

EEE meeting

Stima risoluzione EEE con la simulazione

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M.Ungaro + L. Bindo, A. Rosano

30 ottobre 2019

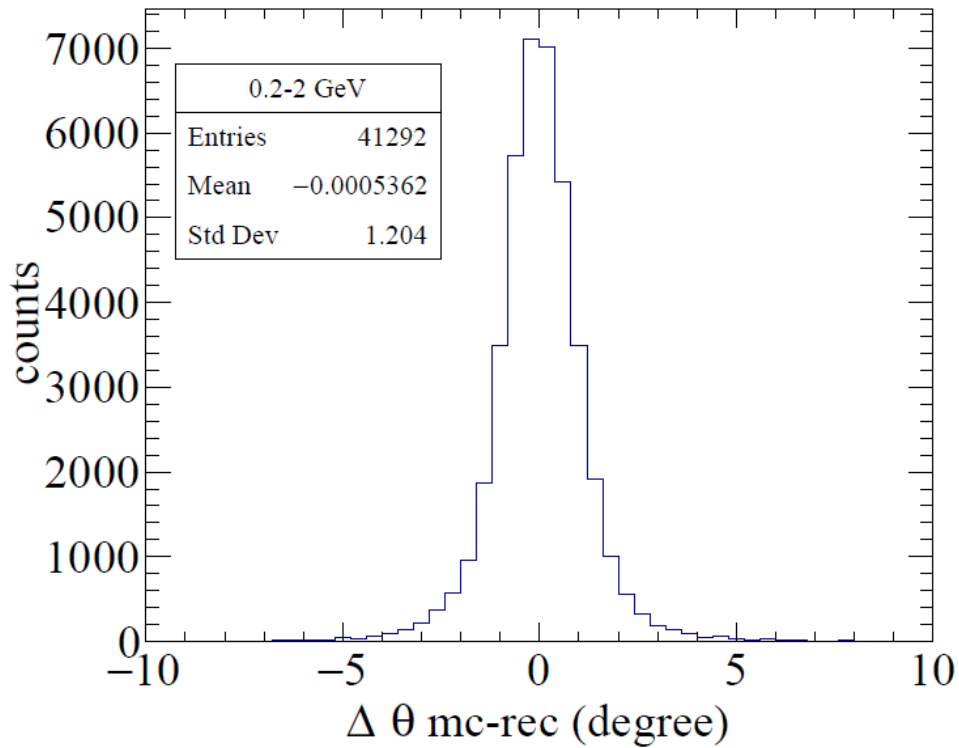
- No news sul paper – ci siamo concentrati a Messina sullo studio della risoluzione
- Risoluzione in theta e phi e spaziale
- Differenze in 3 range di energia e globale
- Telescopio all'aperto vs telescopio in struttura tipo GENO-01 / CATA-01
- Conclusioni

