MILOU + PARTONS (GK)
Pseudo-data QA

10 M events for each channel, ~10fb-1 for DVCS

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Production plan (Sal)

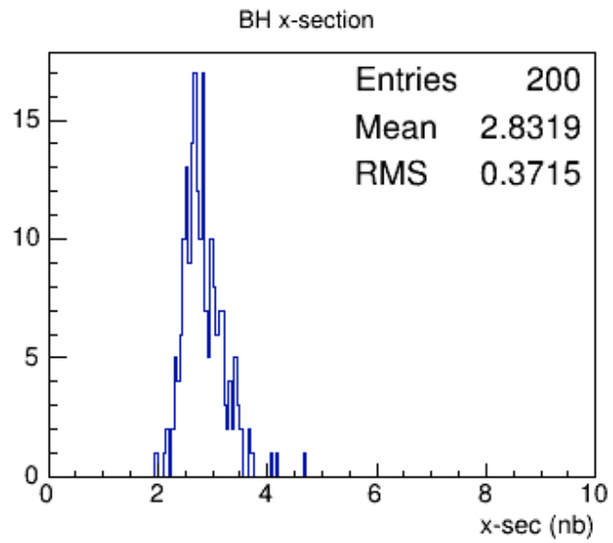
*) simulate DVCS+BH+INT, 10fb-1, for 5x100 and 18x275 GeV. This will be our signal+Bkd. sample
  *) 10^-4 < x < 0.5
  *) 0.8 < Q2 < 300 GeV2
  *) 0.01 < |t| < 1.6 GeV2
*) simulate BH alone in the same kinematic range. This will be our bgd. sample
*) Use EIC smeared ("handbook detector") to reconstruct variables

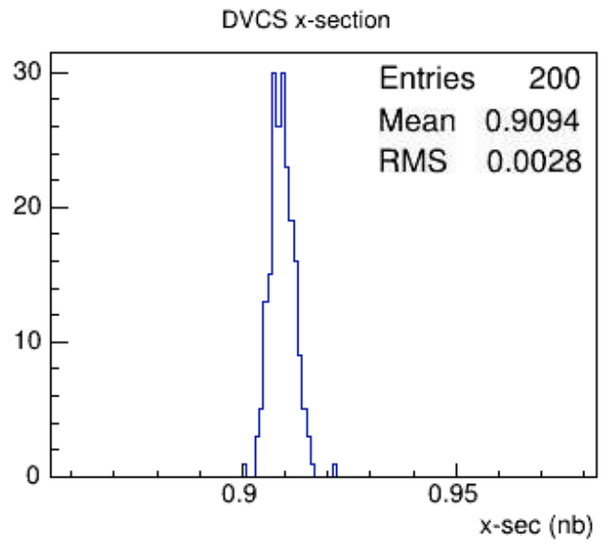
*) Apply a full DVCS analysis cuts including BH suppression
*) Subtract the remaining BH background using the simulated BH sample after all cuts
This will generate a set of reliable **mock data**. As the study goes, we will further
1) vary the |t| range
2) Simulate 100 fb-1
3) Use the KM model

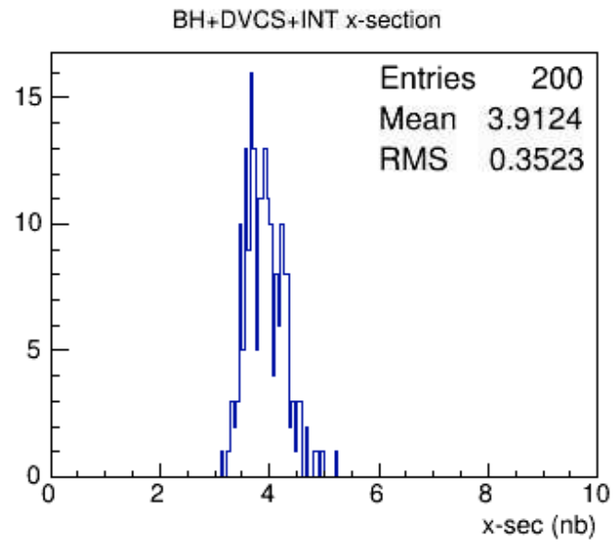
Cross sections reported by MILOU

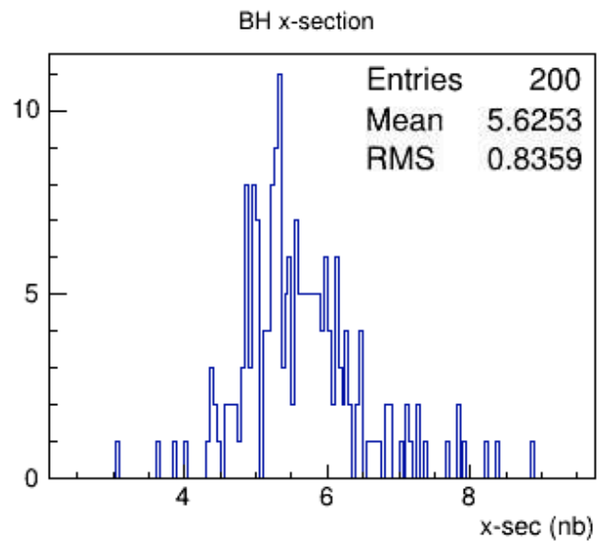
Unit ~ nb

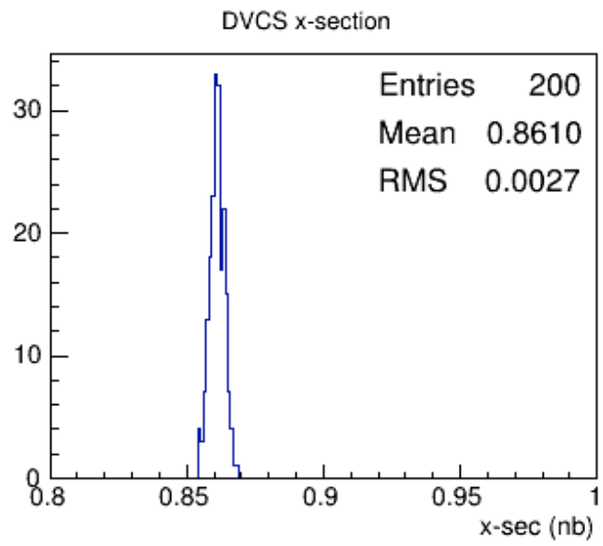
5x100

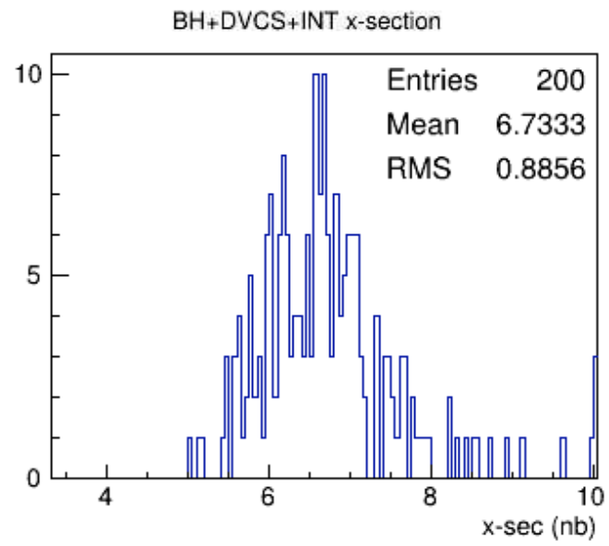












18x275

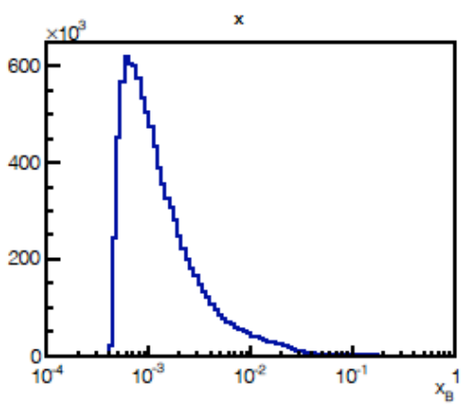
Handbook detector configuration

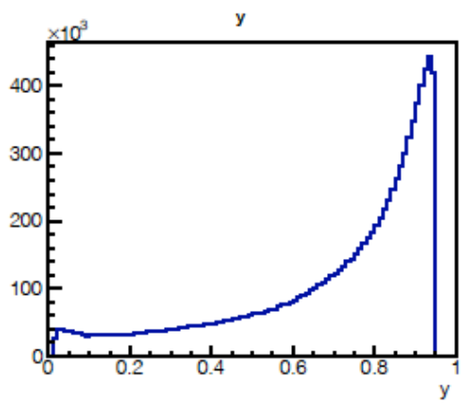
EIC Detector Requirements

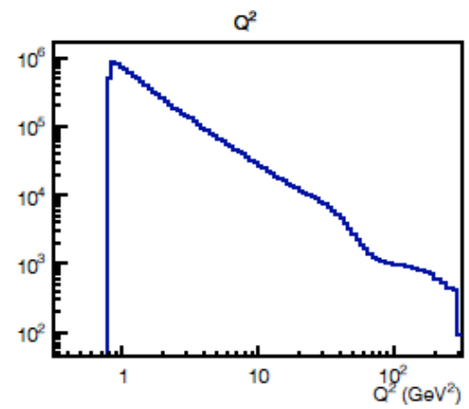
η	Nomenclature			Tracking			Electrons		π/K/p PID		HCAL	Muons
				Resolution	Allowed X/X_0	SI-Vertex	Resolution σ_E/E	PID	p-Range (GeV/c)	Separation	Resolution σ_E/E	
-6.9 — -5.8	↓ p/A	Auxiliary Detectors	low-Q^2 tagger	$\delta\theta/\theta < 1.5\%$; $10^{-6} < Q^2 < 10^{-2}$ GeV^2								
…												
-4.5 — -4.0			Instrumentation to separate charged particles from photons									
-4.0 — -3.5												
-3.5 — -3.0		Central Detector	Backwards Detectors	$\sigma_p/p \sim 0.1\%\times p+2.0\%$	~5% or less	TBD	2%/√E	π suppression up to $1{:}10^4$	≤ 7 GeV/c	≥ 3σ	~50%/√E	
-3.0 — -2.5												
-2.5 — -2.0				$\sigma_p/p \sim 0.05\%\times p+1.0\%$								
-2.0 — -1.5							7%/√E					
-1.5 — -1.0												
-1.0 — -0.5			Barrel	$\sigma_p/p \sim 0.05\%\times p+0.5\%$		$\sigma_{xyz} \sim 20$ µm, $d_0(z) \sim d_0(r\phi) \sim 20/p_T$ GeV µm + 5 µm			≤ 5 GeV/c		TBD	TBD
-0.5 — 0.0												
0.0 — 0.5												
0.5 — 1.0												
1.0 — 1.5			Forward Detectors	$\sigma_p/p \sim 0.05\%\times p+1.0\%$		TBD	(10-12)%/√E		≤ 8 GeV/c		~50%/√E	
1.5 — 2.0												
2.0 — 2.5									≤ 20 GeV/c			
2.5 — 3.0				$\sigma_p/p \sim 0.1\%\times p+2.0\%$								
3.0 — 3.5									≤ 45 GeV/c			
3.5 — 4.0			Instrumentation to separate charged particles from photons									
4.0 — 4.5												
…	↑e	Auxiliary Detectors										
> 6.2			Proton Spectrometer	$\sigma_{intrinsic}(|t|)/|t| < 1\%$; Acceptance: $0.2 < p_T < 1.2$ GeV/c								

