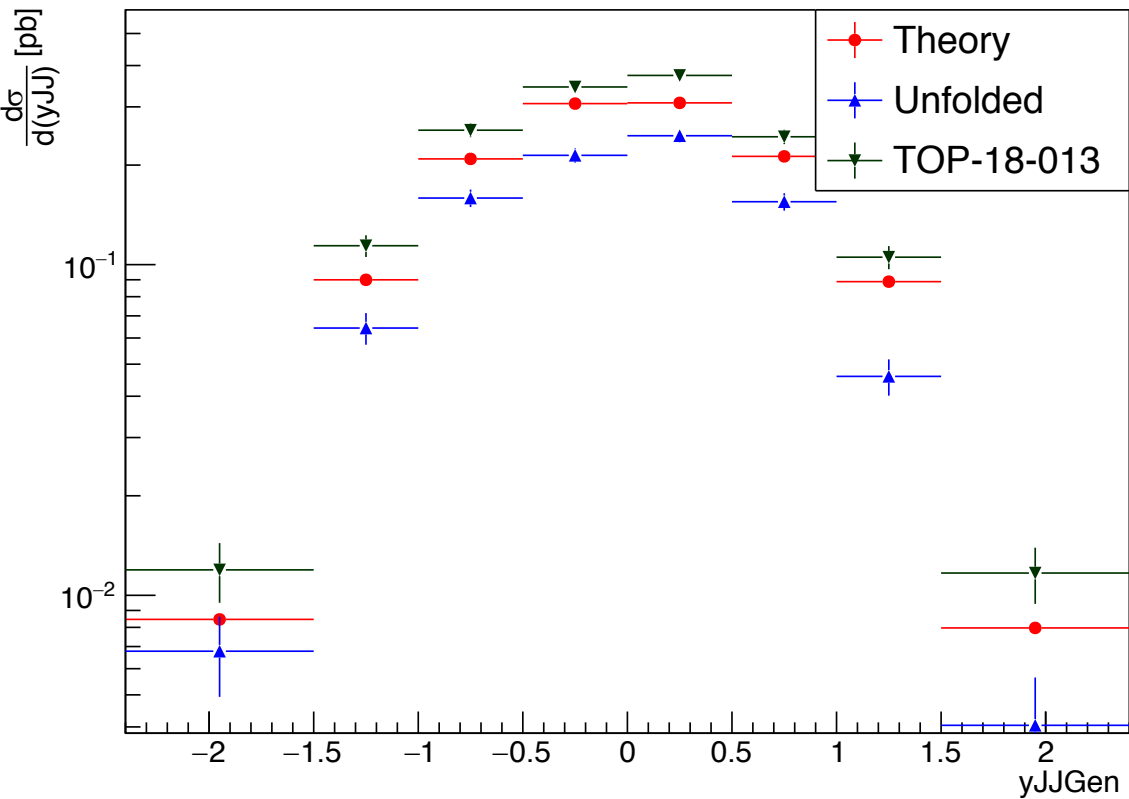


Normalised Particle Unfolded vs TOP-18-013 2016



# Comparison - Differential Cross Section Measurements (Particle) 2016

Particle Unfolded vs TOP-18-013 2016



Normalised Particle Unfolded vs TOP-18-013 2016