Nota di servizio

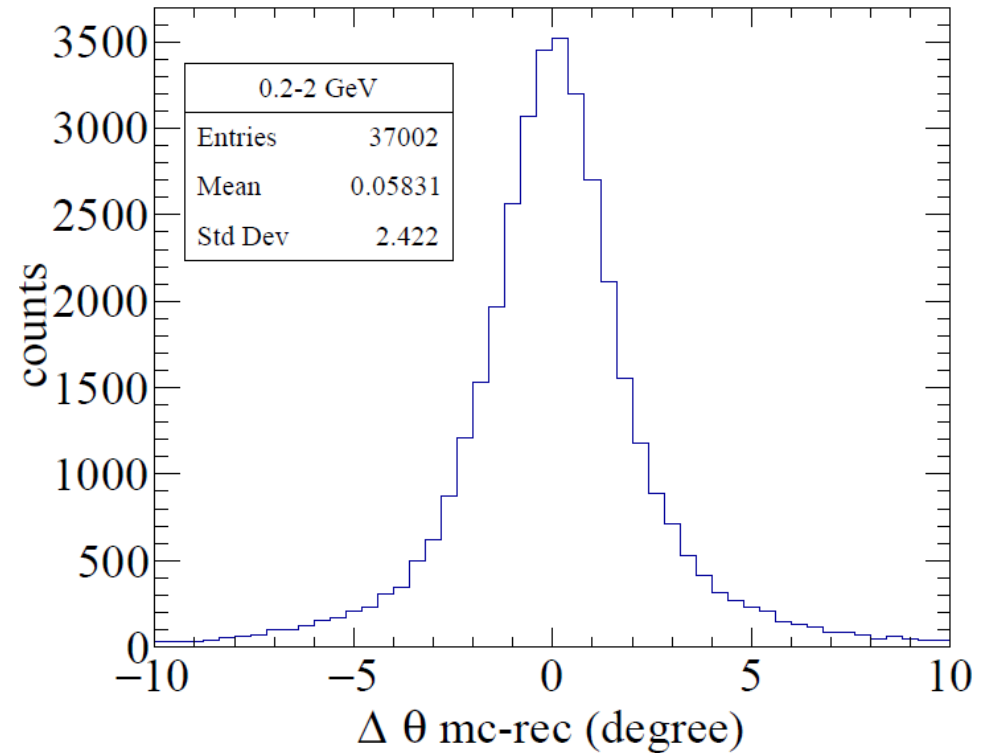
Assi (aiuto!)	
GEMC	EEE
Y	Z
-X	Y
-Z	X

Risoluzione- angolo polare 0.2-2 GeV

Senza Barriera