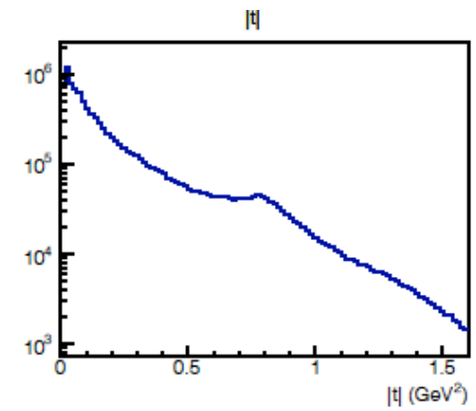
5X100 Kinematics I

BH

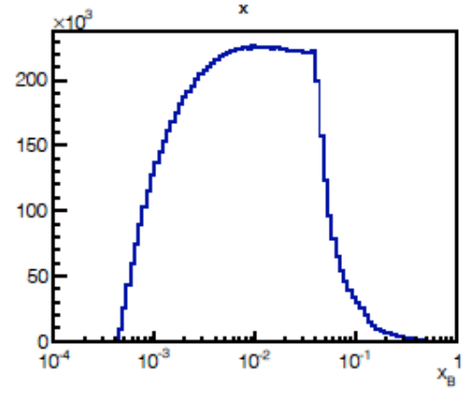


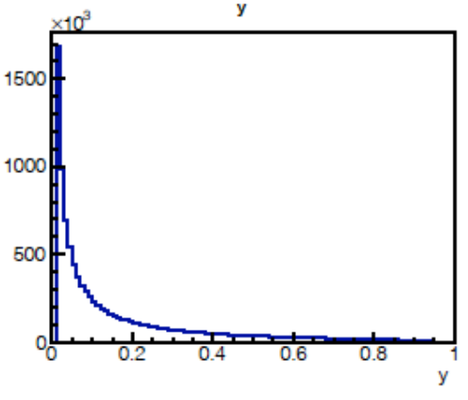


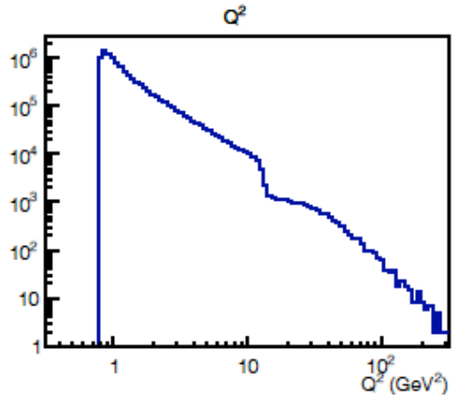


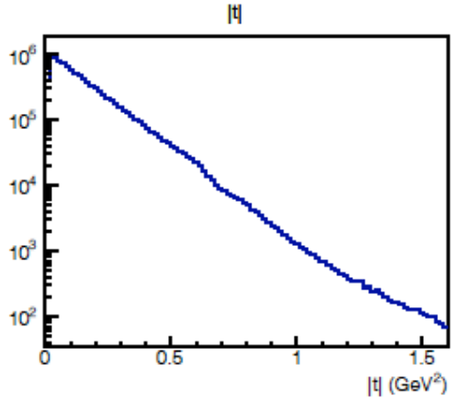


DVCS

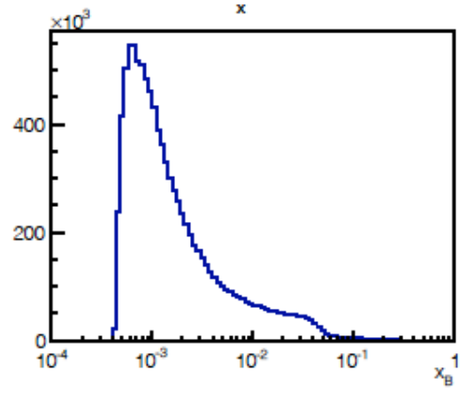


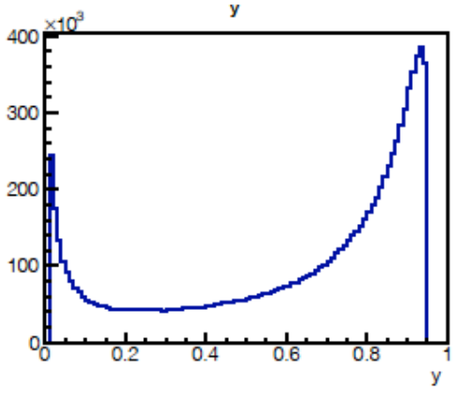


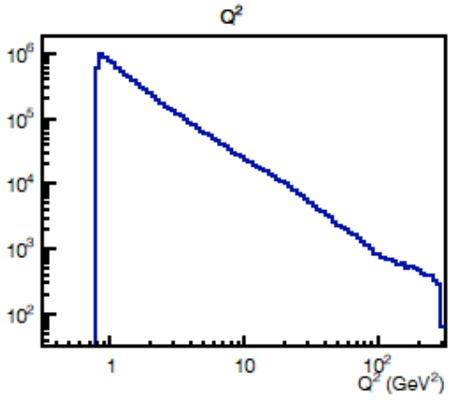


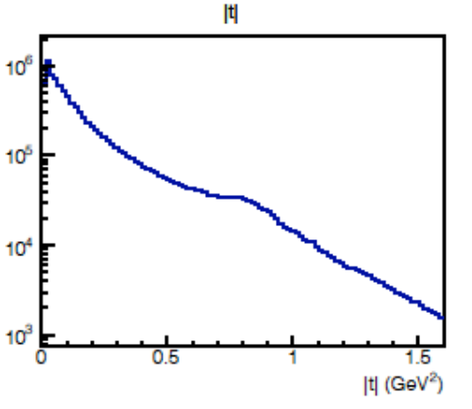


BH+DVCS+INT



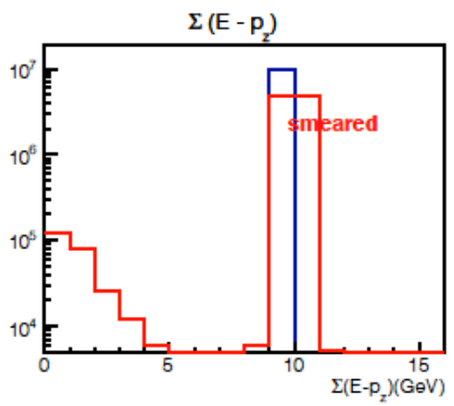


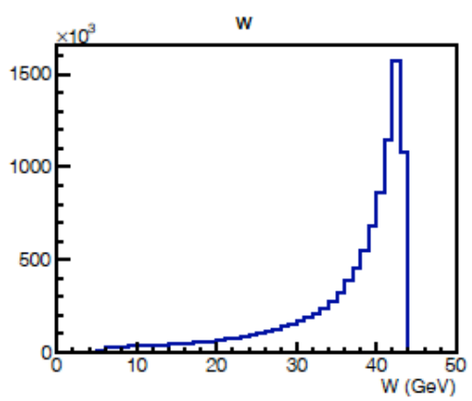


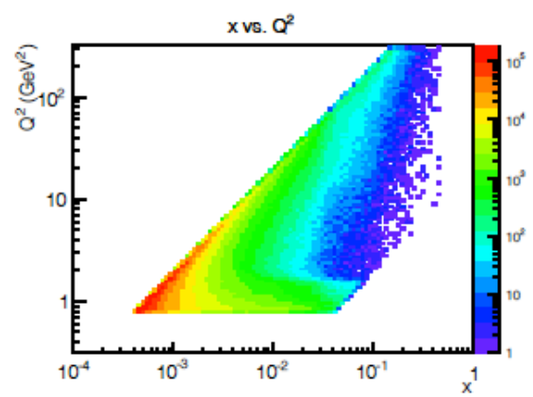


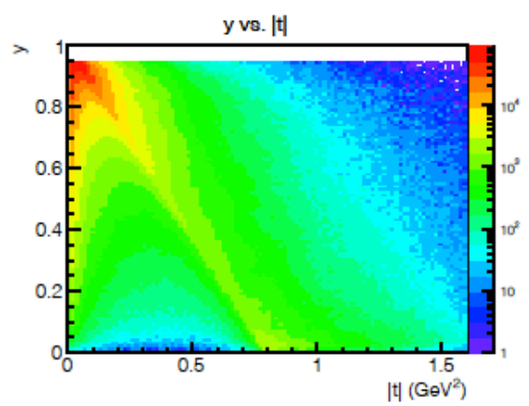
5X100 Kinematics II

BH



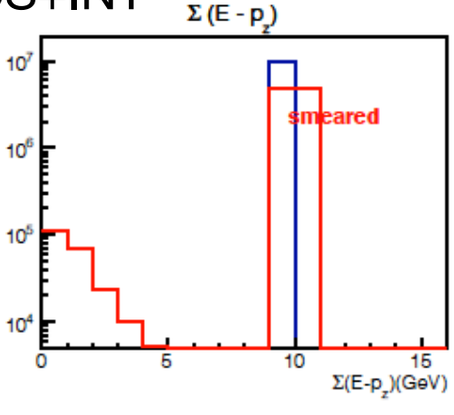


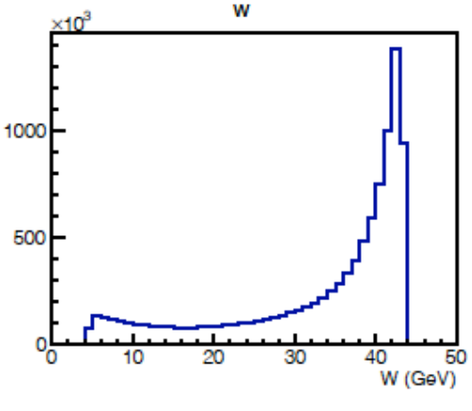


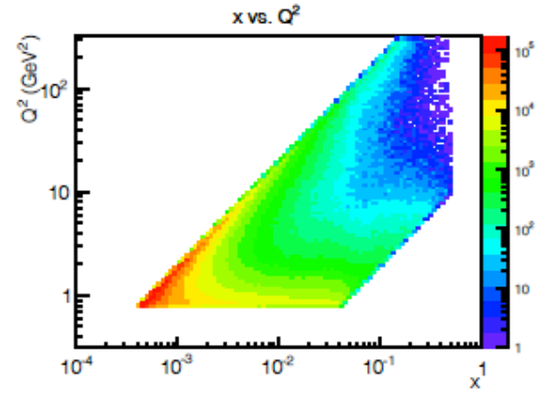


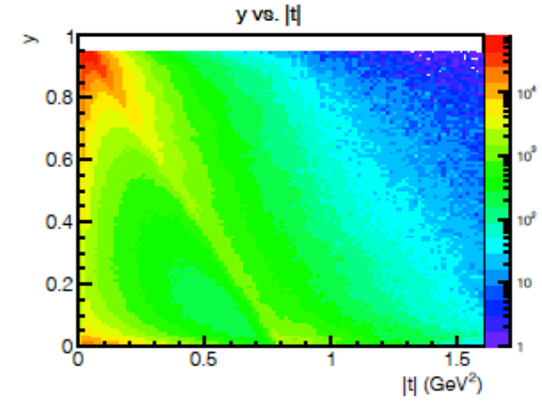
DVCS

BH+DVCS+INT



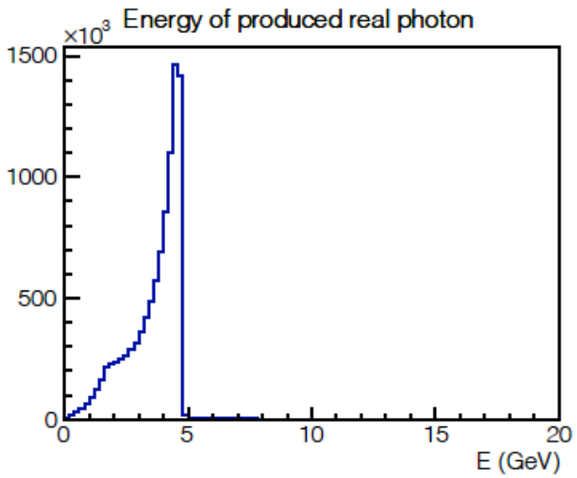


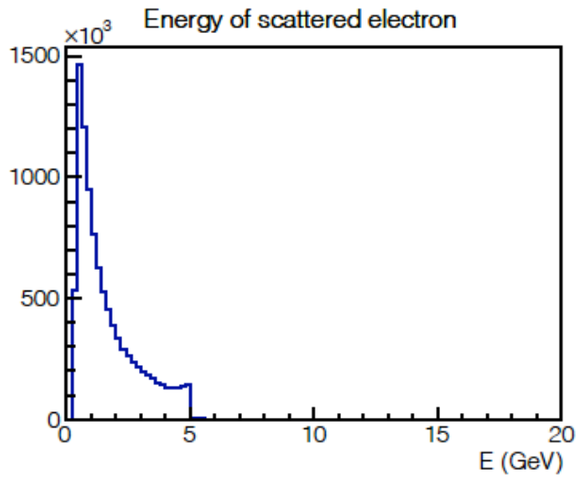


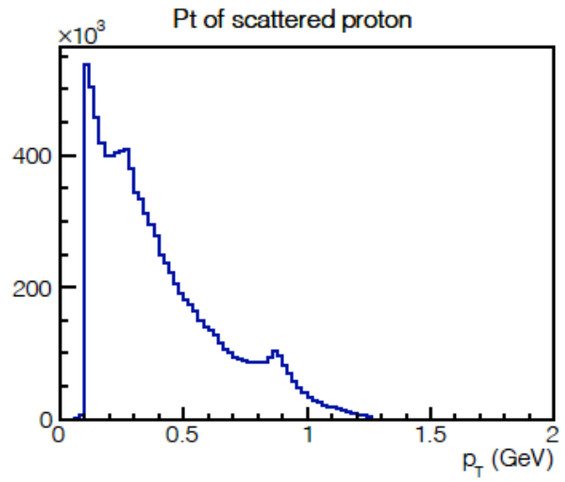


5x100 Final state particles E or pT

BH







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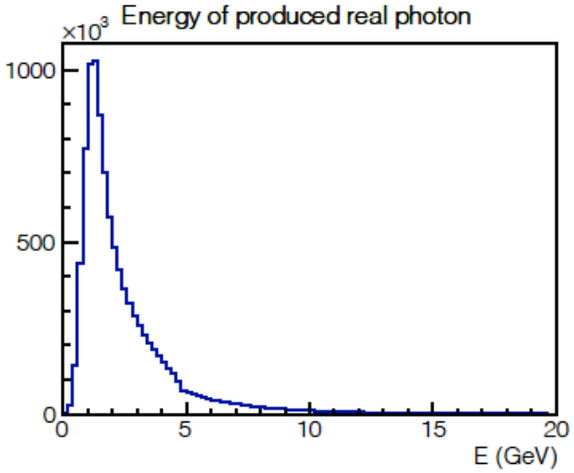
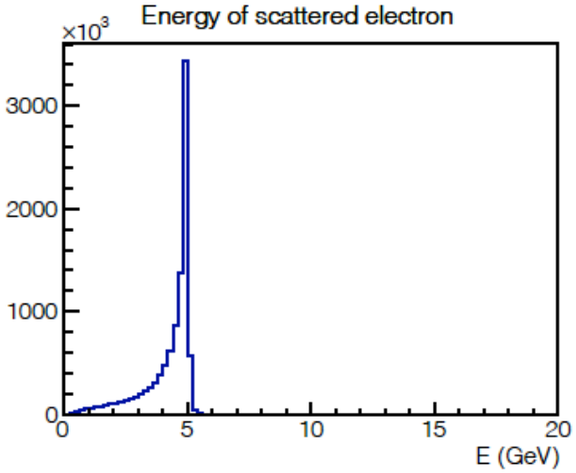
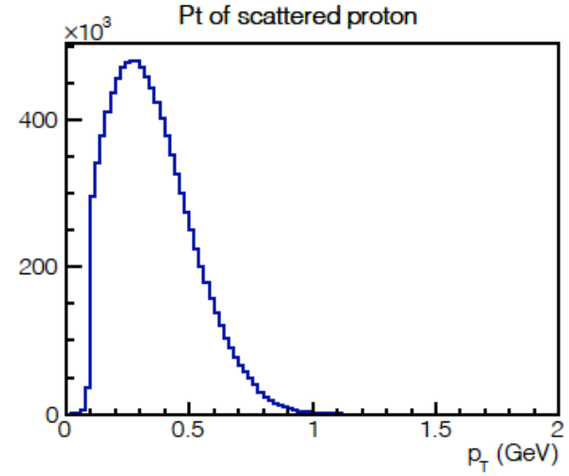
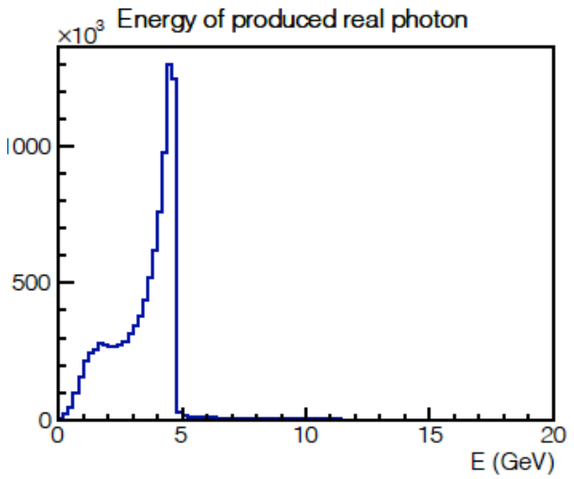
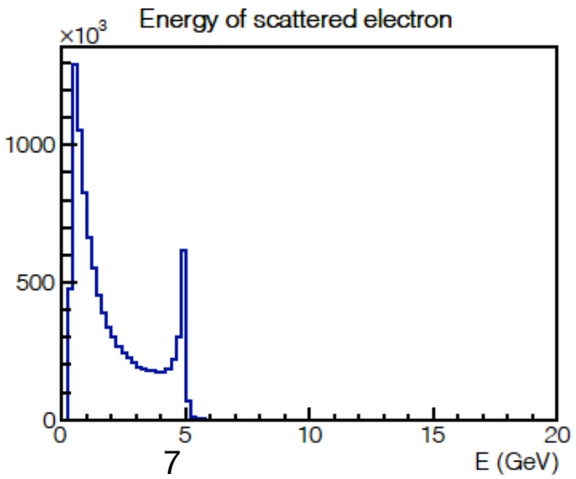


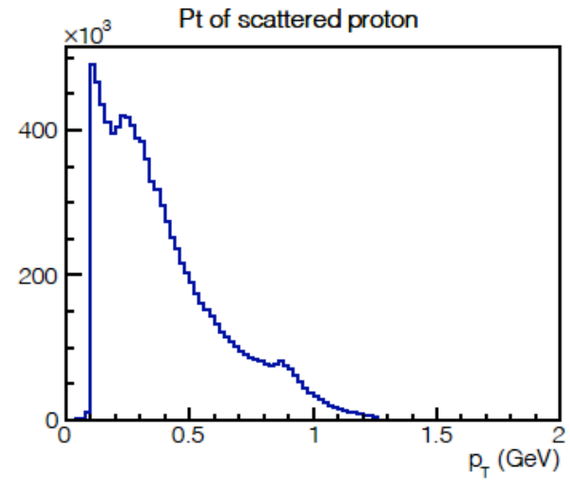




BH+DVCS+INT

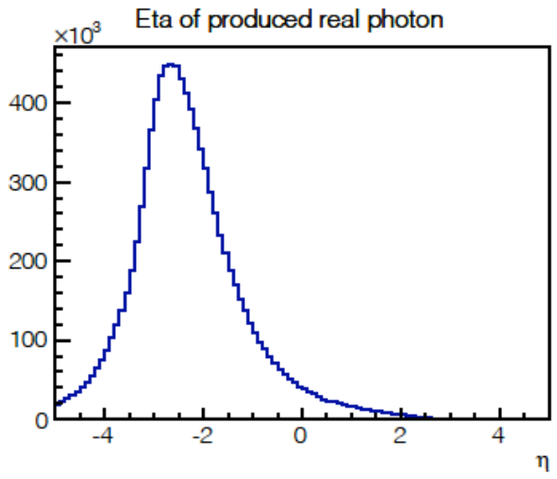


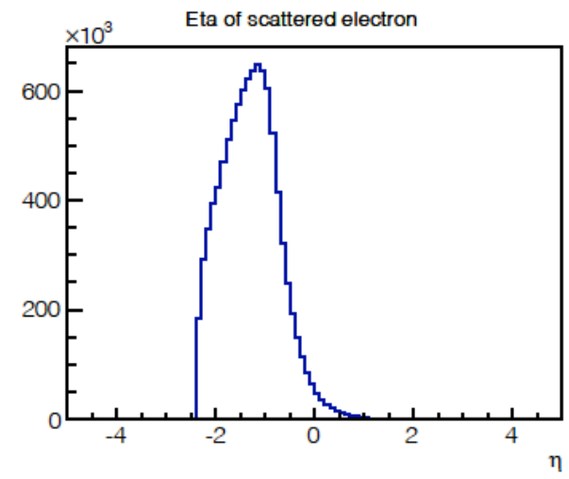


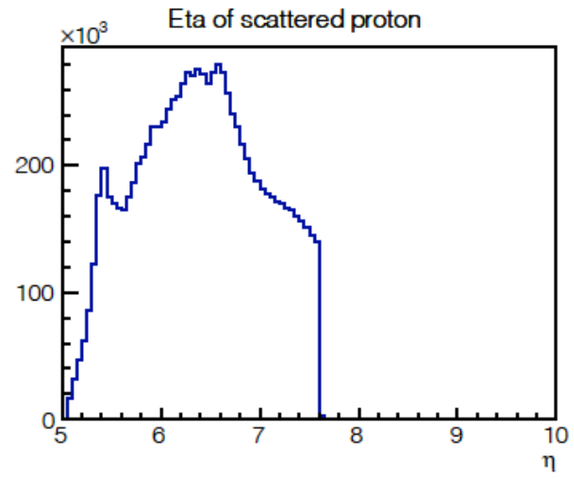


5x100 Final state particles Eta

BH







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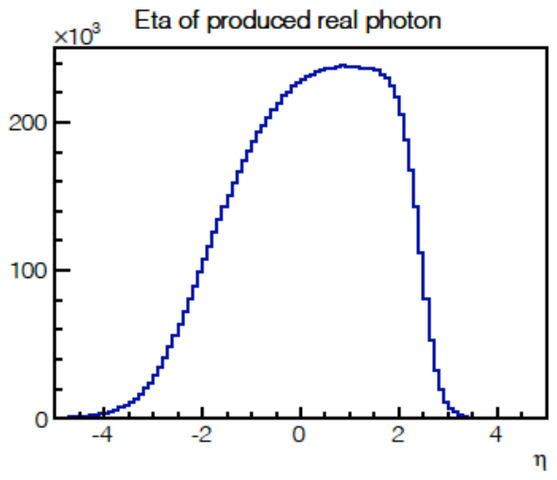
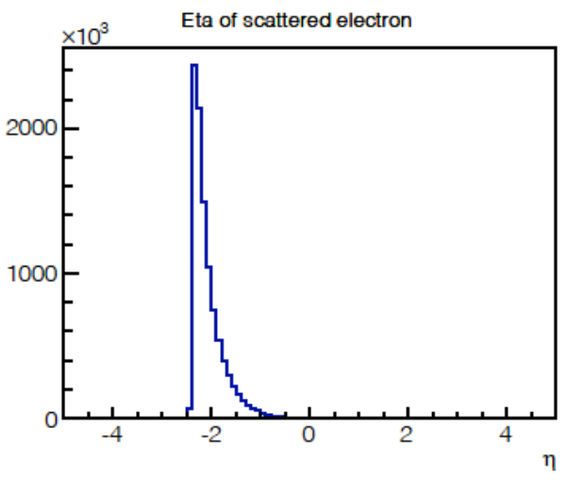
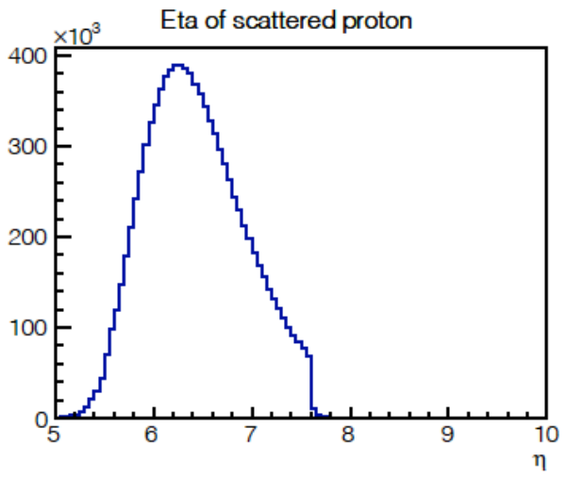
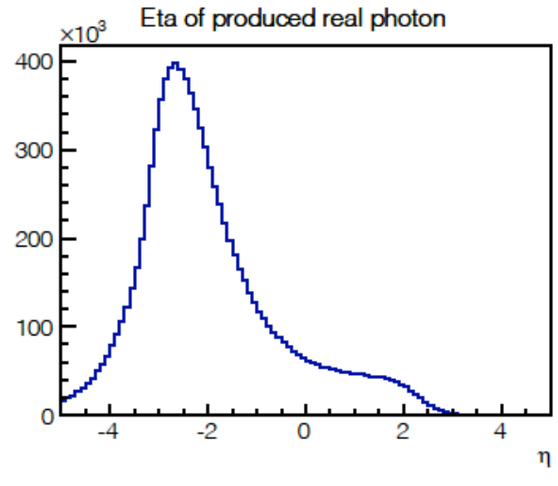
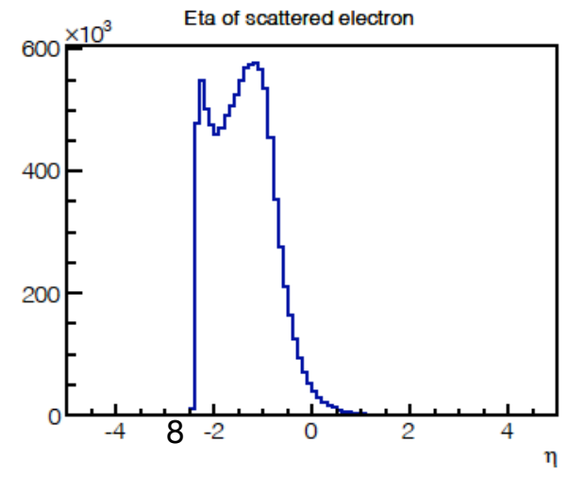


