



Photons study progress

CEPC Physics Performance Wednesday Working Meeting

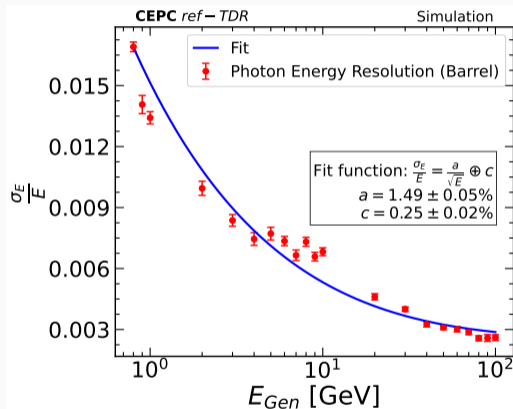
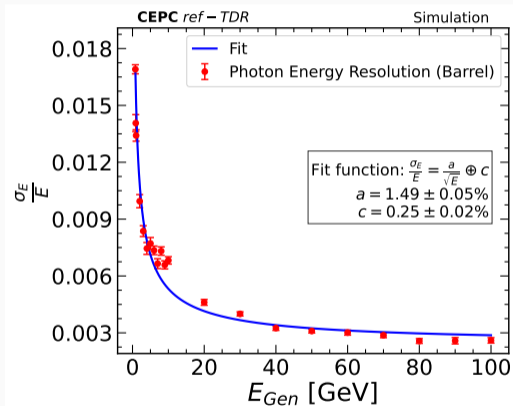
Mohamed Reda Mekouar

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Institute of High Energy Physics, Chinese Academy of Sciences

Energy Resolution relative to E_{gen}^γ

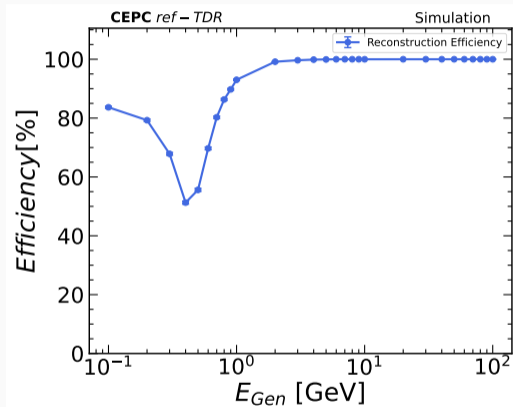
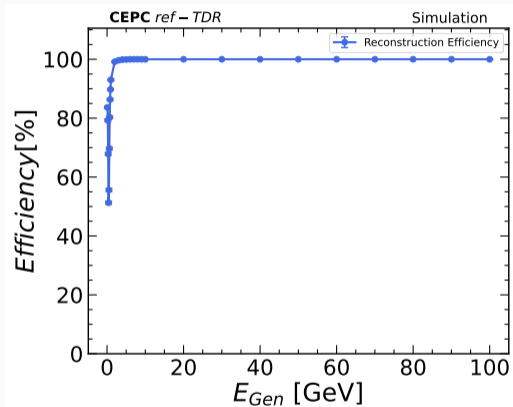
In the barrel:



Few discrepancies for points not fitted well due to the gaps impact (dead material alongside both θ and Φ)

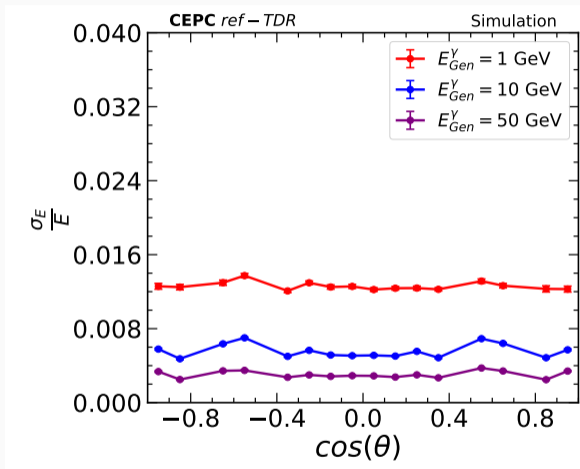
Endcap results are being reviewed

Reconstruction efficiency relative to E_{gen}^γ



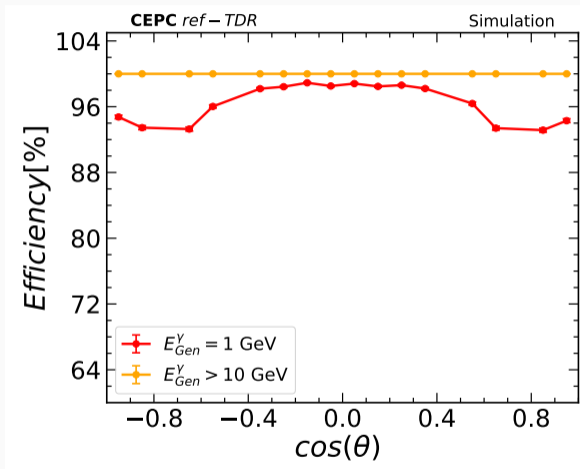
Additional algorithm adopted to fix reconstruction at low energies only below 300 MeV (preventing misID of cluster fragments of charged particles as photons)

Energy Resolution relative to $\cos(\theta)$



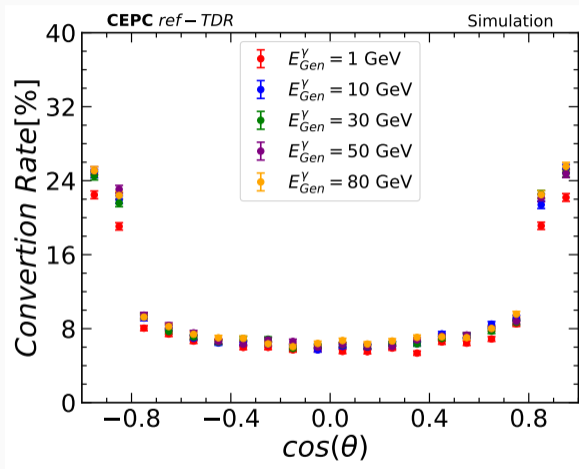
Adding curves for energies (2GeV, 700 MeV): samples being generated

Reconstruction efficiency relative to $\cos(\theta)$



Adding curves for energies (2GeV, 700 MeV): samples being generated

Conversion Rate relative to $\cos(\theta)$



More points in the crack region ($0.79 < \cos(\theta) < 0.845$) to be added in order to study the evolution of the conversion rate

Packages with selected events ready for both signal and background in $q\bar{q}\gamma\gamma$ sub-channel

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==== Event Selection Summary ====  
Total events processed:      99833  
Pass exclusive two photons and two jets requirement:  99800 (99.9669%)  
Pass energy cuts:           96937 (97.1313%)  
Pass angular cuts:          82757 (85.3719%)  
Pass jets angular cut:      80921 (97.7815%)  
Pass pt cuts:               75038 (92.7299%)  
Pass energy sum cut:        64930 (86.5295%)  
Pass mass window cut:       65473 (100.836%)  
Pass photon-jet angular cut: 64930 (99.1707%)  
Final selected events:      64930 (65.0386%)
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Ready to apply BDTs for MVA, calculate the uncertainties and proceed with statistical study for precision measurement of $\sigma \times Br$

Thank you!