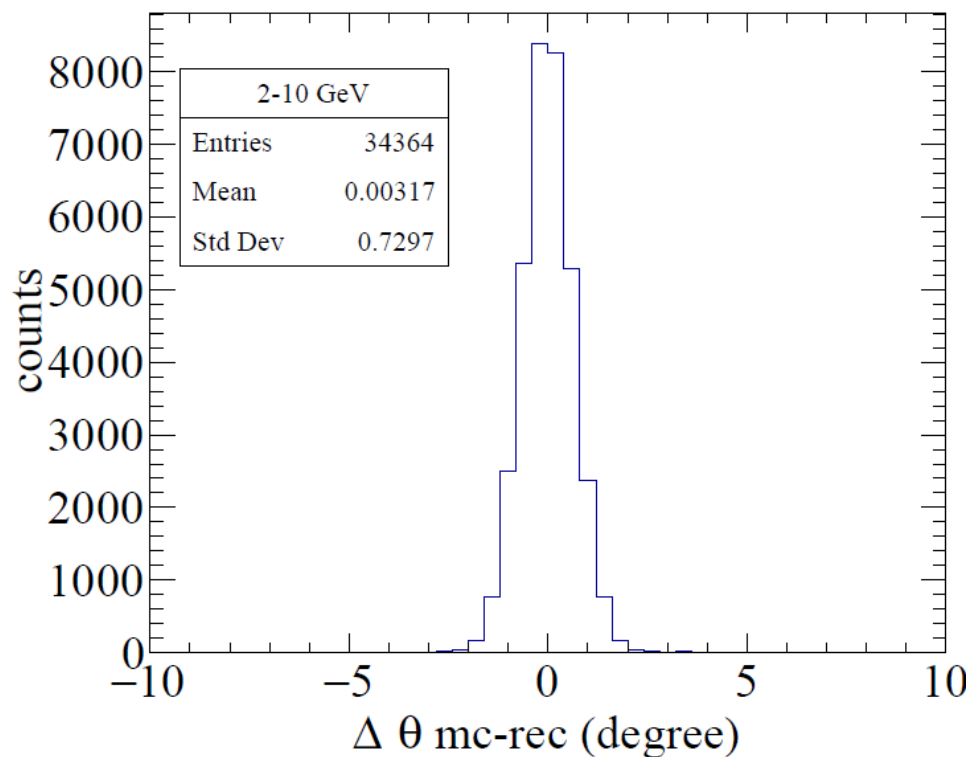


Con Barriera

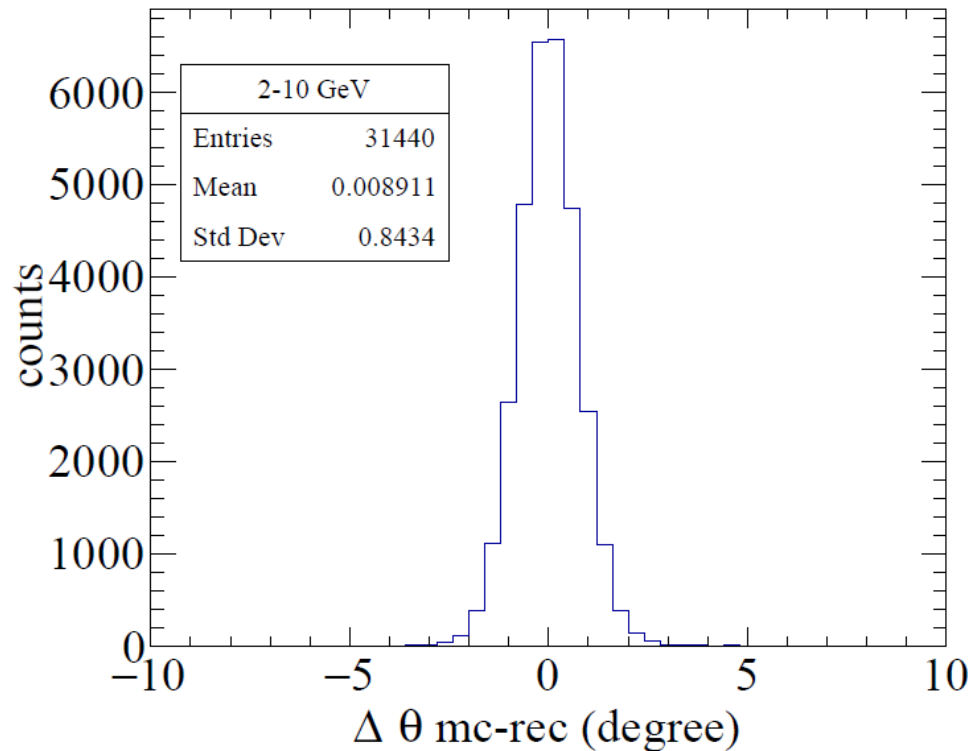


Risoluzione- angolo polare 2-10 GeV