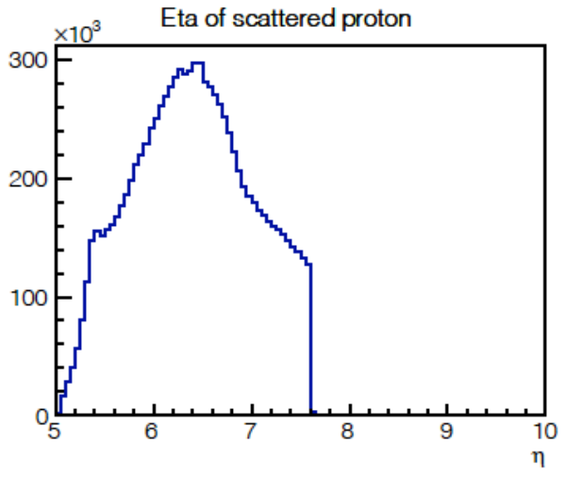




BH+DVCS+INT

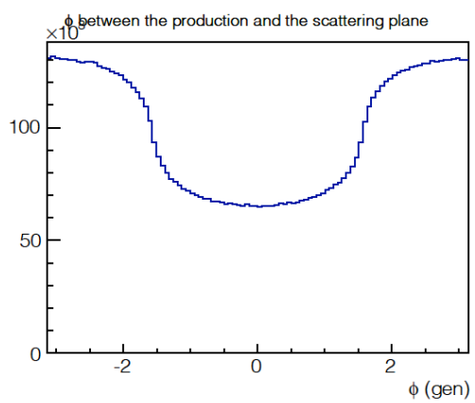


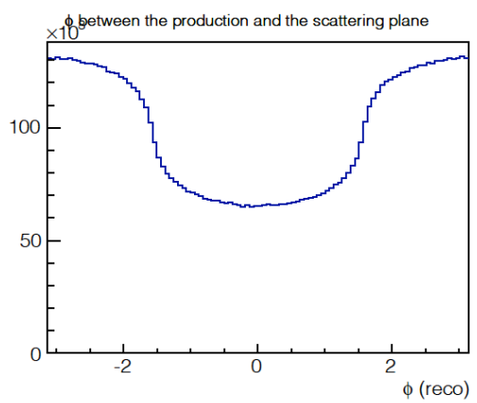


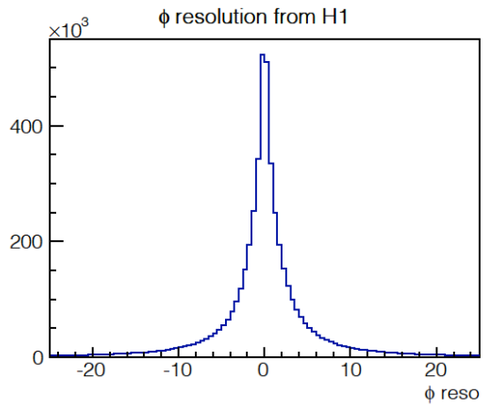


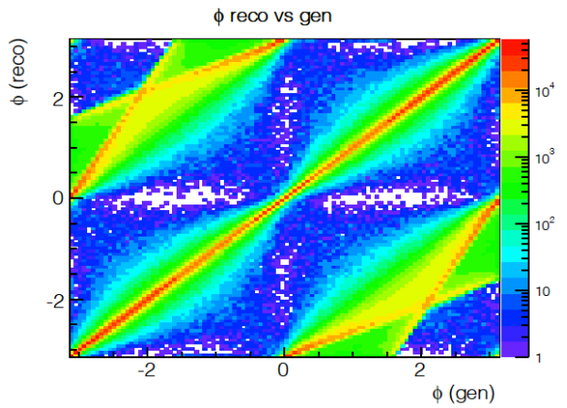
5x100 phi from Milou

BH

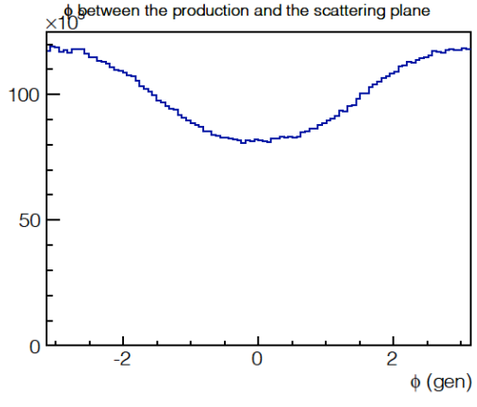


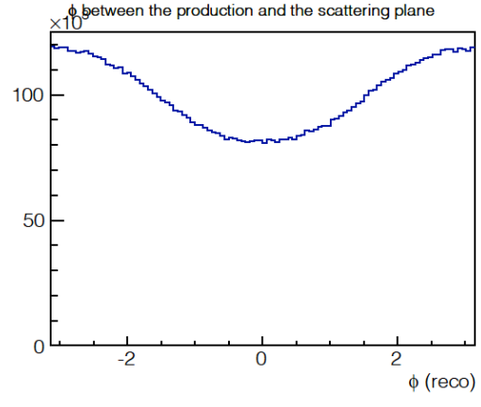


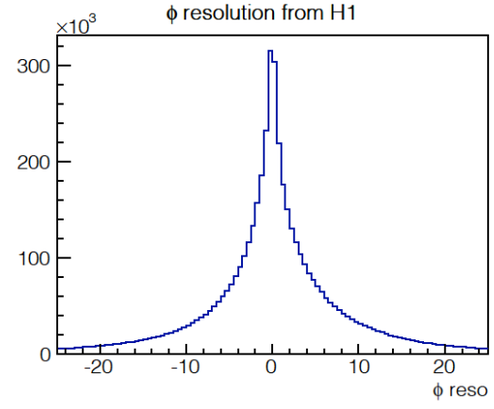


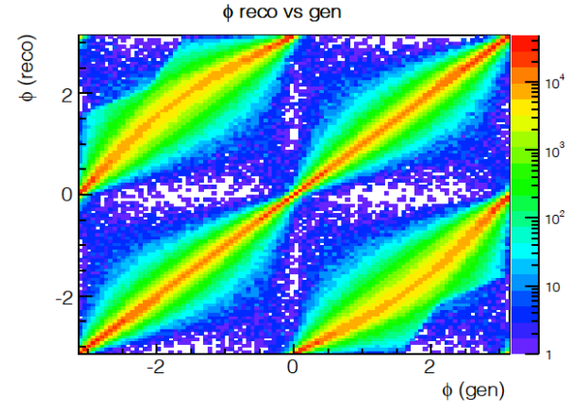


DVCS

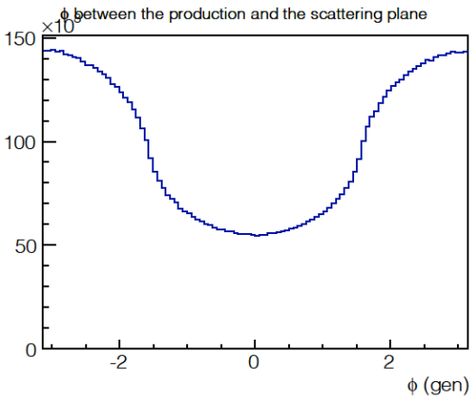


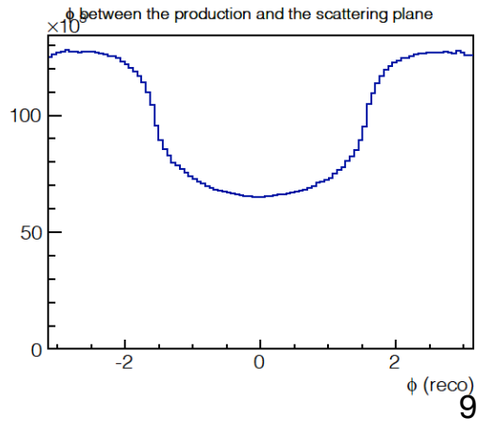


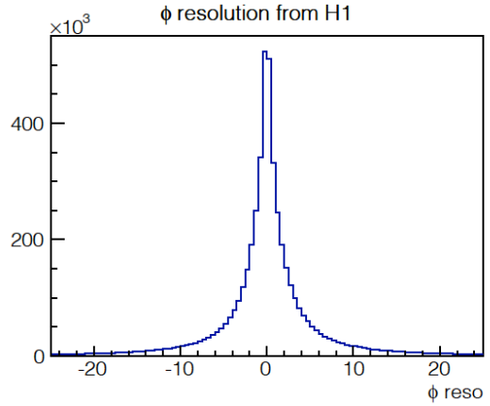


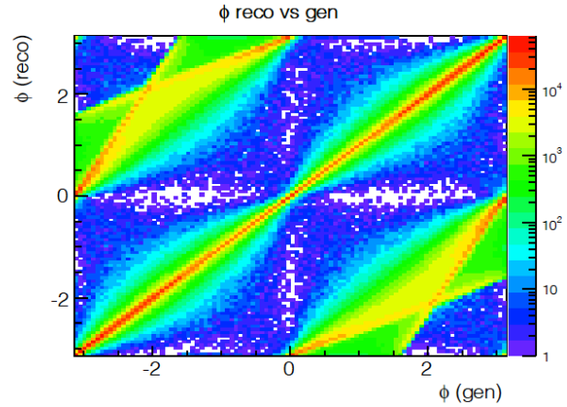


BH+DVCS+INT



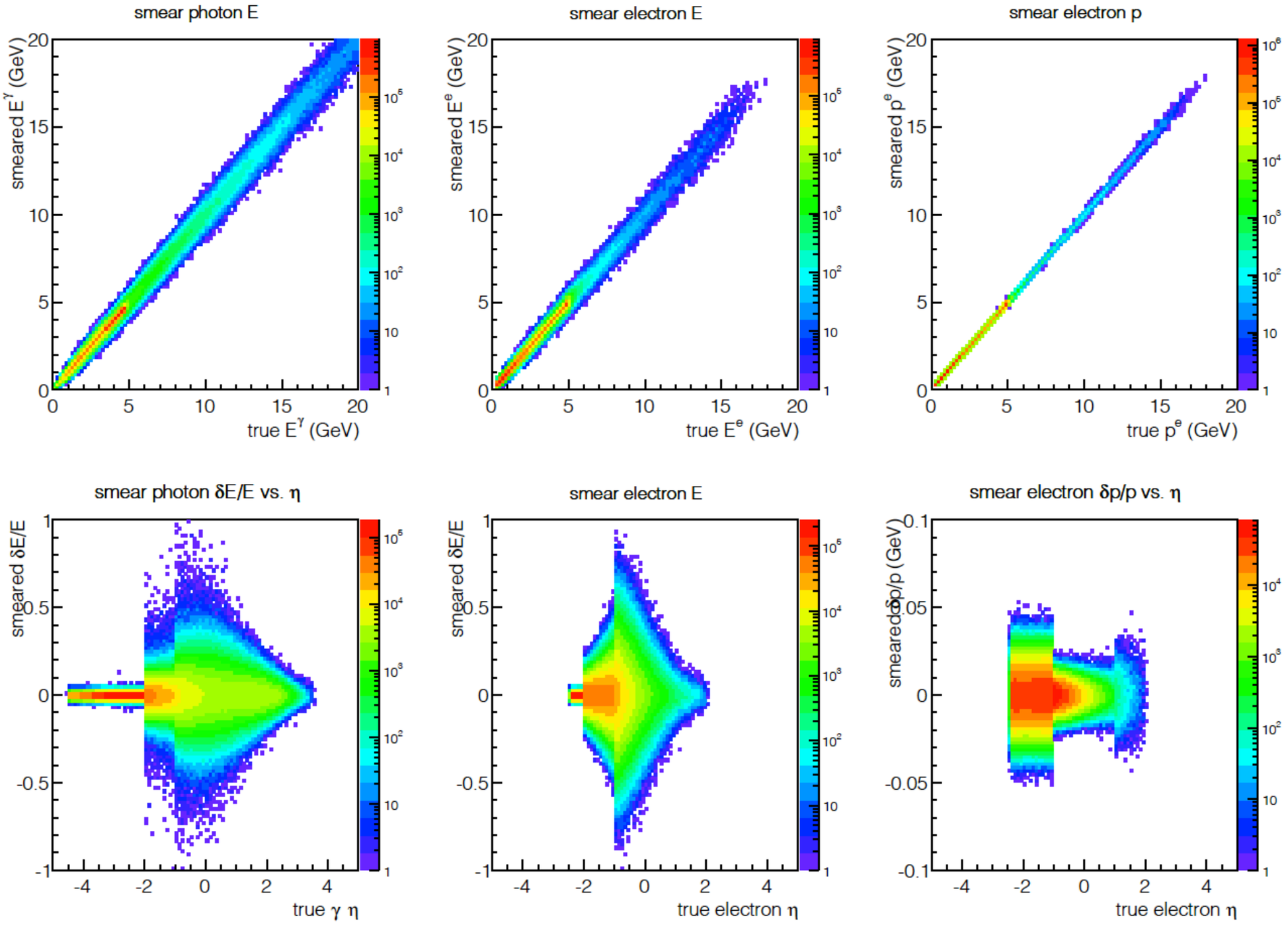






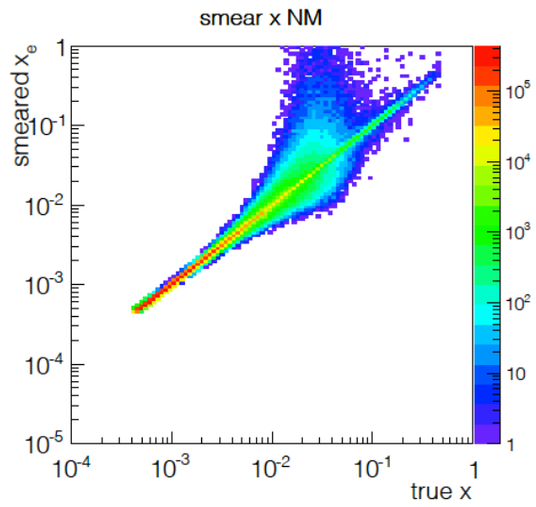
5x100 Smearing particles

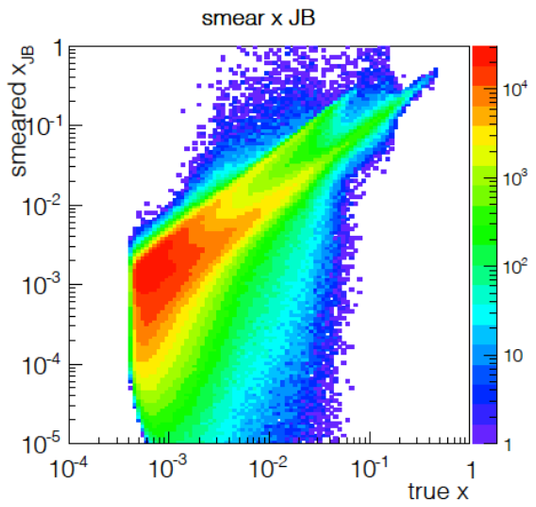
BH+DVCS+INT

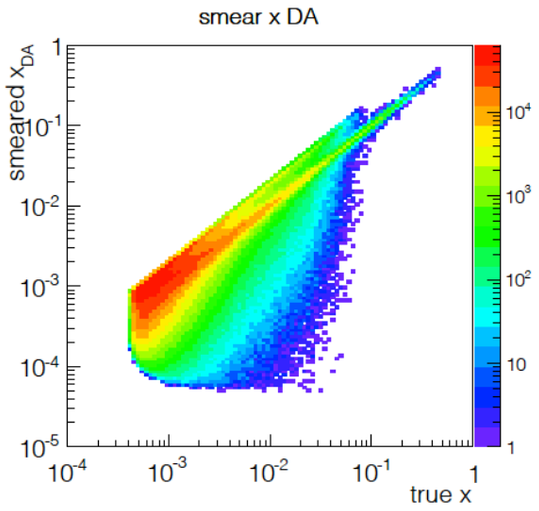


5x100 Smearing xB

BH







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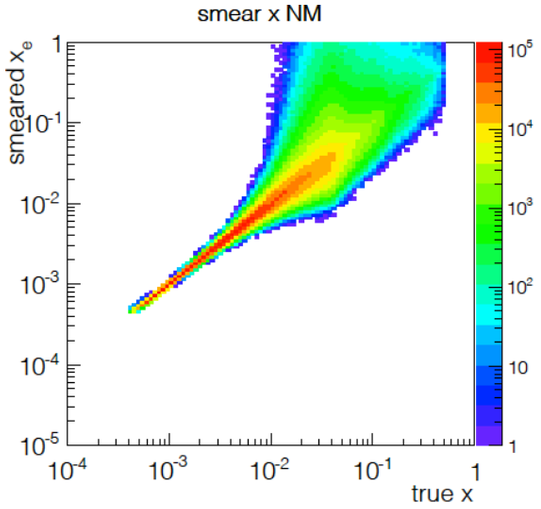

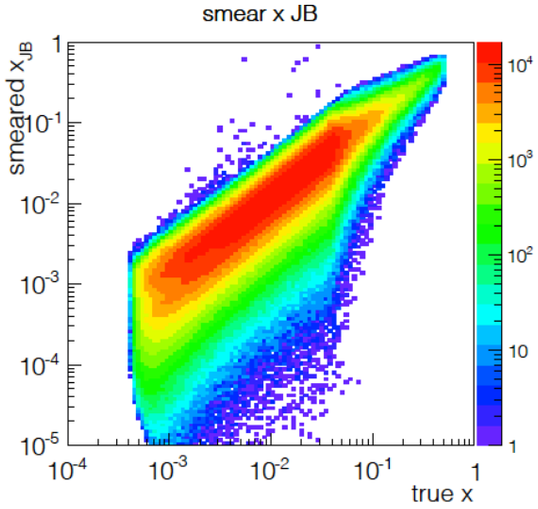

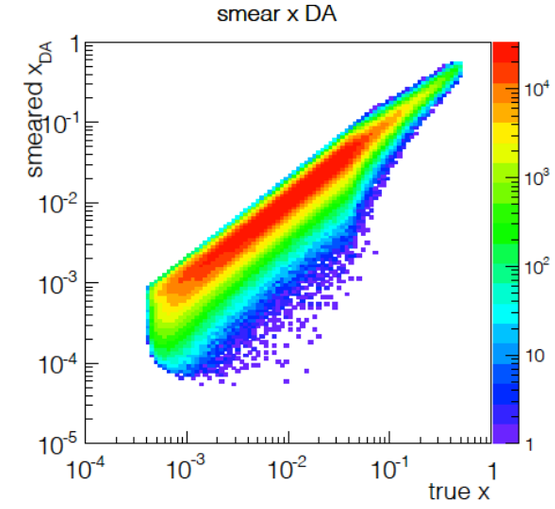

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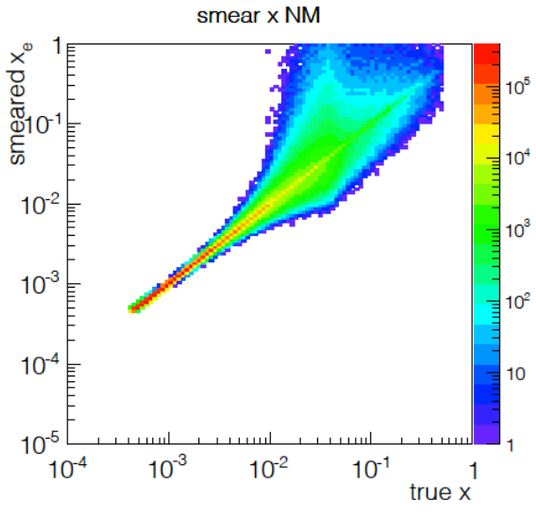
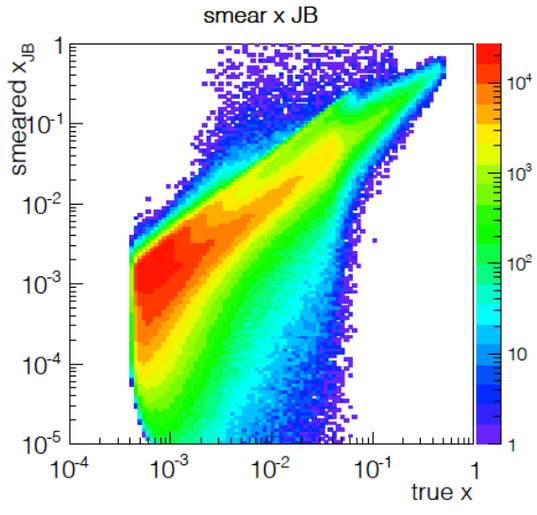
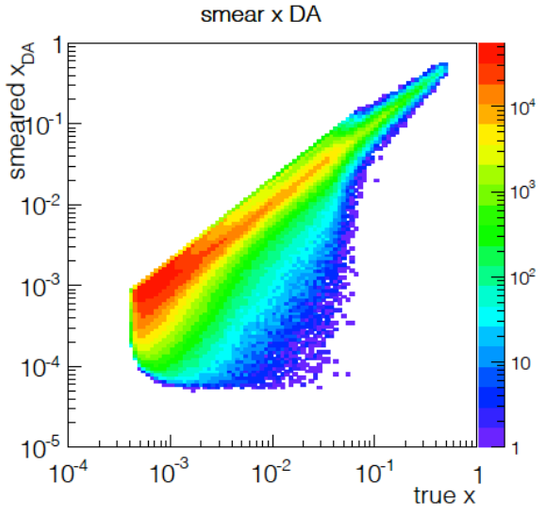
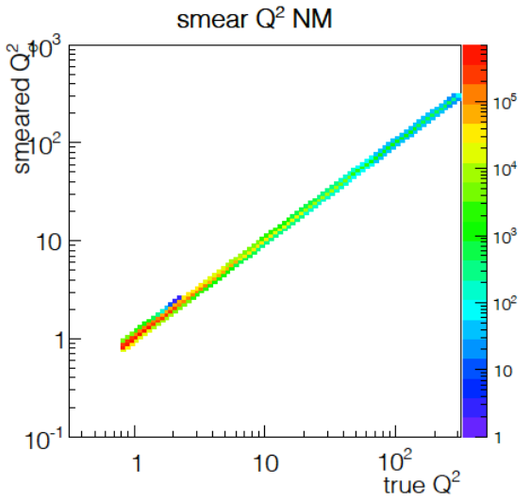


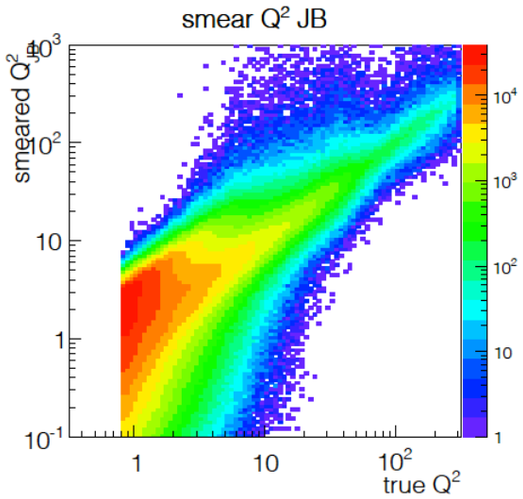


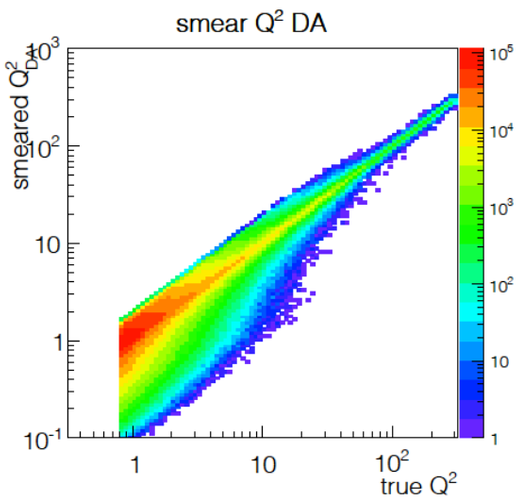


5x100 Smearing Q2

BH







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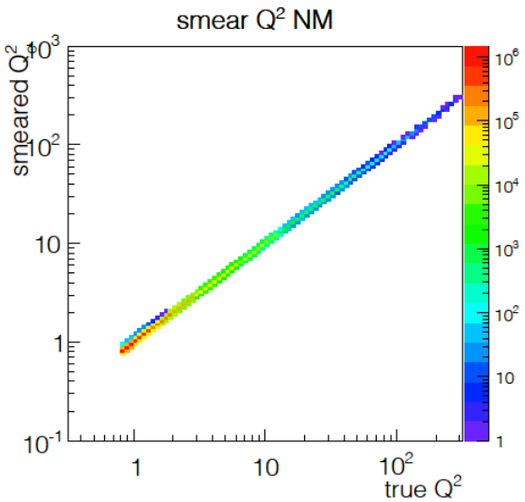