Senza Barriere

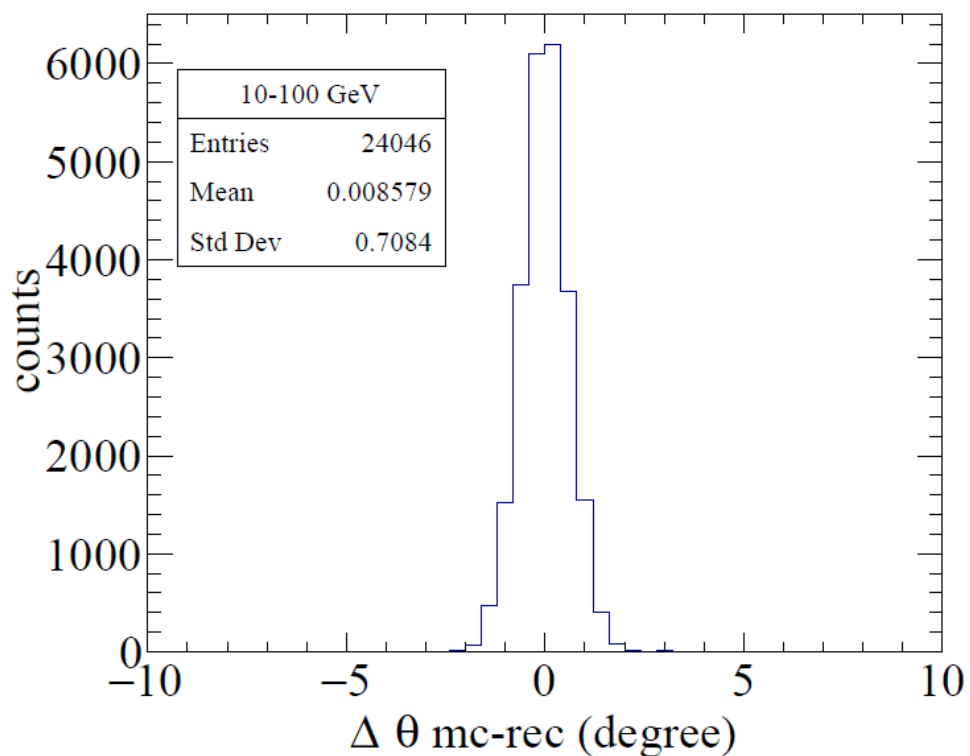


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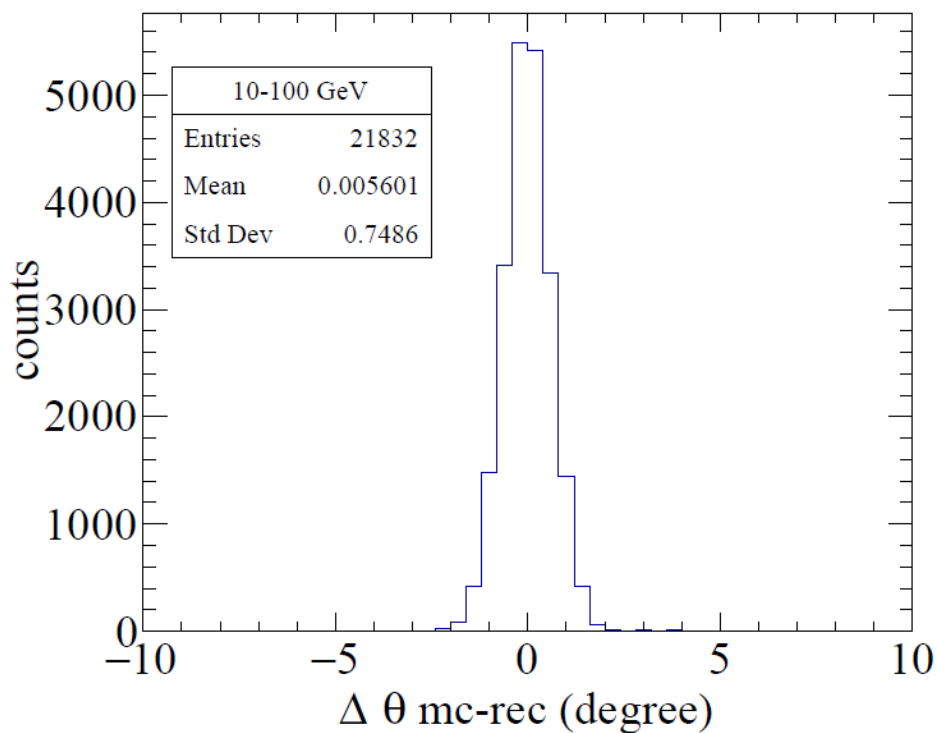