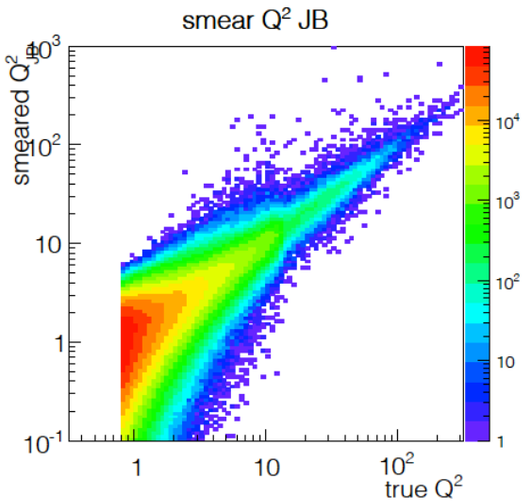

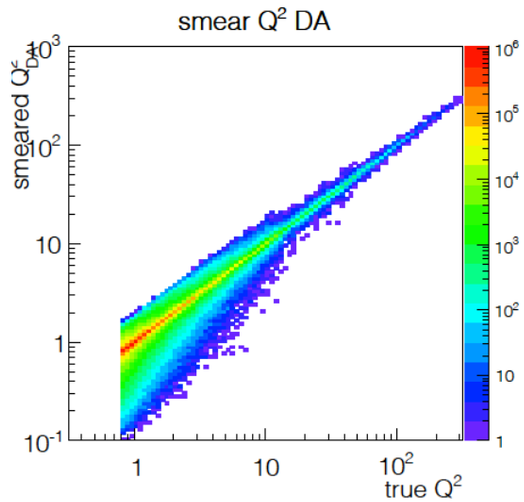

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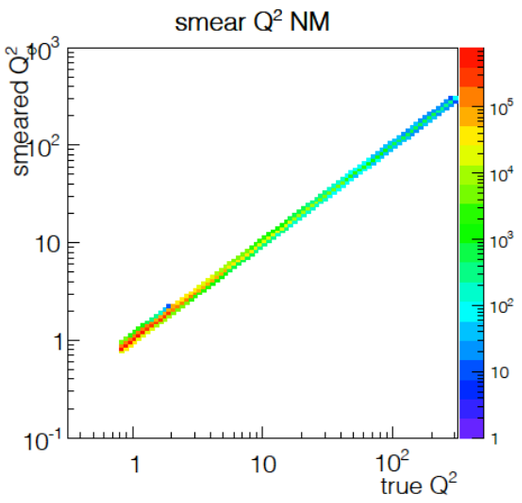
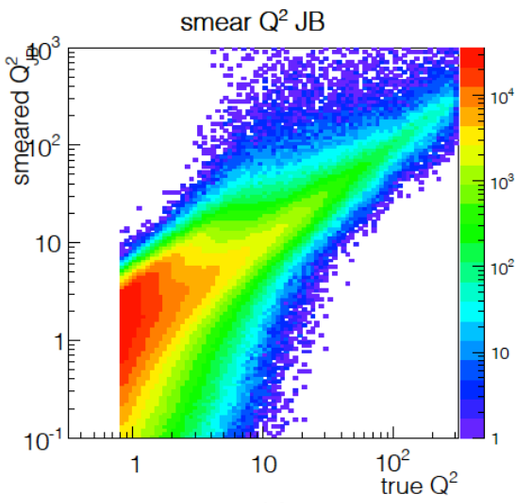
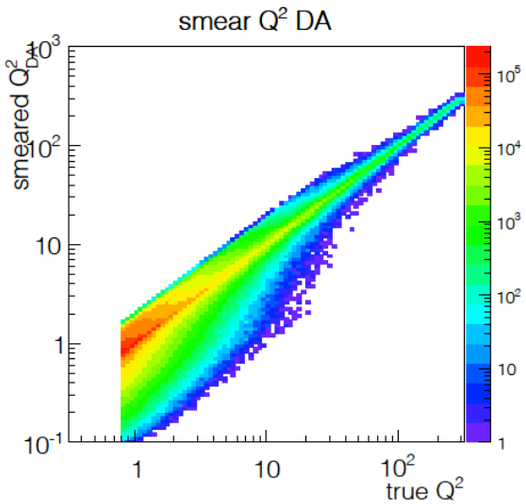
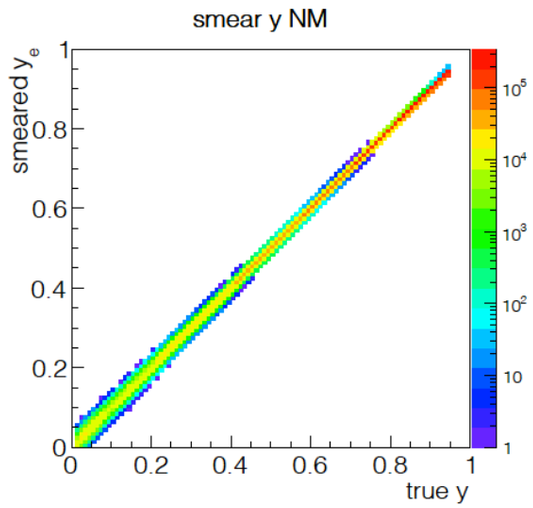


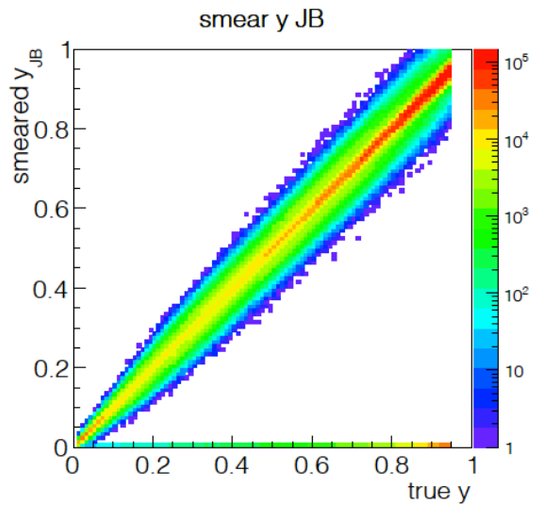


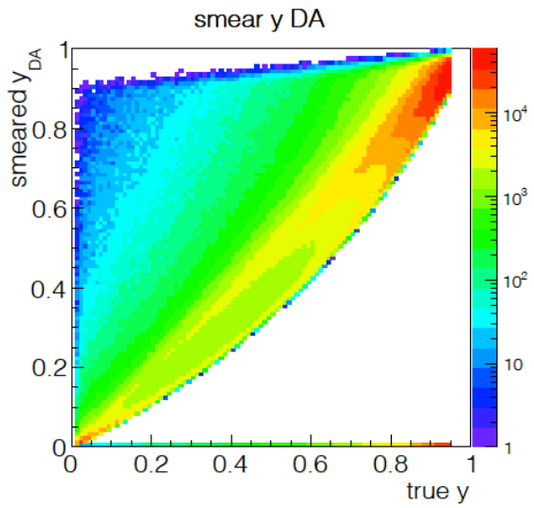


5x100 Smearing y

BH







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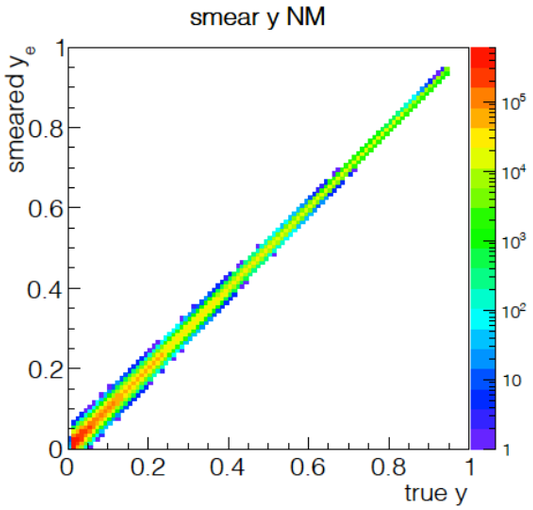

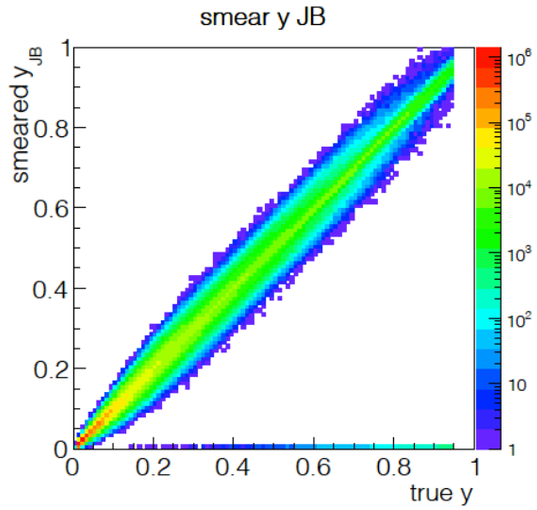

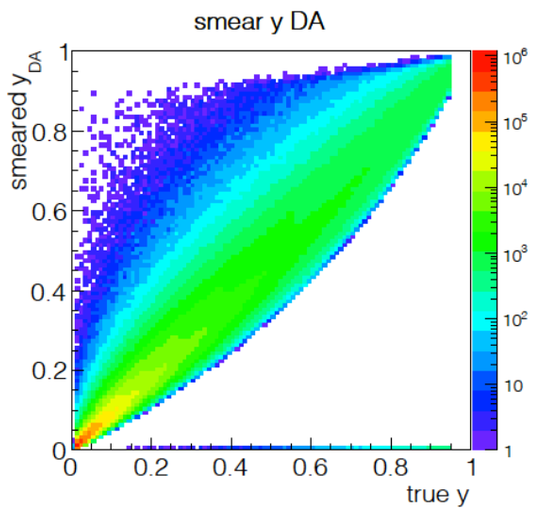

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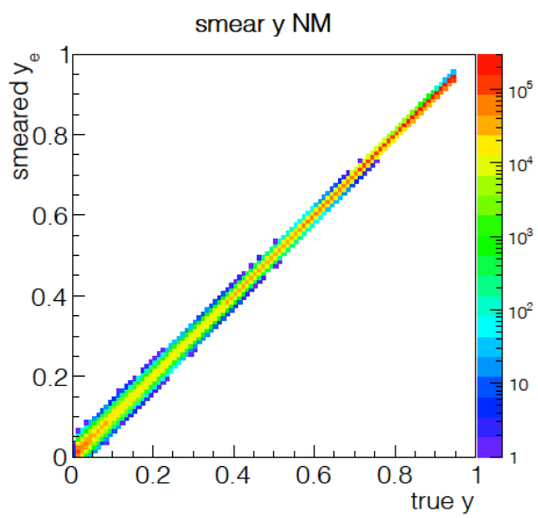
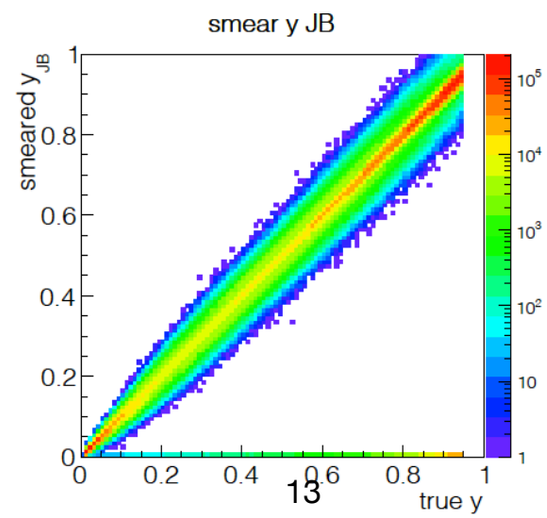
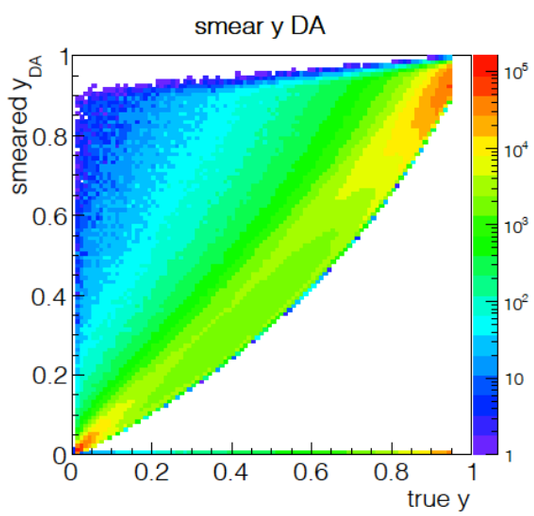
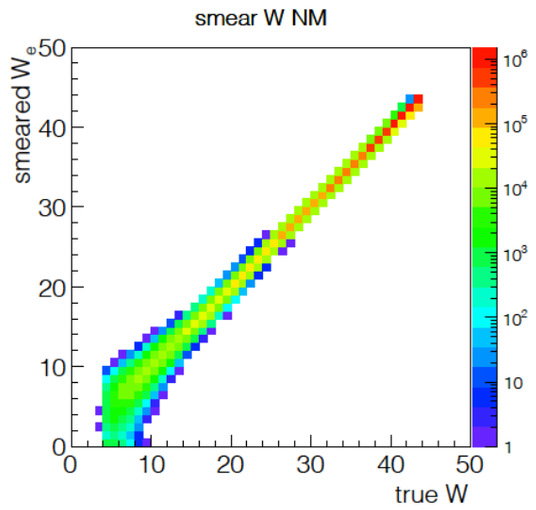


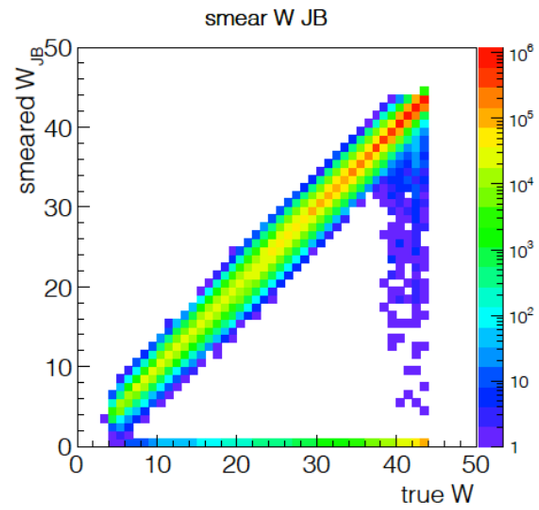


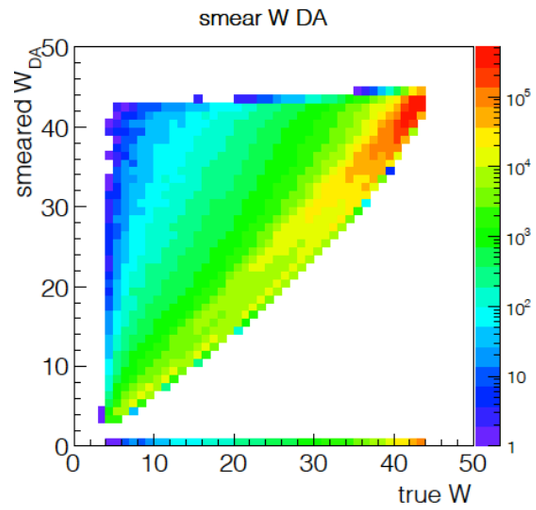


5x100 Smearing W

BH







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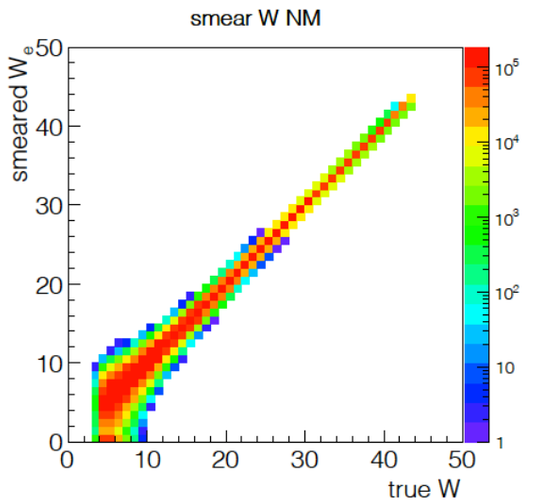

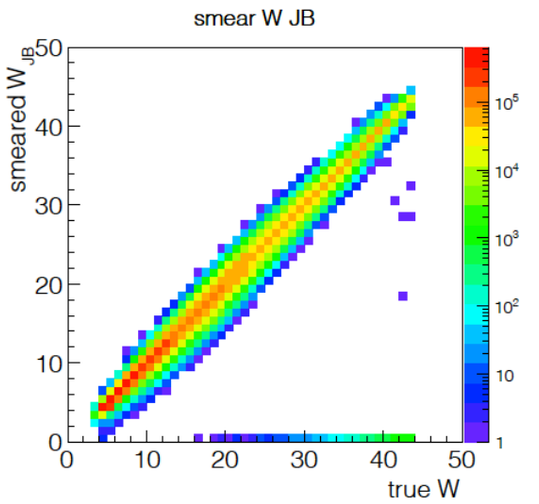

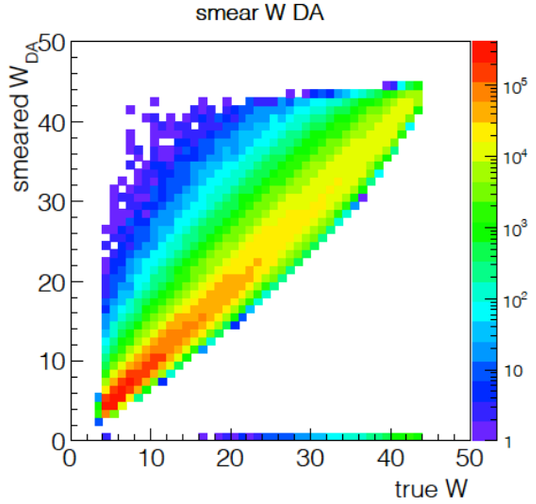

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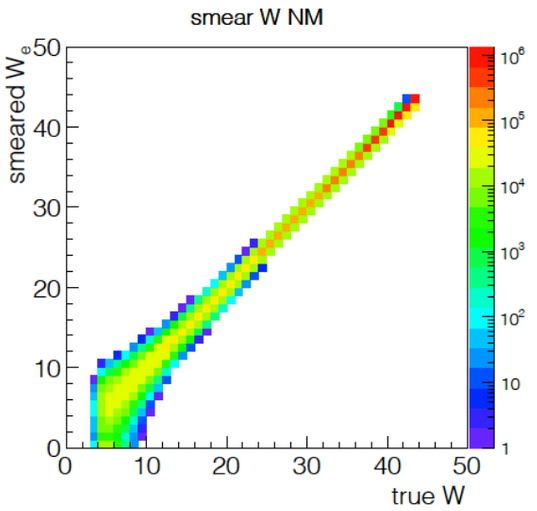
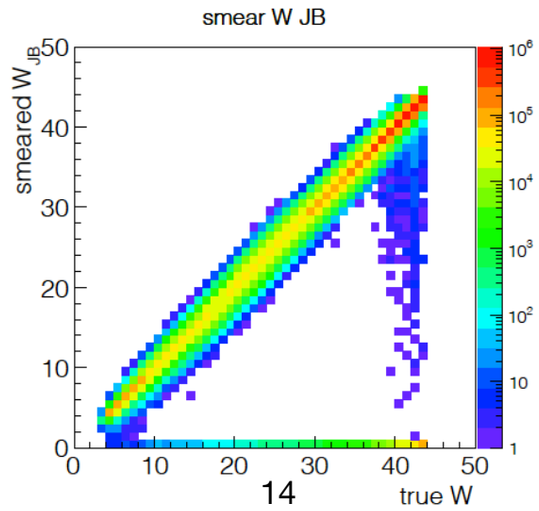
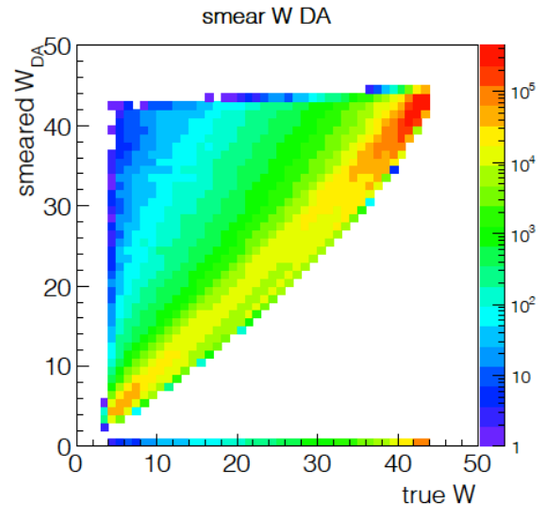
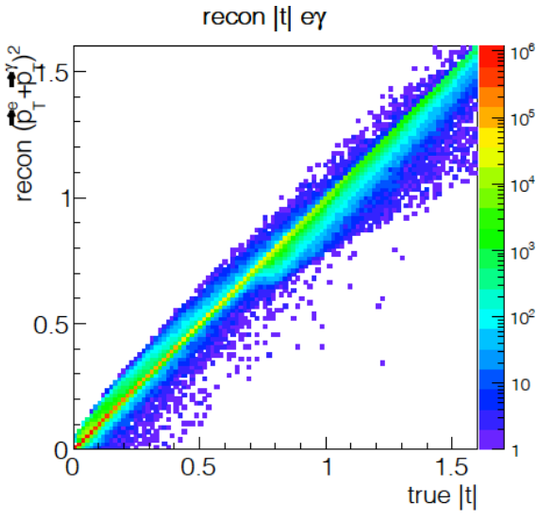


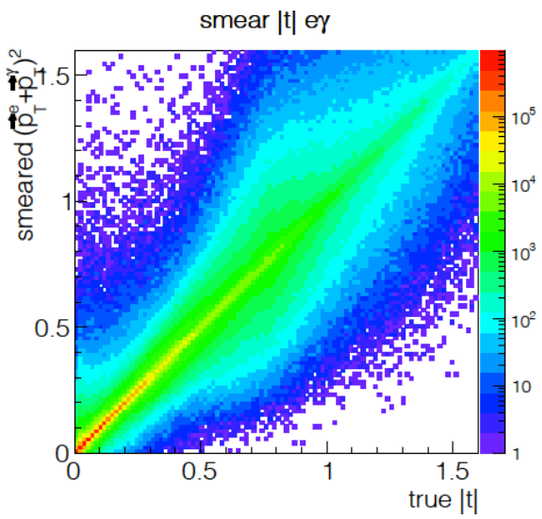




5x100 Reconstructing / Smearing |t|

BH





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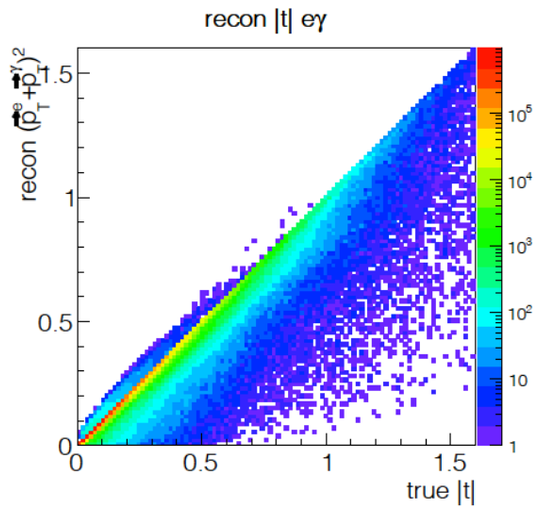