Risoluzione- angolo polare 10-100 GeV

Senza Barriere

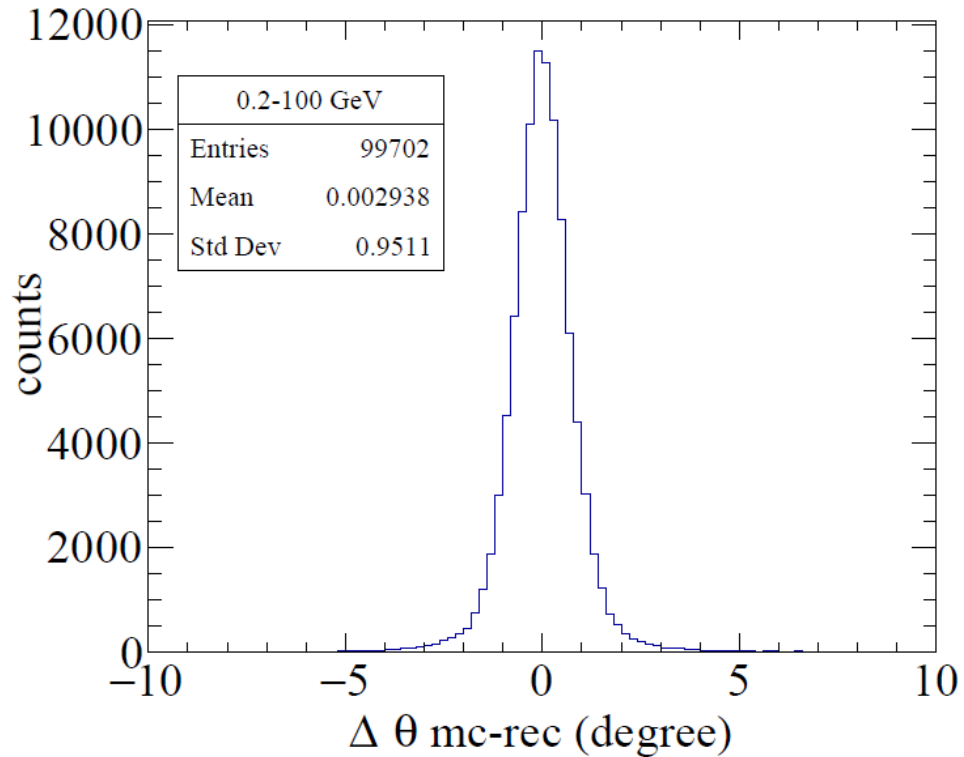


Con Barriere

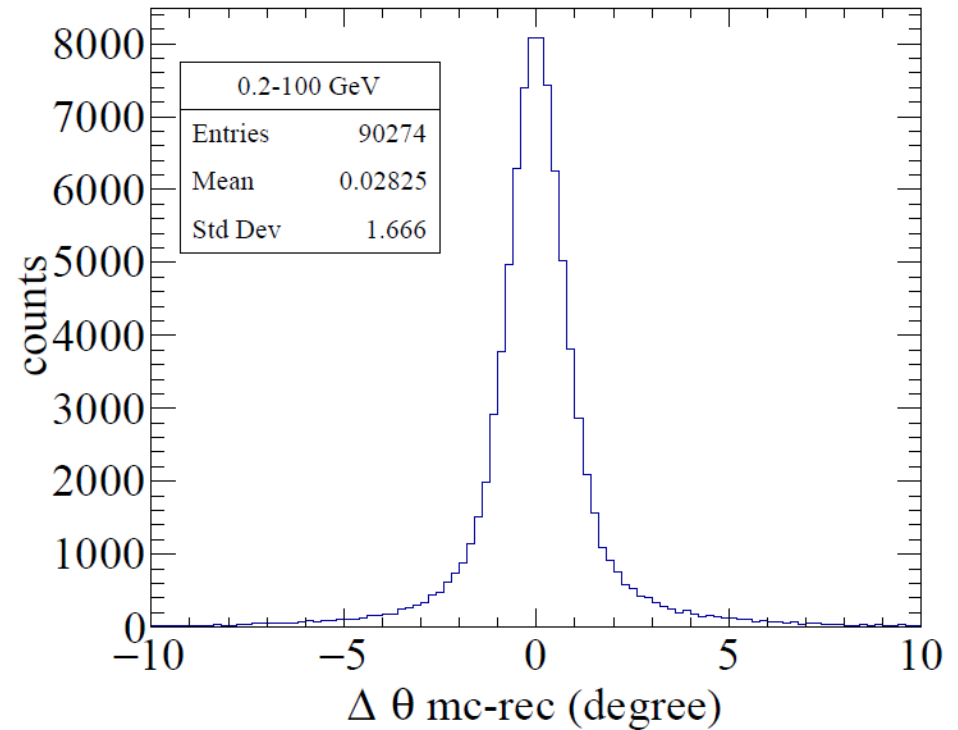


Risoluzione- angolo polare .2-100 GeV

Senza Barriere