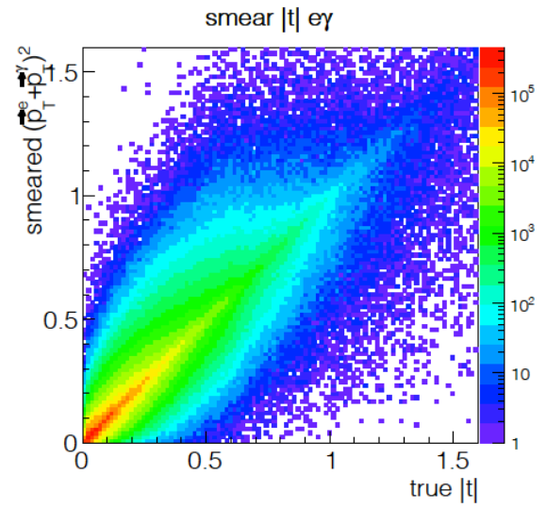

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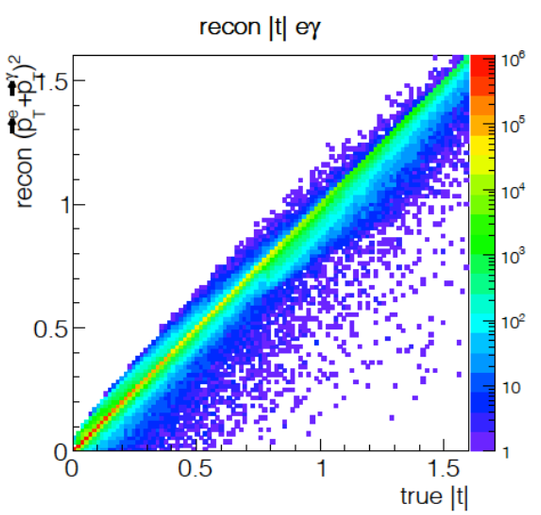
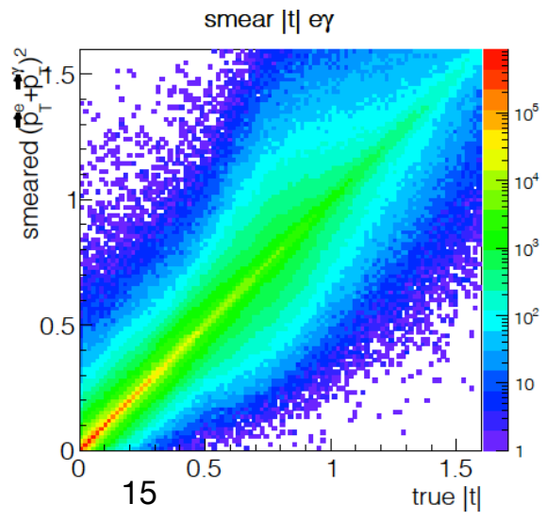
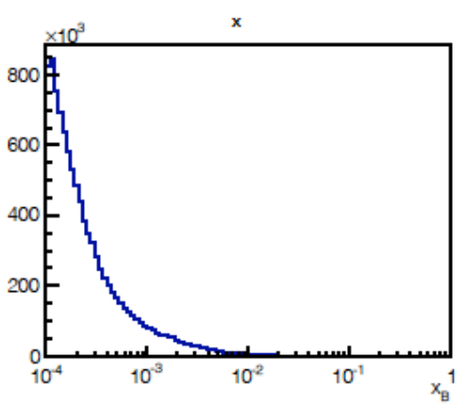


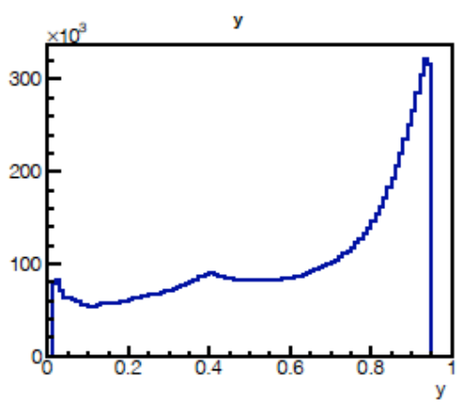


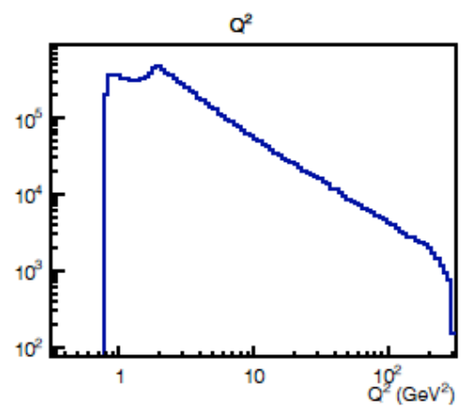
Proton smearing not included yet

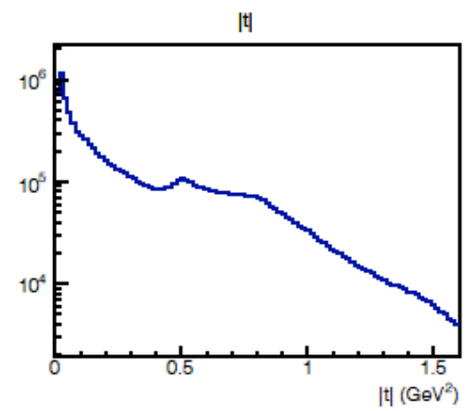
18x275 Kinematics I

BH









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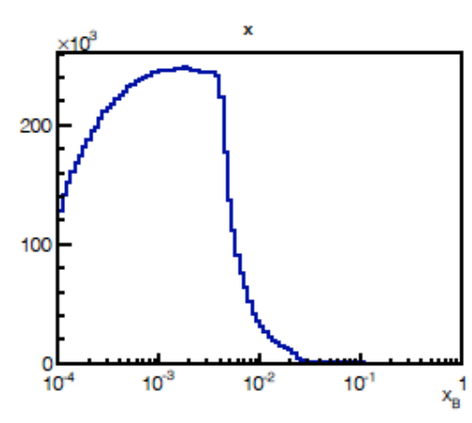

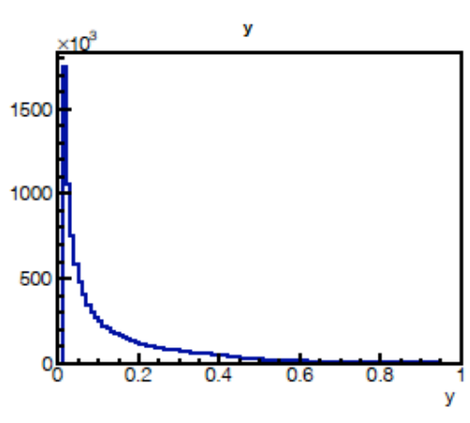

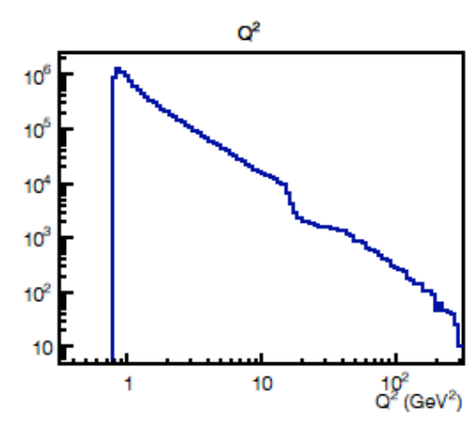

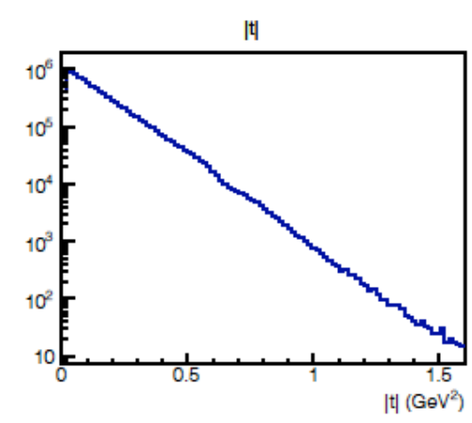

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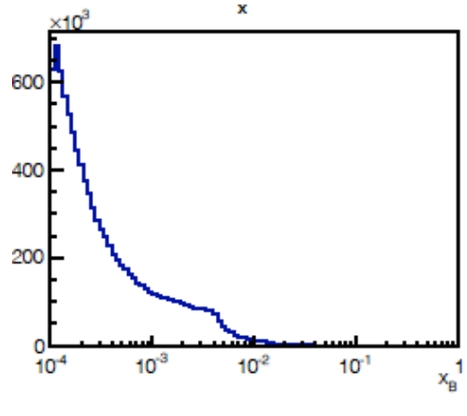

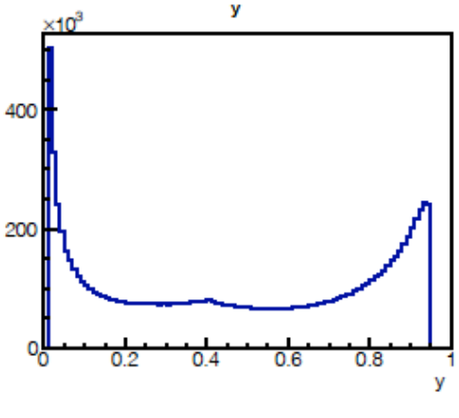

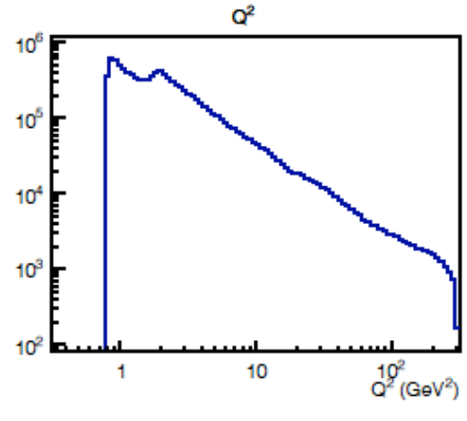

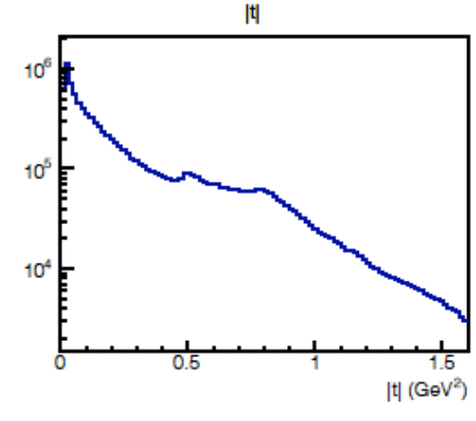

18x275 Kinematics II

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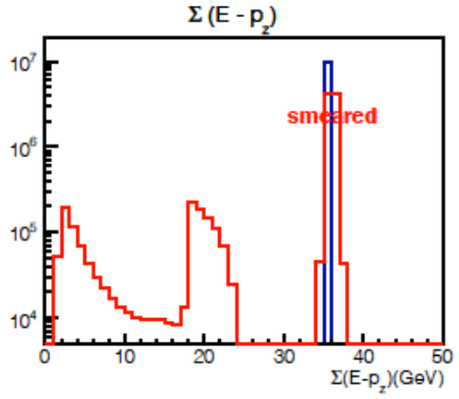

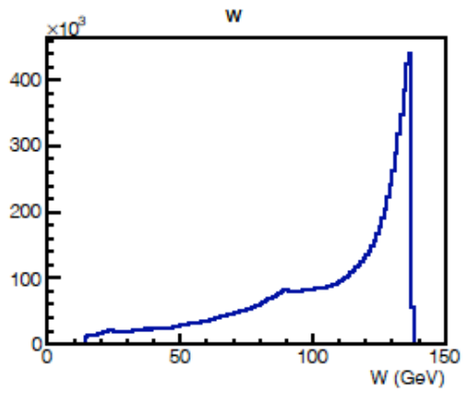

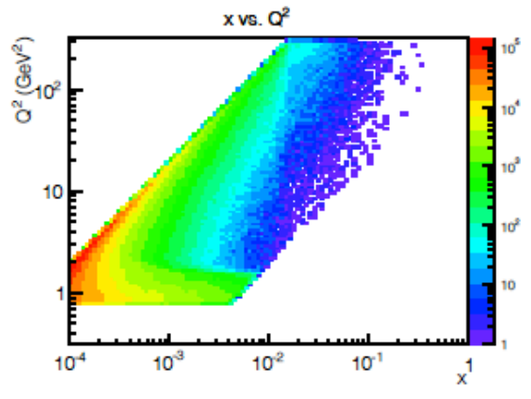

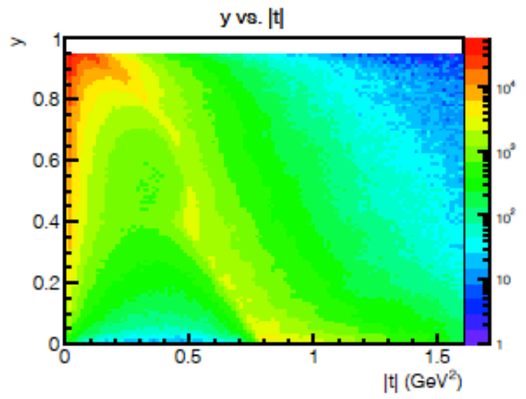

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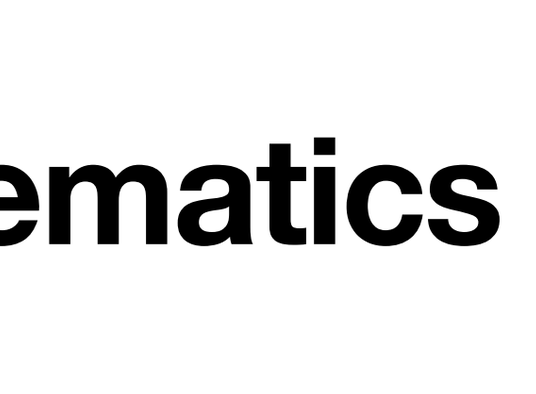

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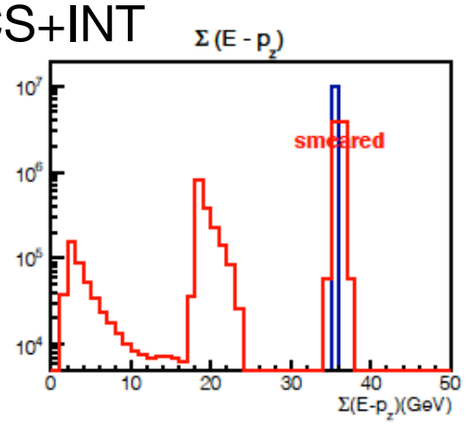
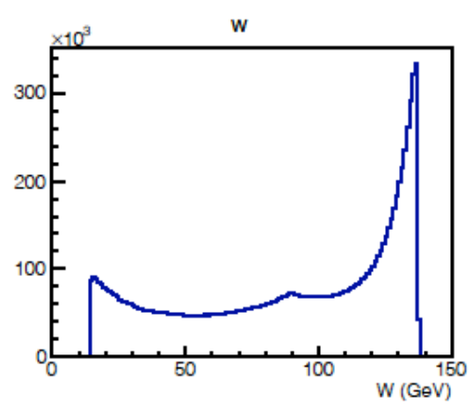
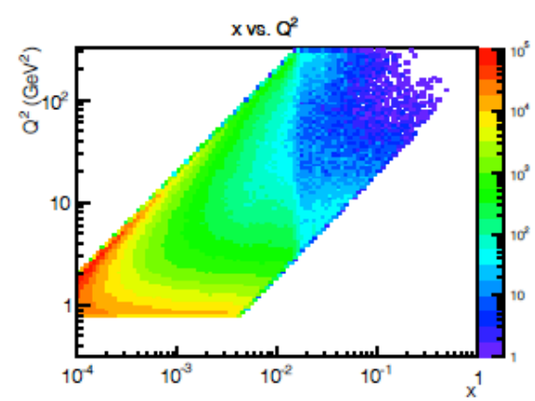
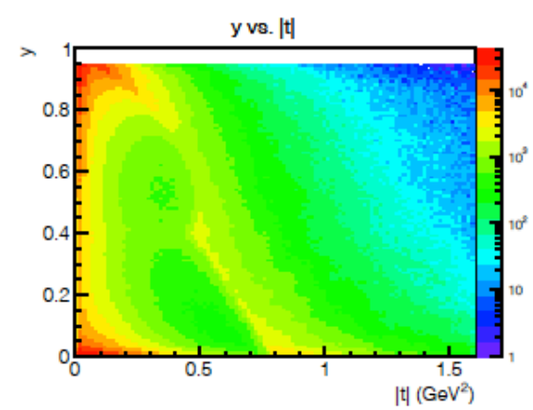


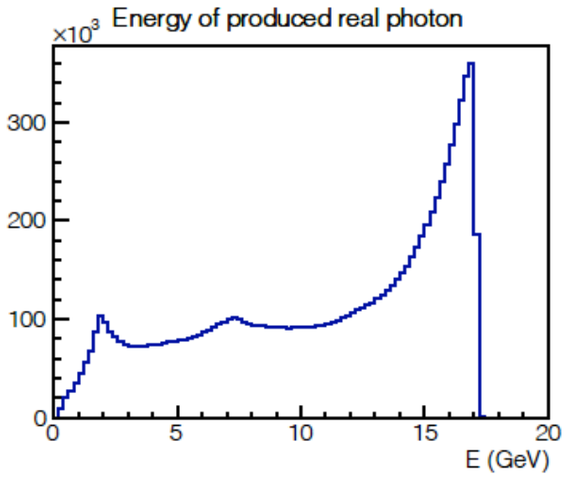


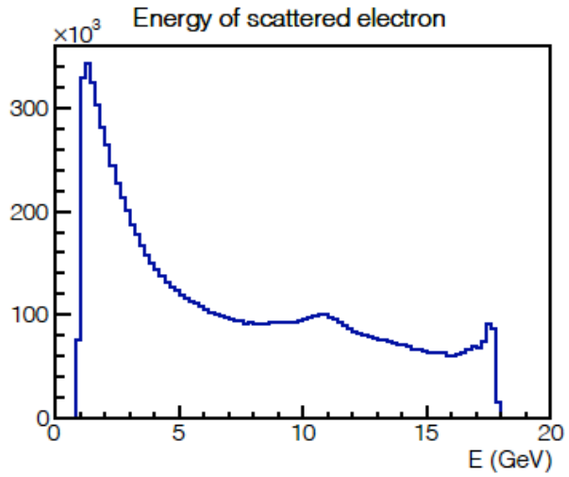


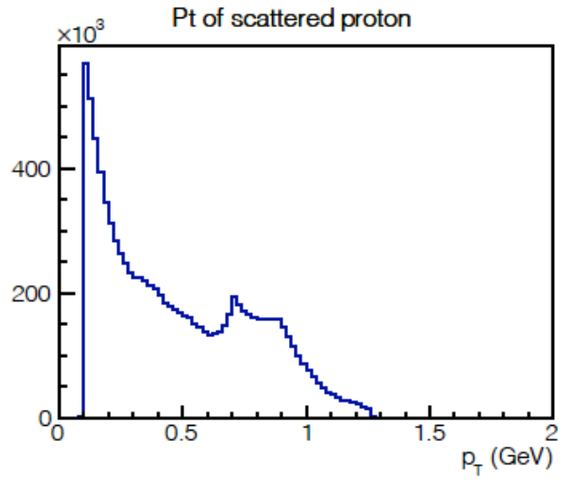


18x275 Final state particles E or pT

BH







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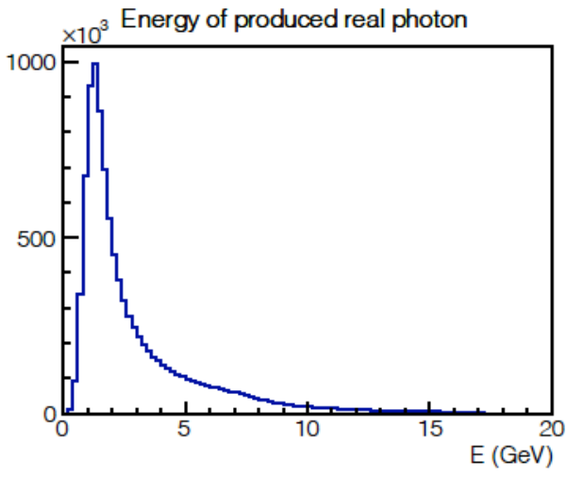