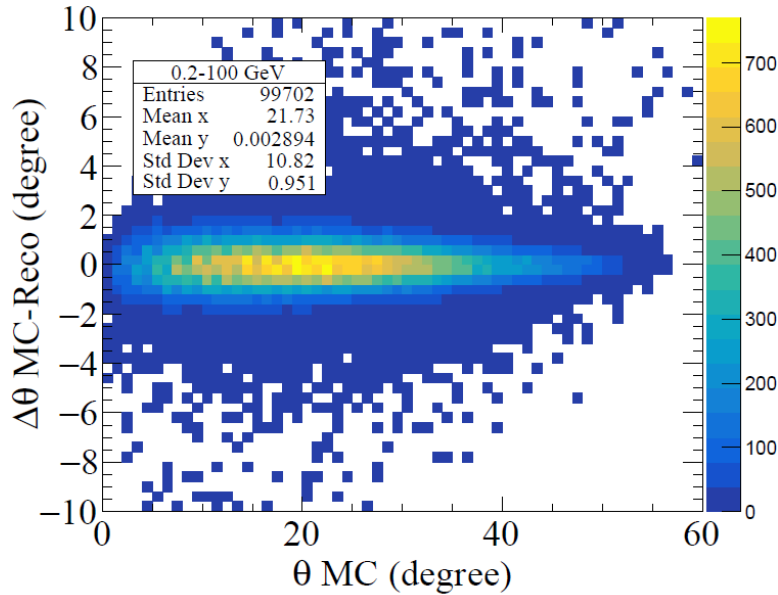


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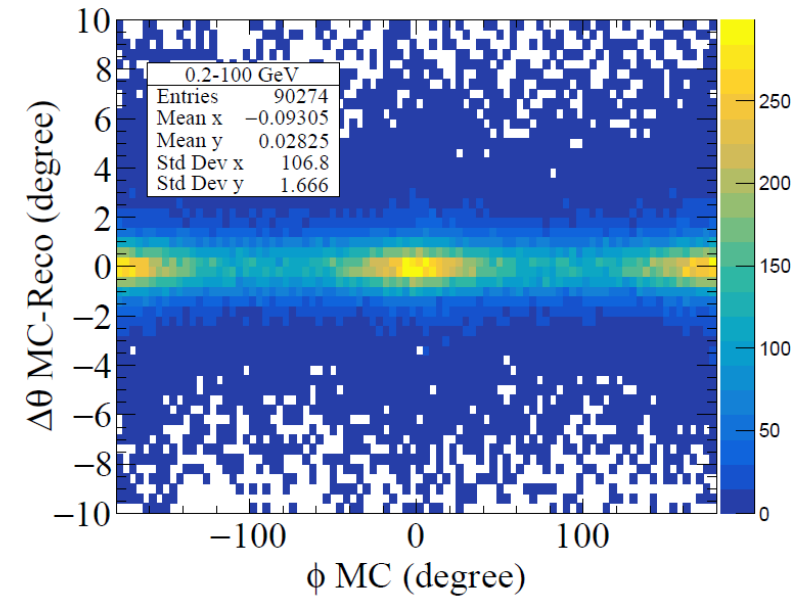
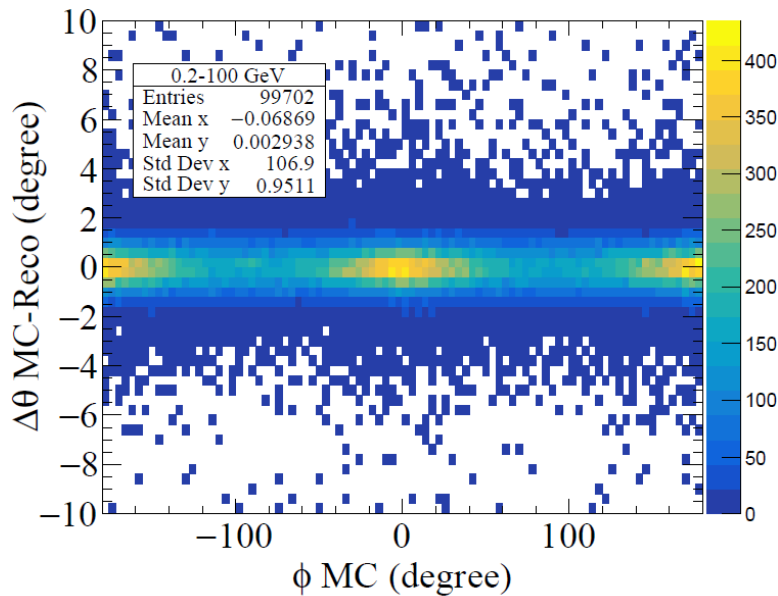
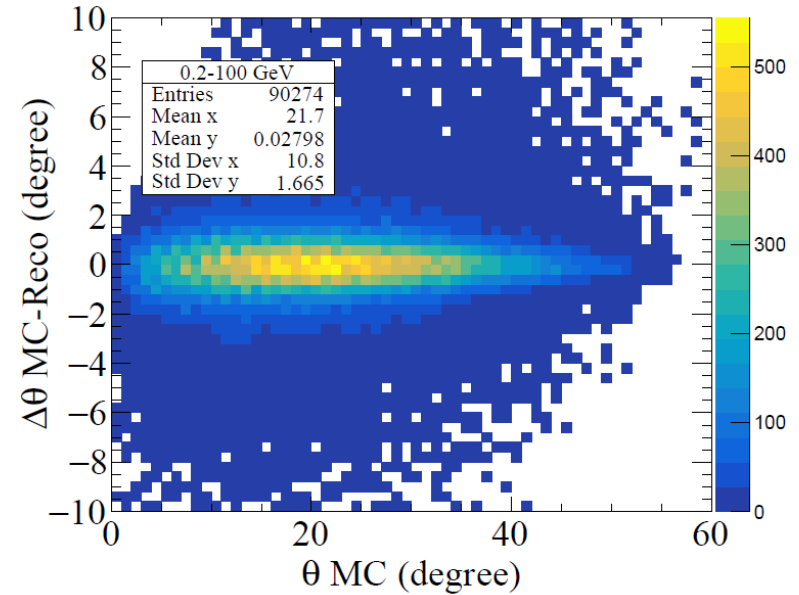