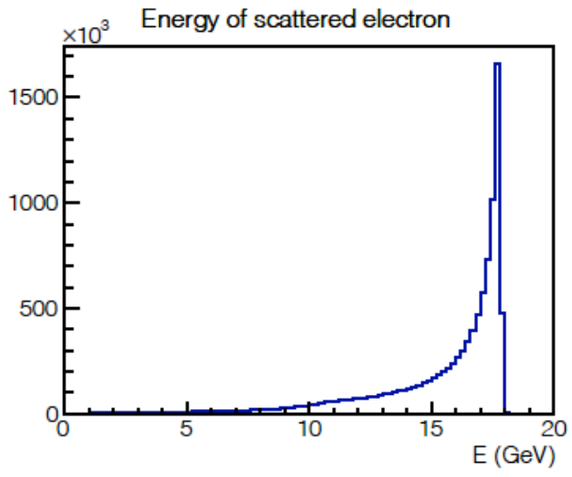

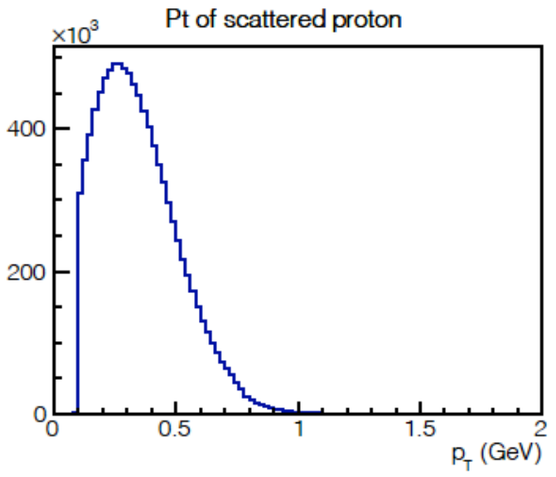

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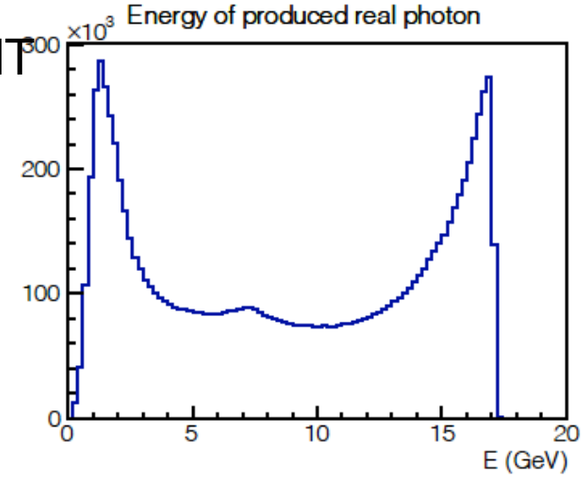
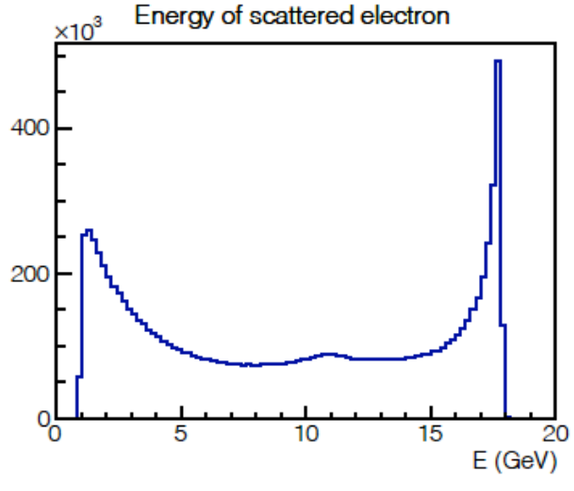
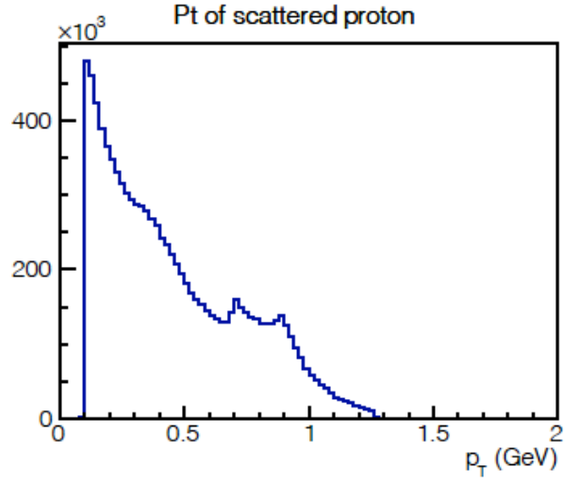
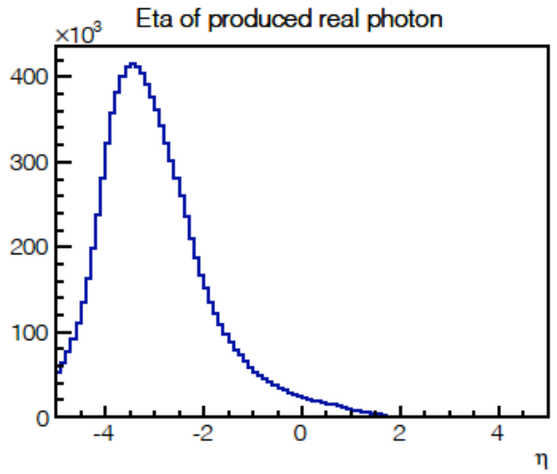


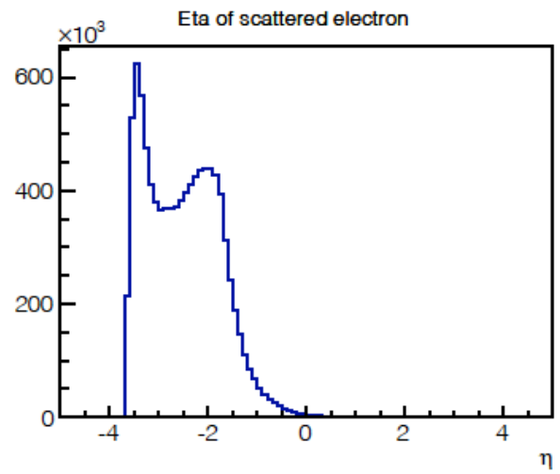


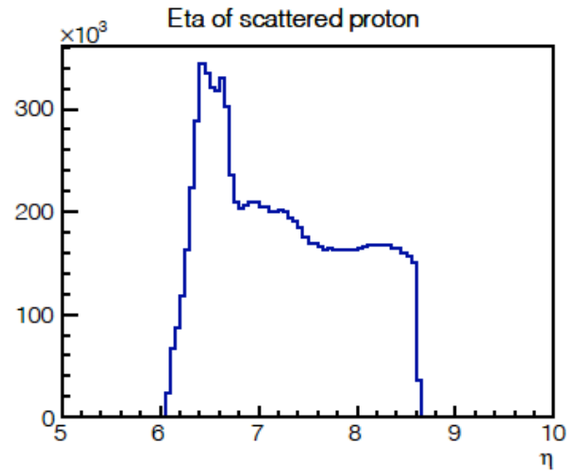


18x275 Final state particles Eta

BH







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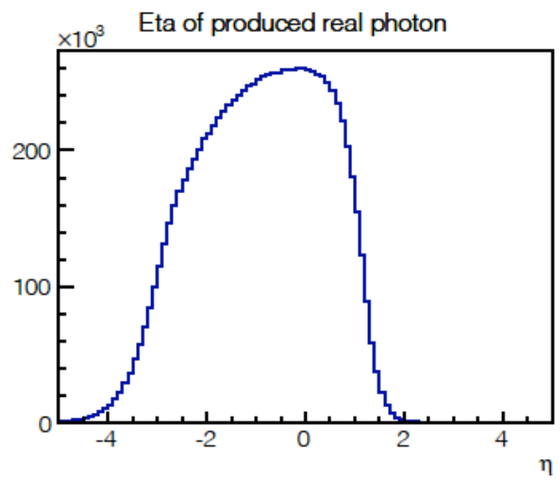

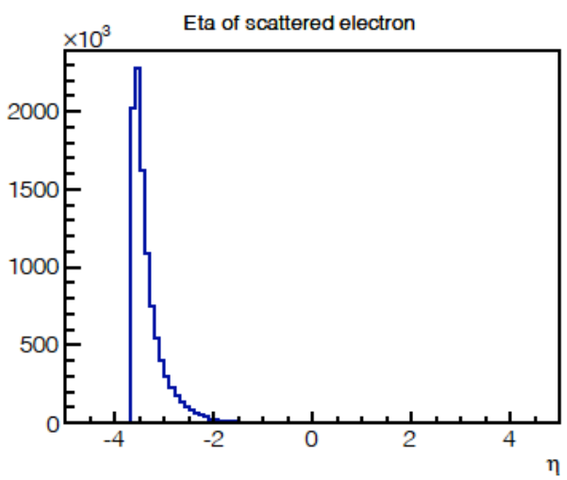

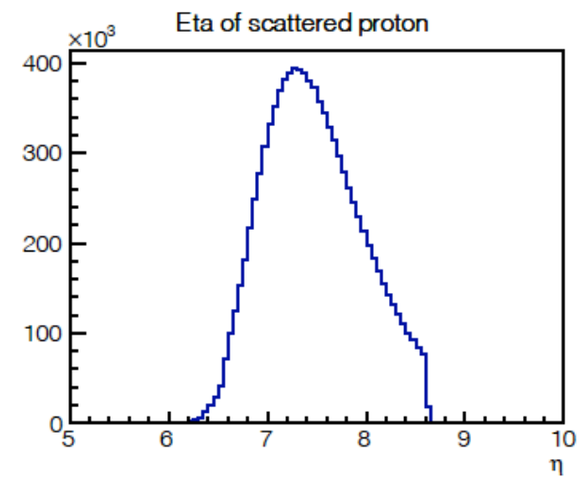

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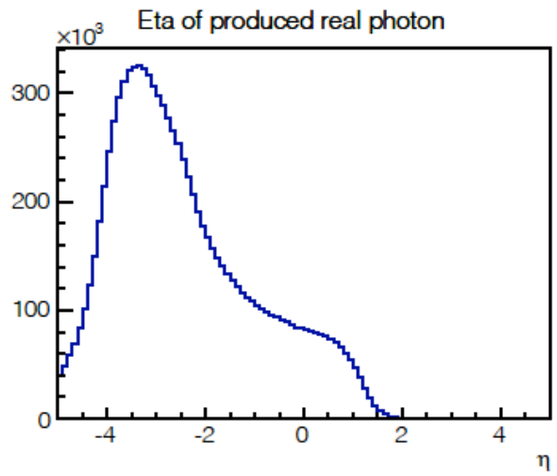

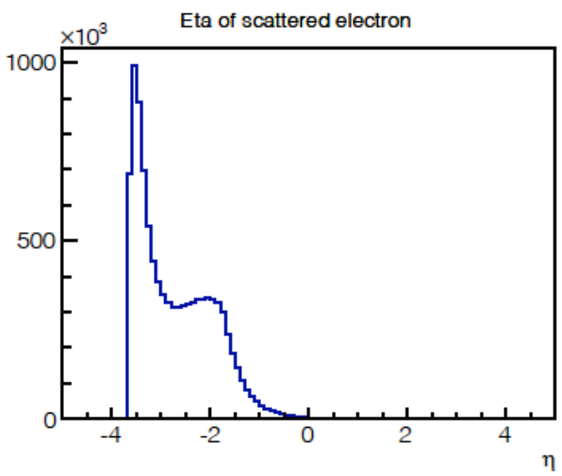

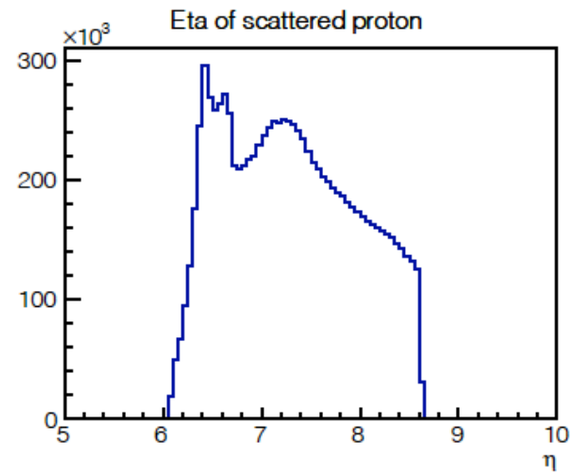

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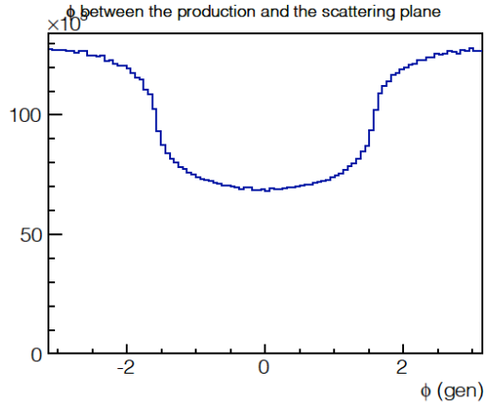

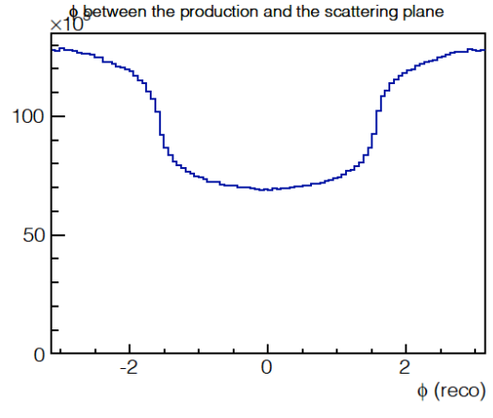

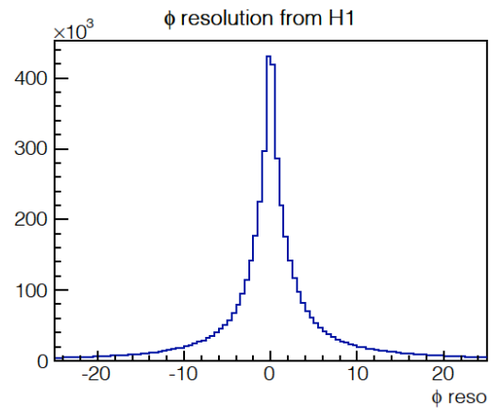

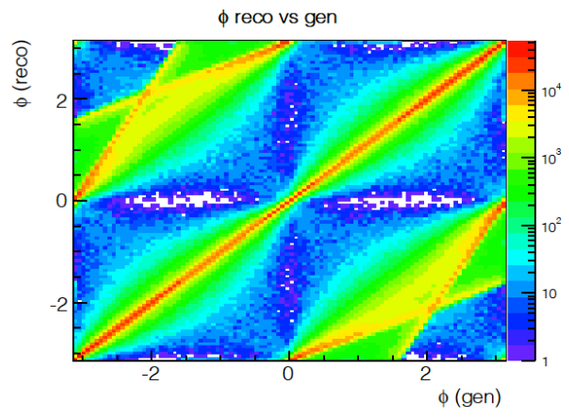

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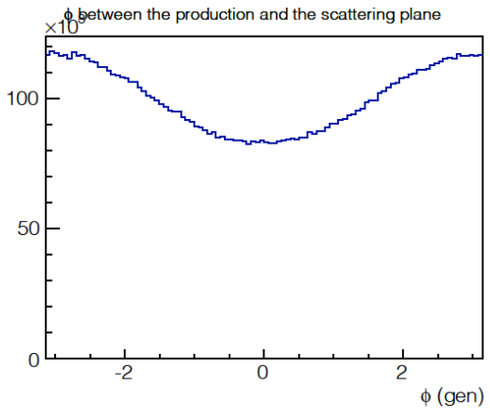

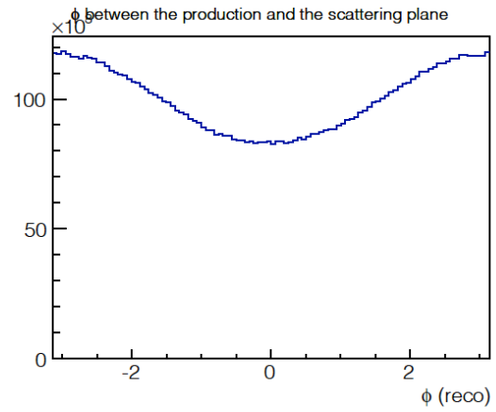

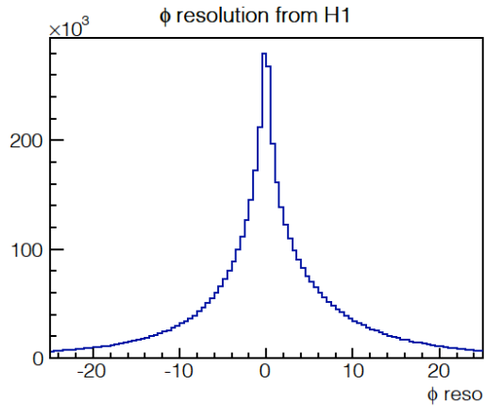

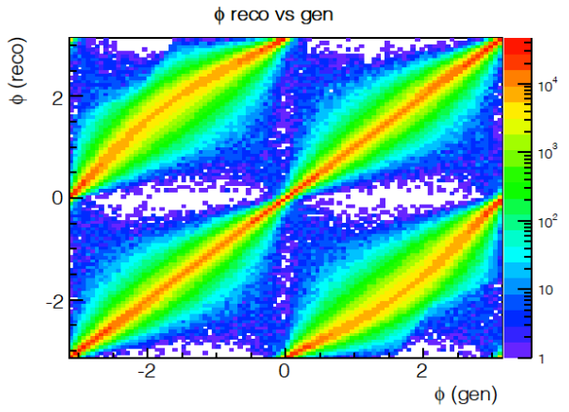

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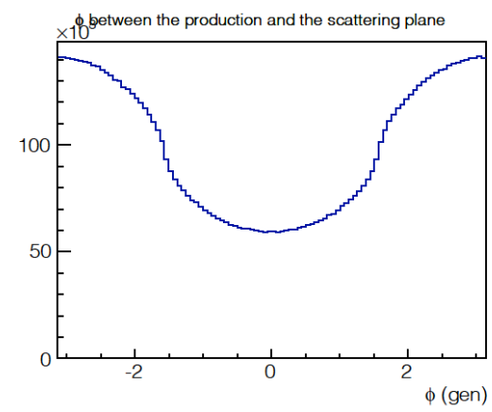
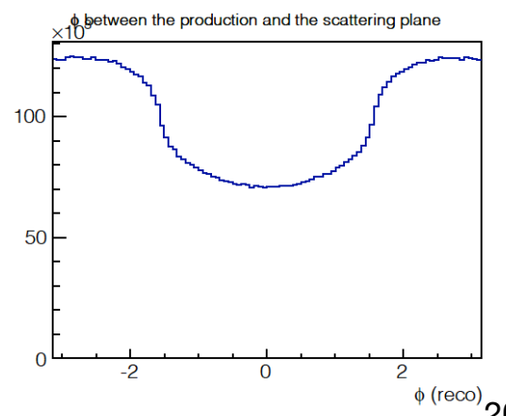
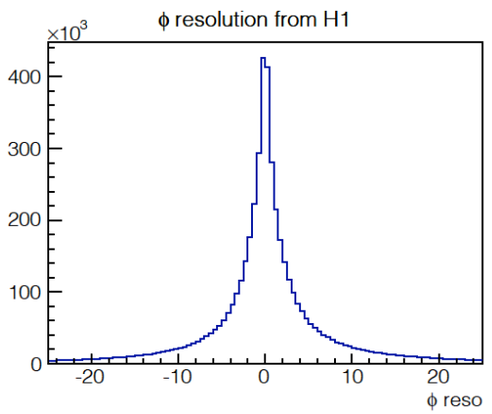
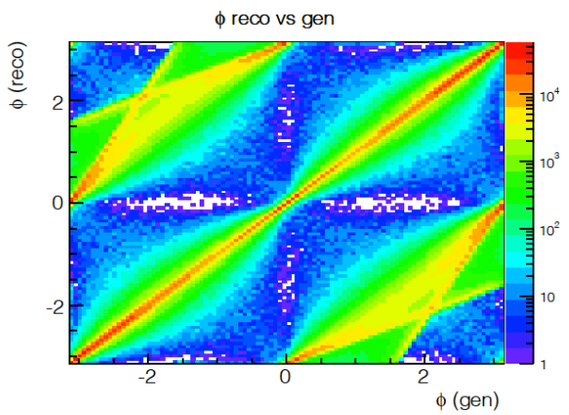


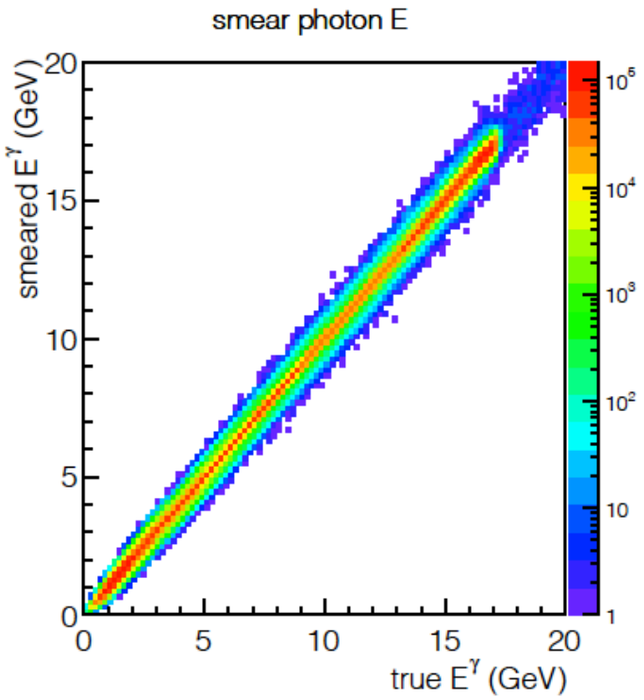


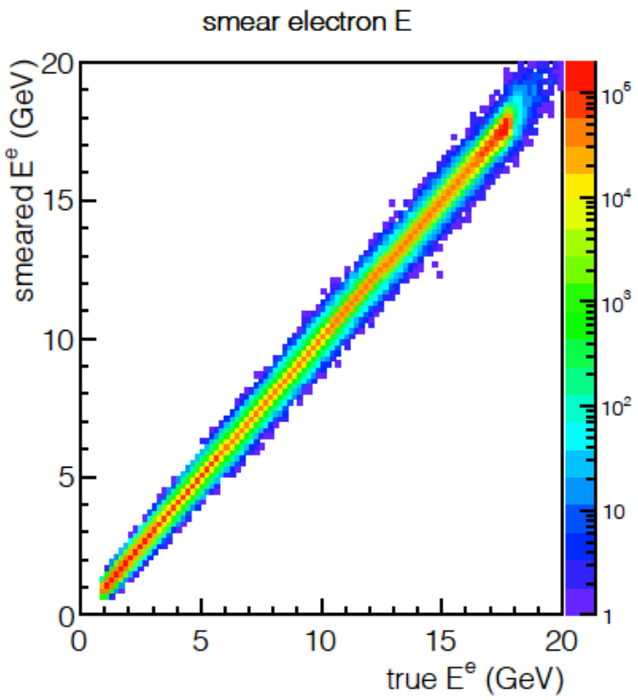


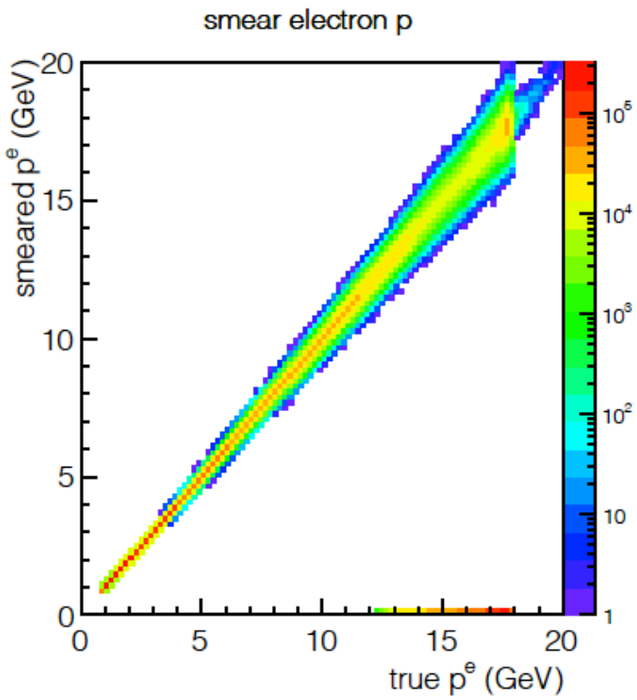


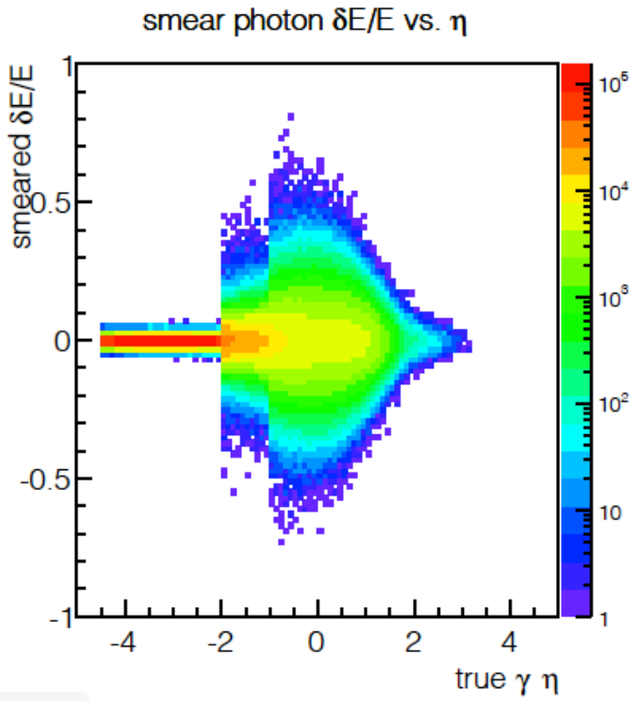
18x275 Smearing particles

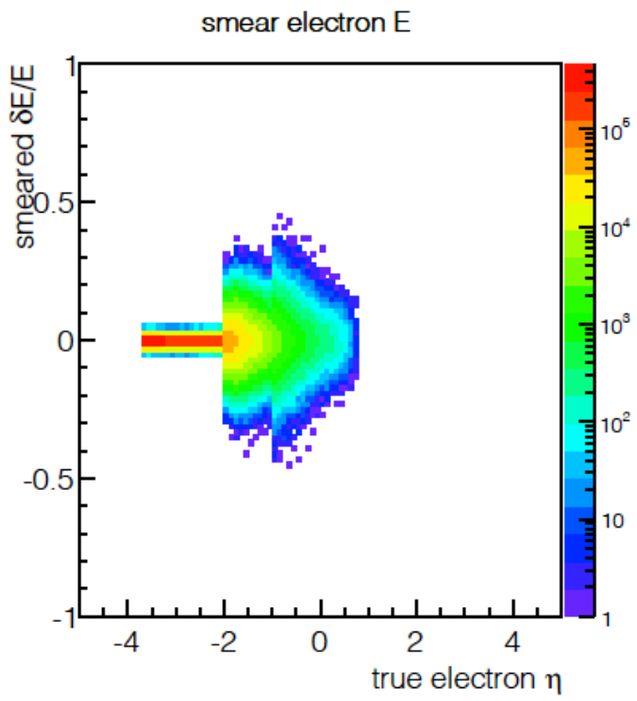
BH+DVCS+INT

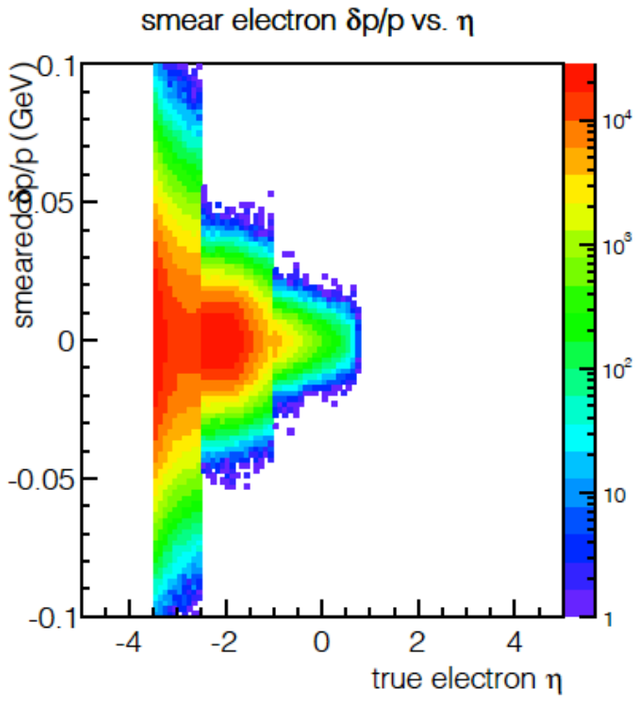






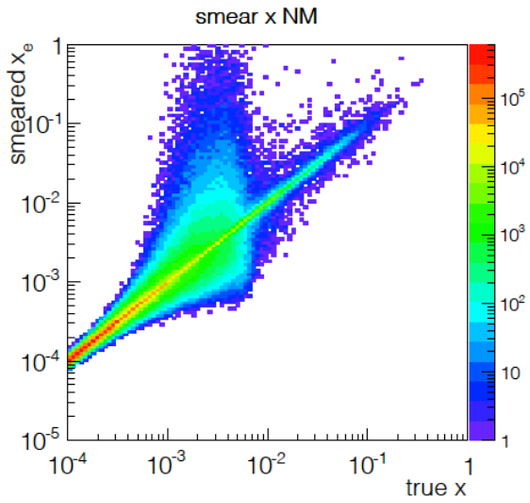


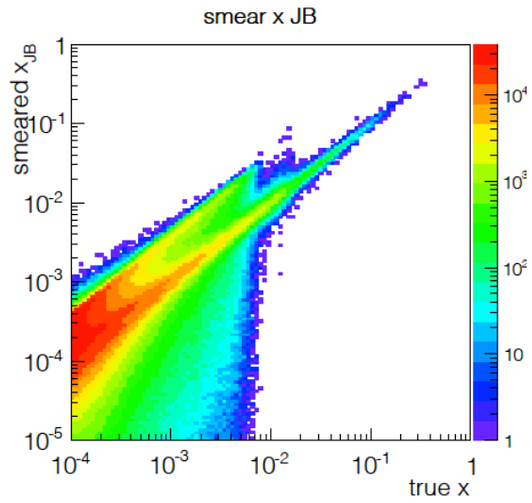


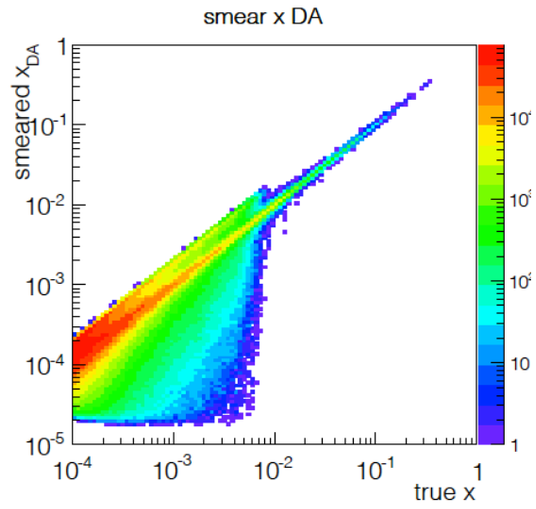


18x275 Smearing xB

BH







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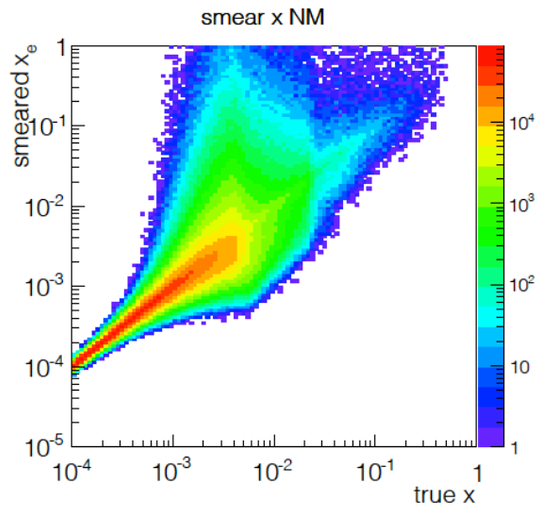
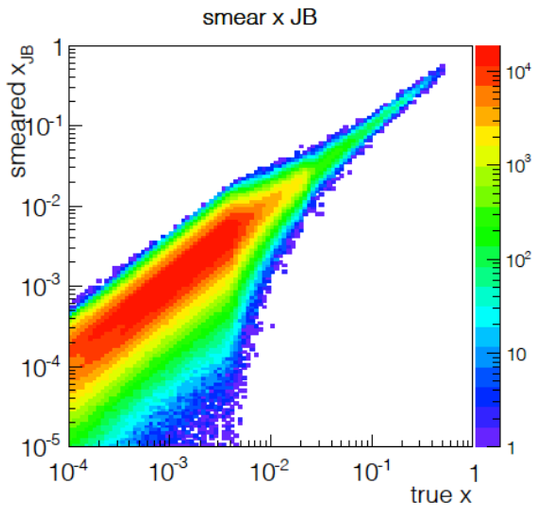
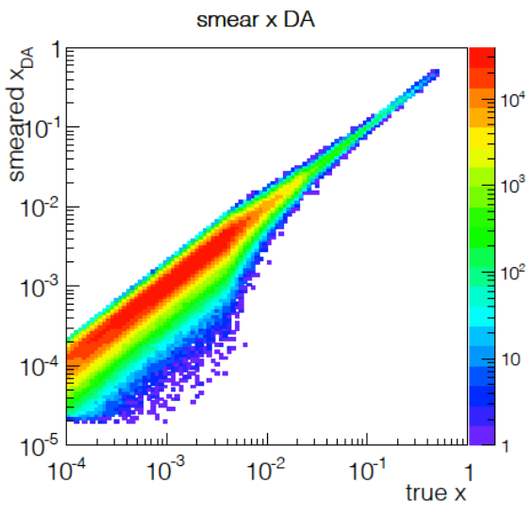
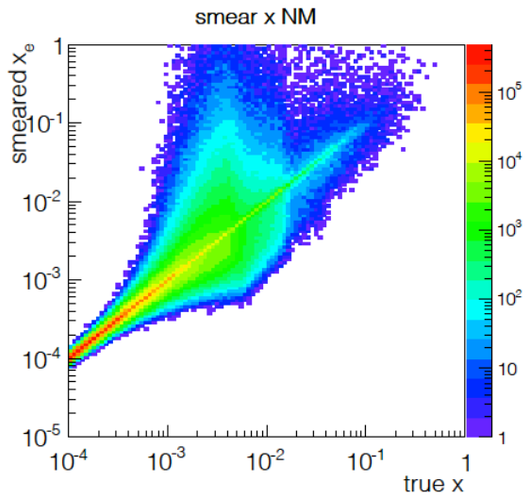
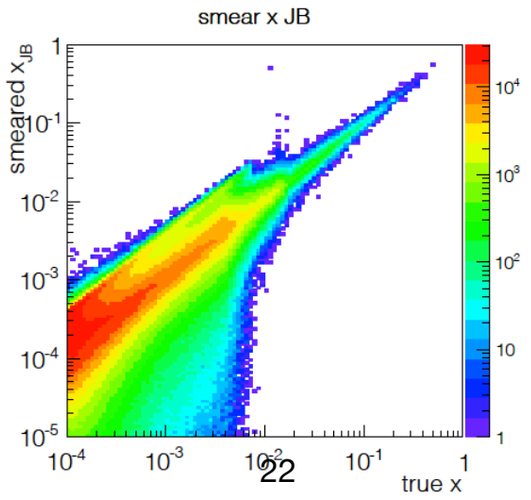


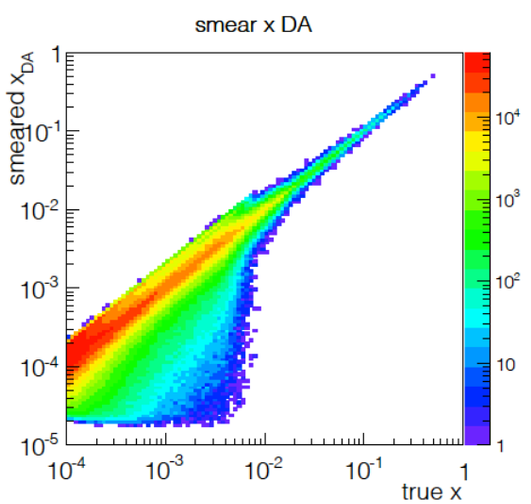




BH+DVCS+INT







18x275 Smearing Q2

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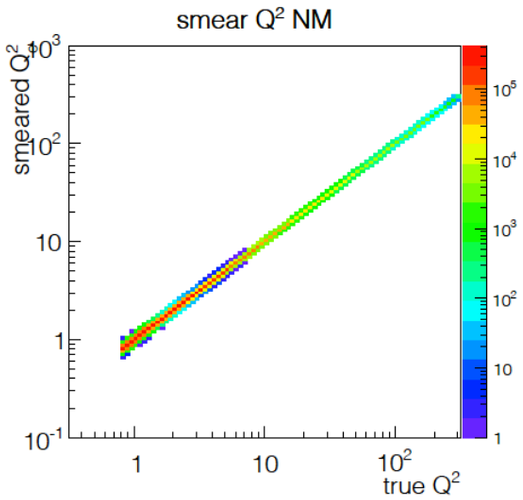

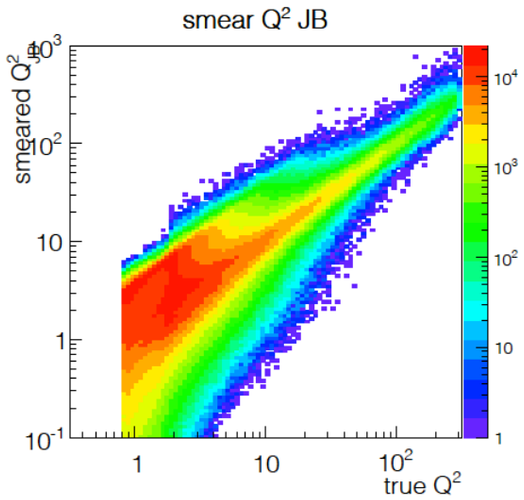

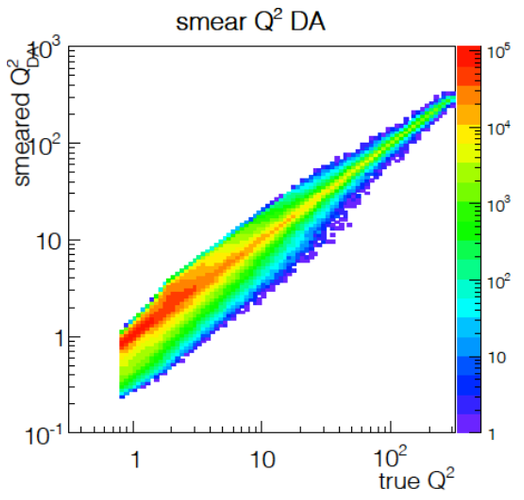

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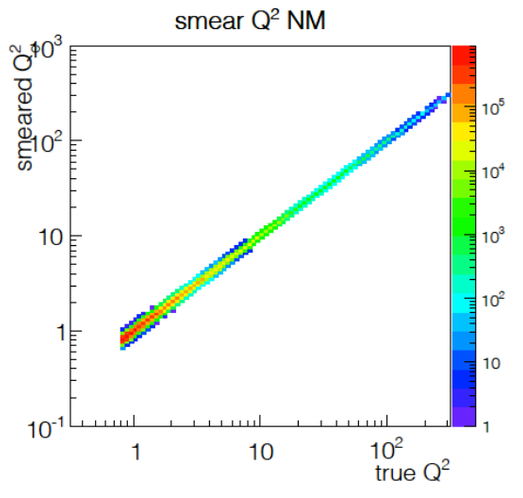
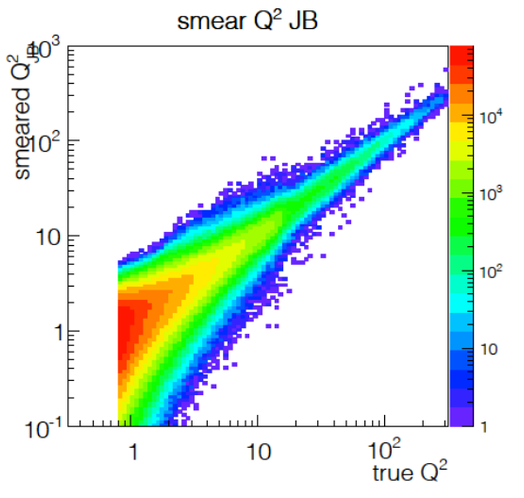
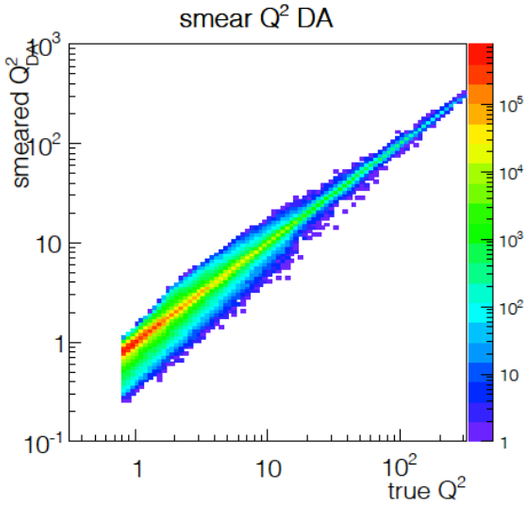
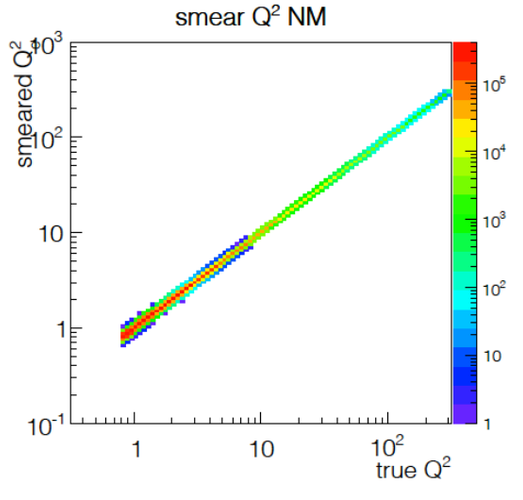
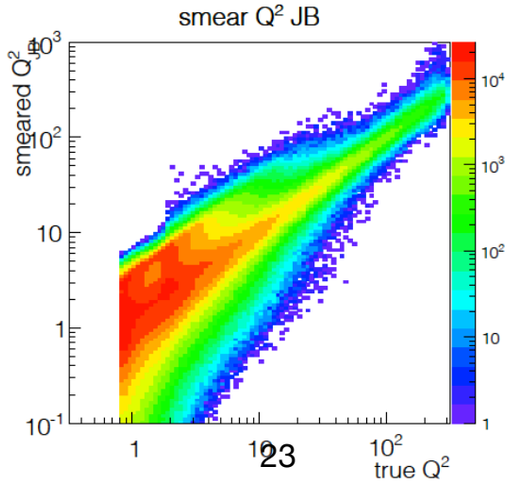