Risoluzione polare vs theta e phi

Senza Barriere

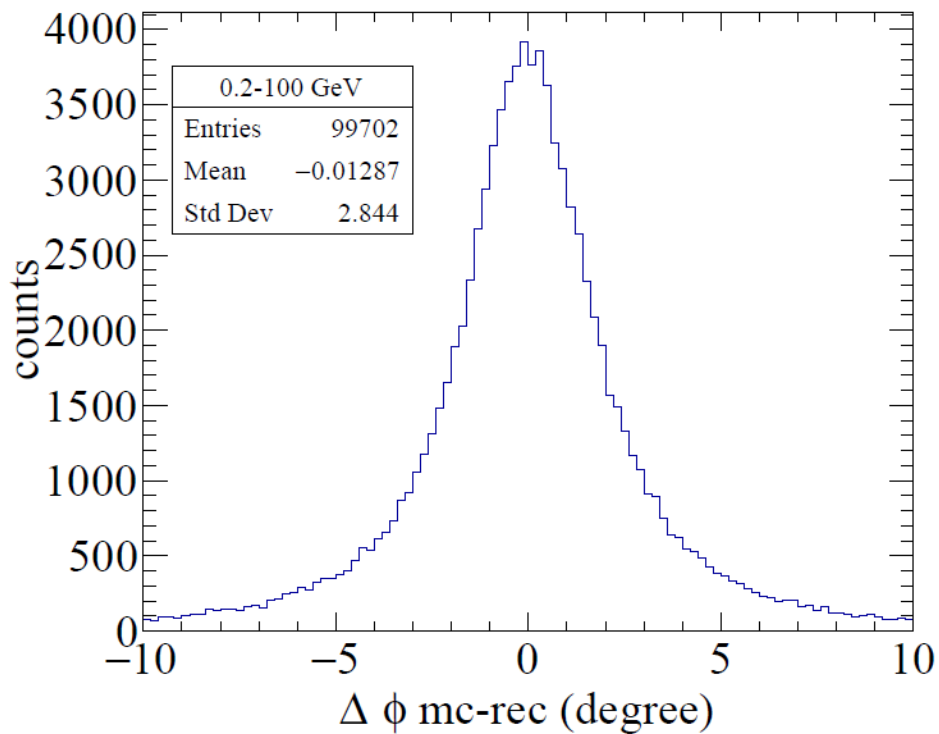


Con Barriere