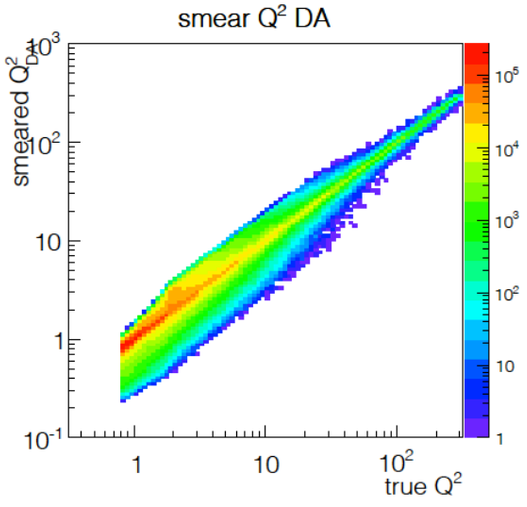




BH+DVCS+INT

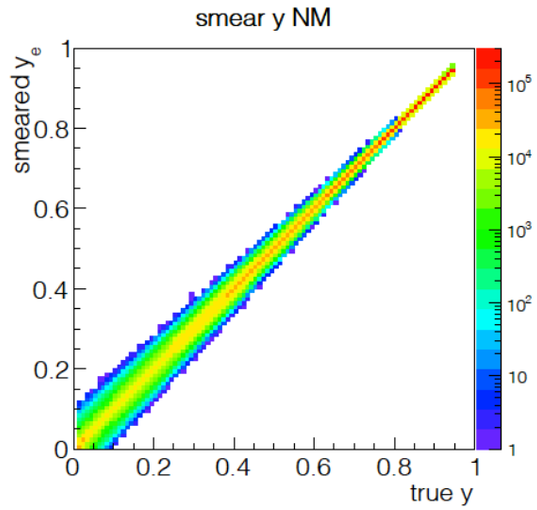


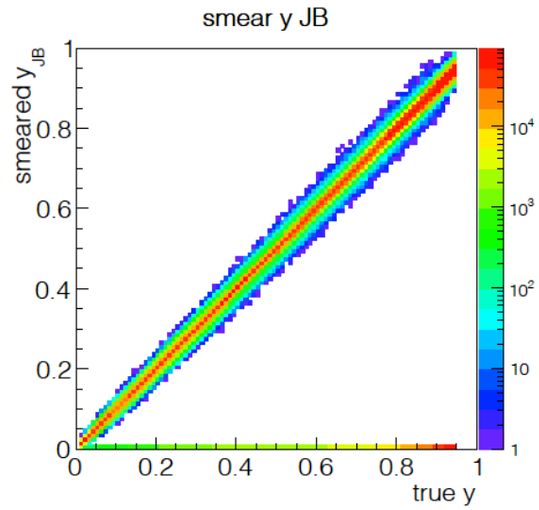


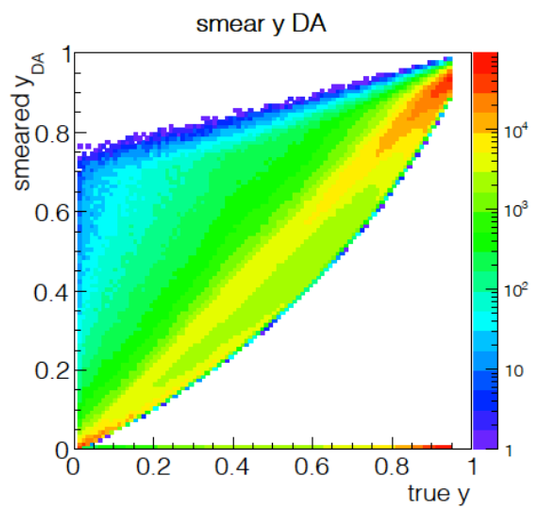


18x275 Smearing y

BH







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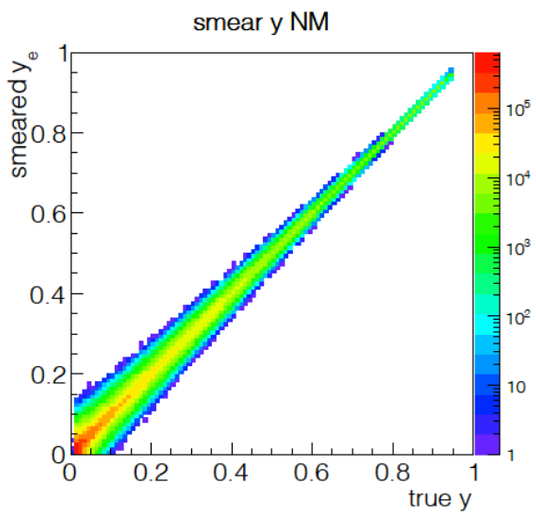

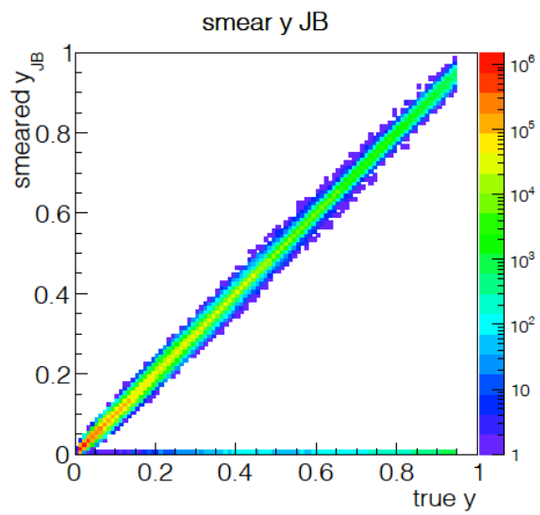

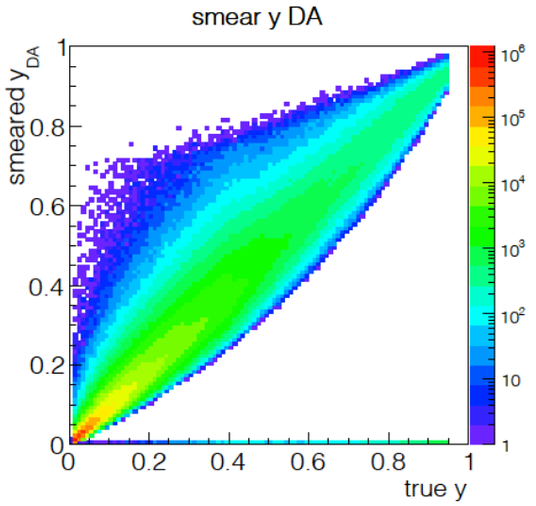

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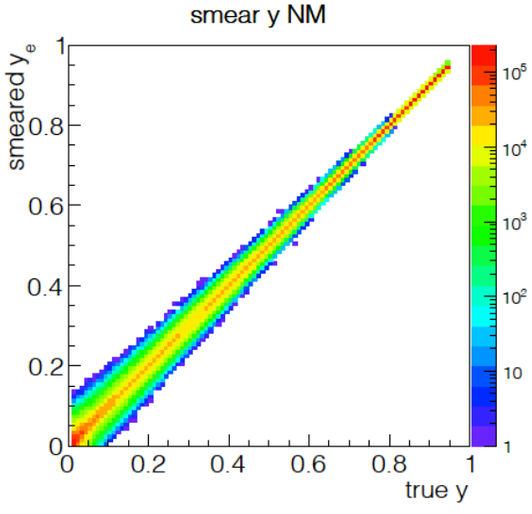
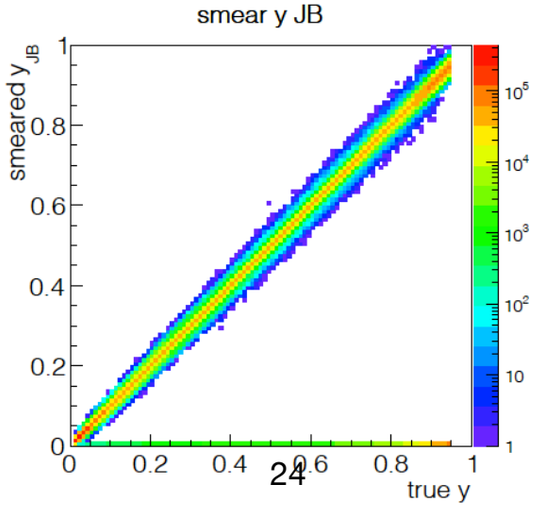
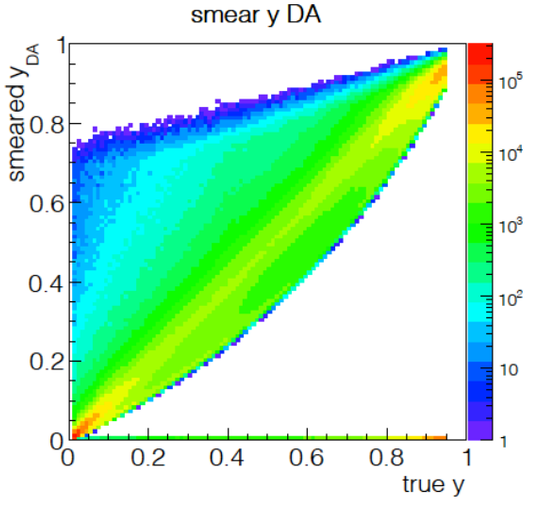
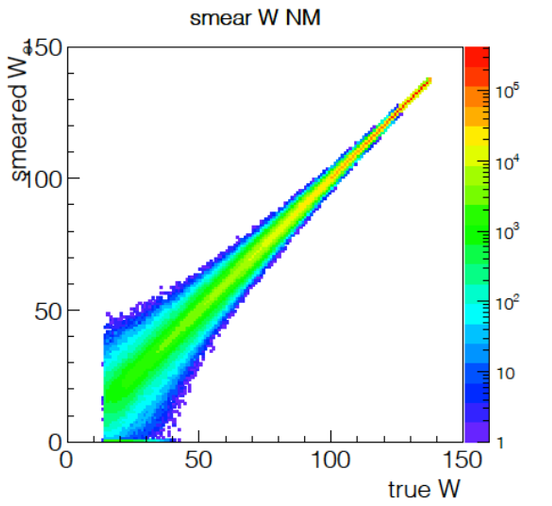


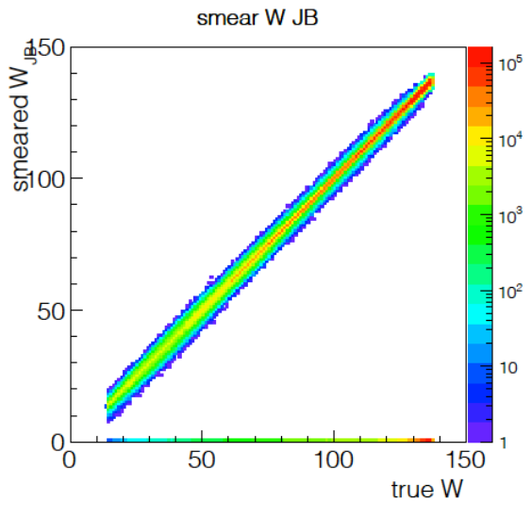


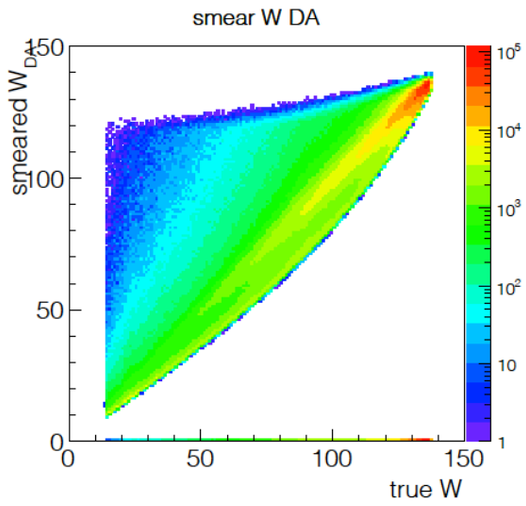


18x275 Smearing W

BH







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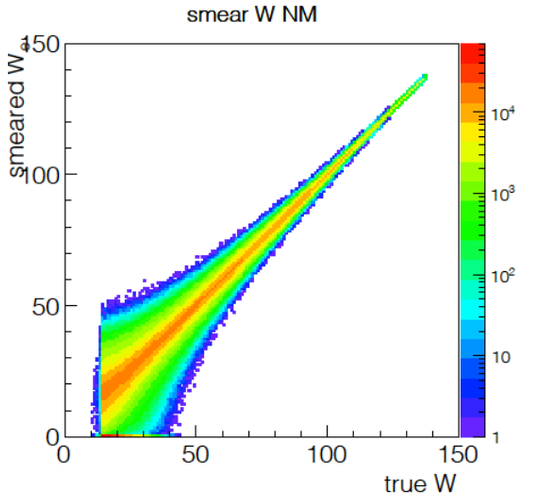

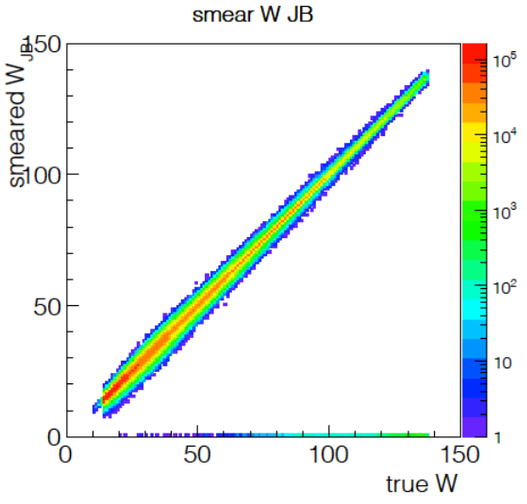

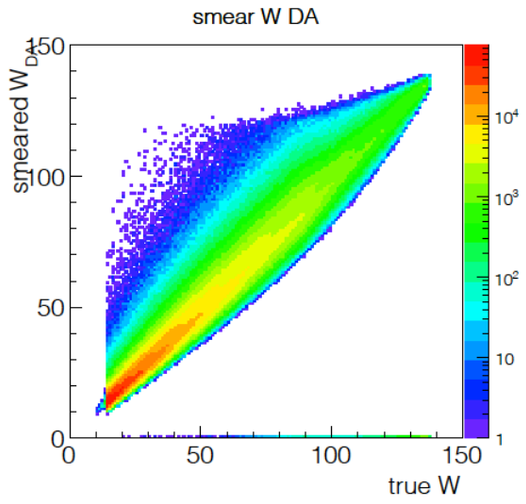

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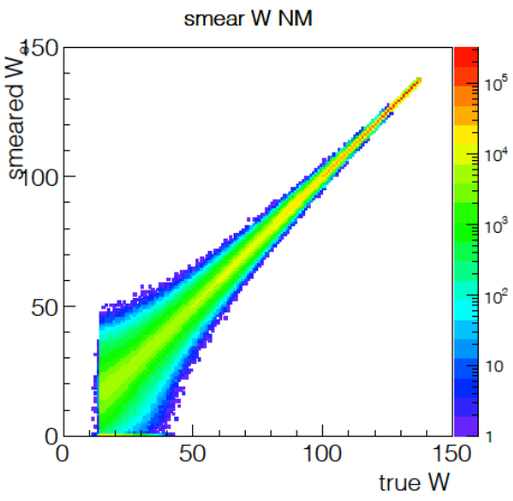
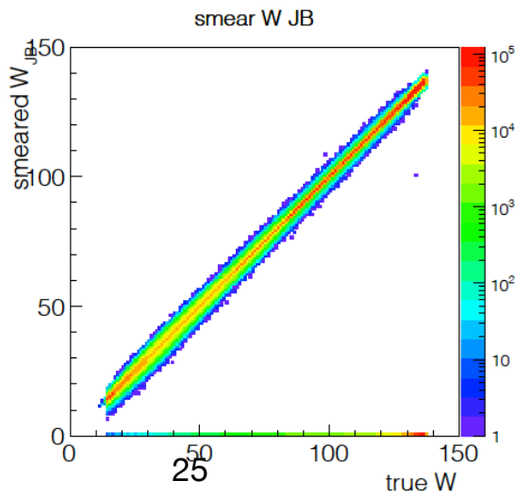
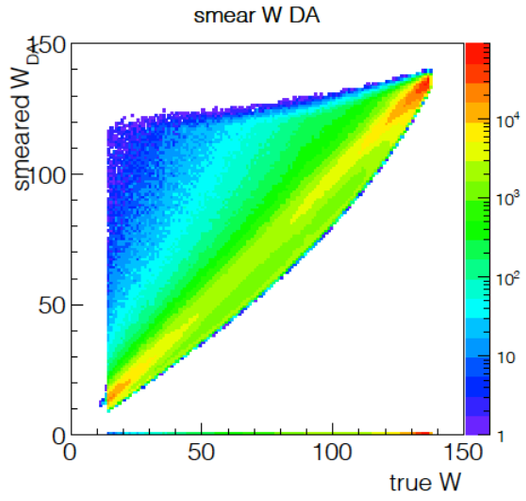
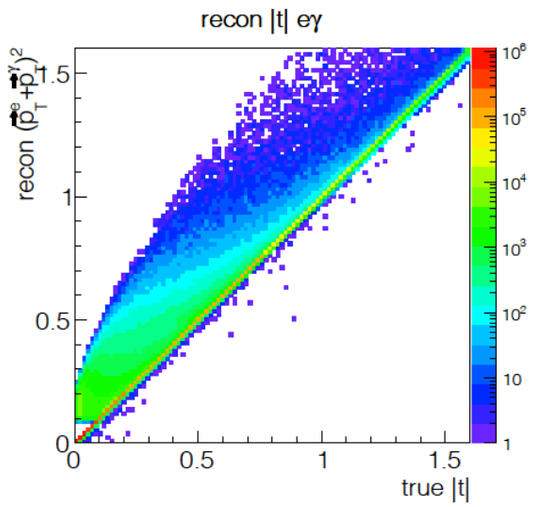


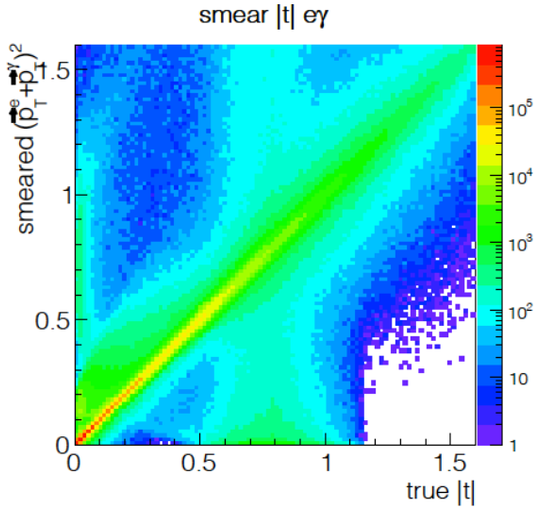




18x275 Reconstructing / Smearing |t|

BH





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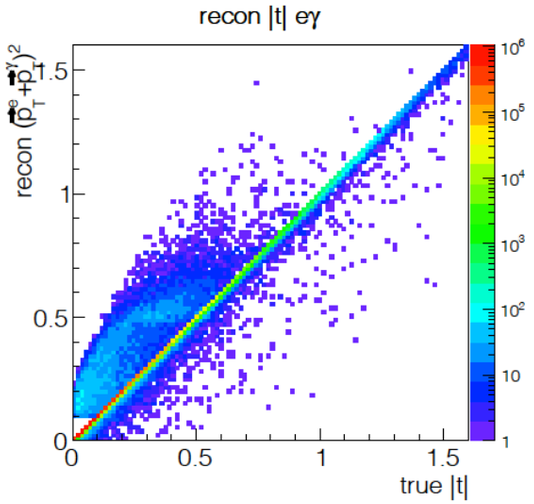

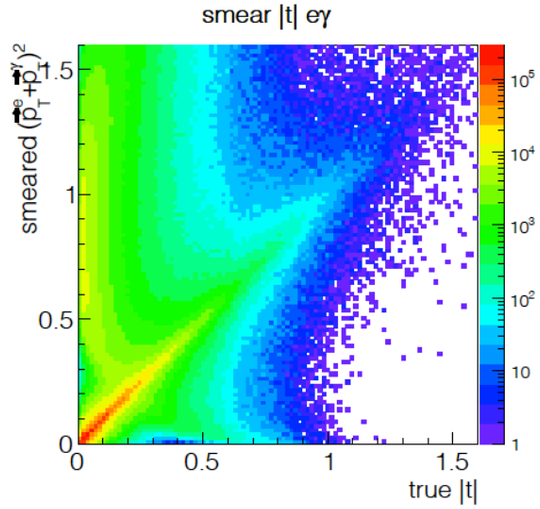

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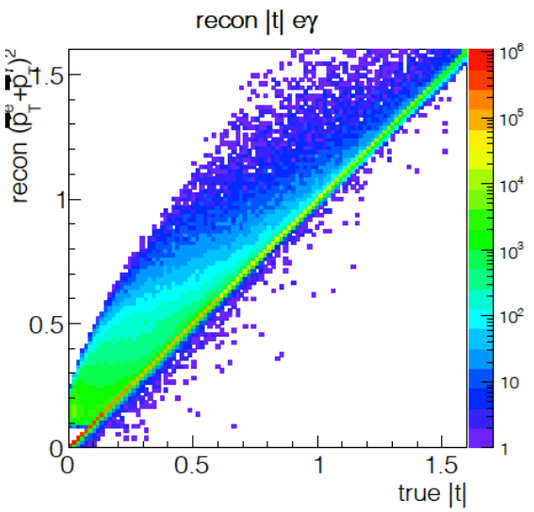

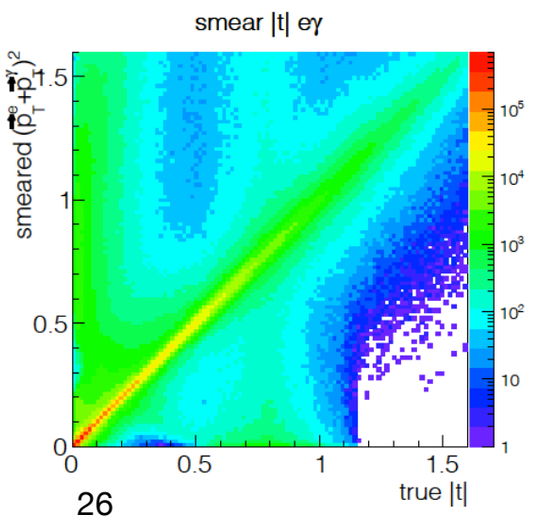

Proton smearing not included yet