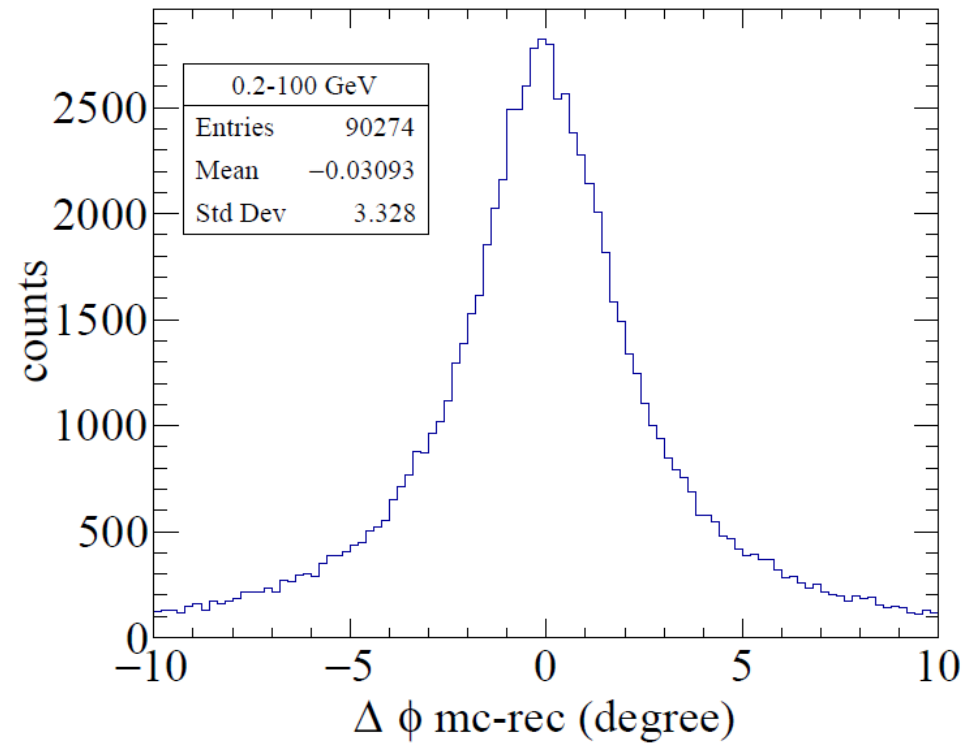


Risoluzione- angolo azimutale .2-100 GeV

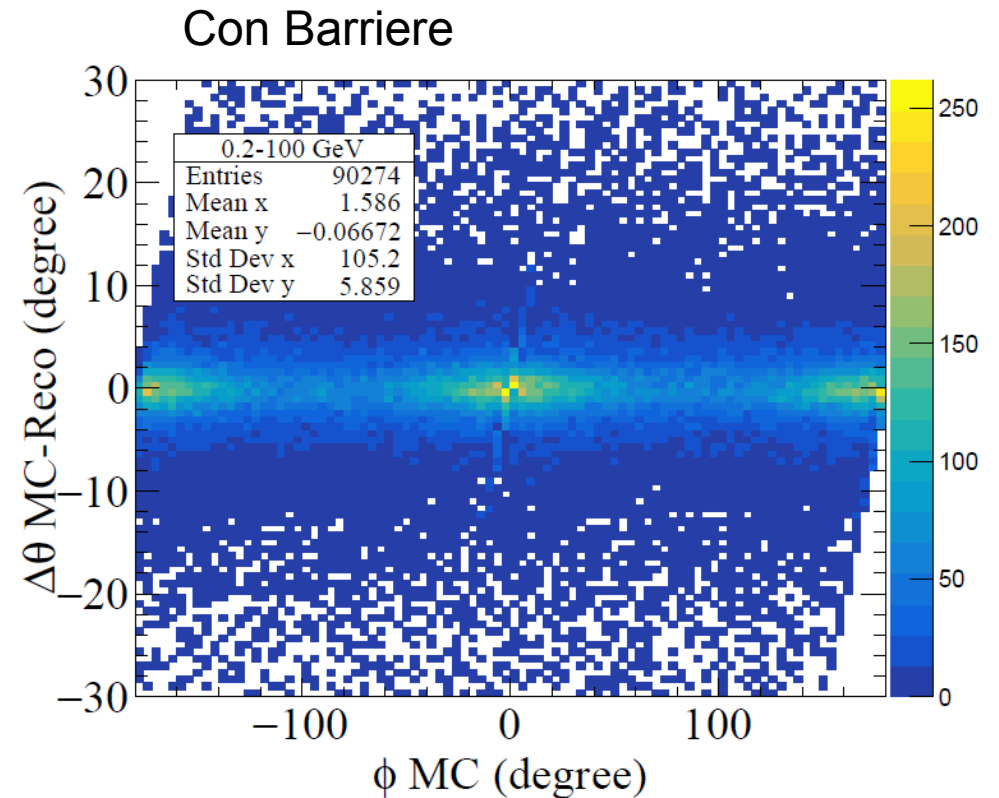
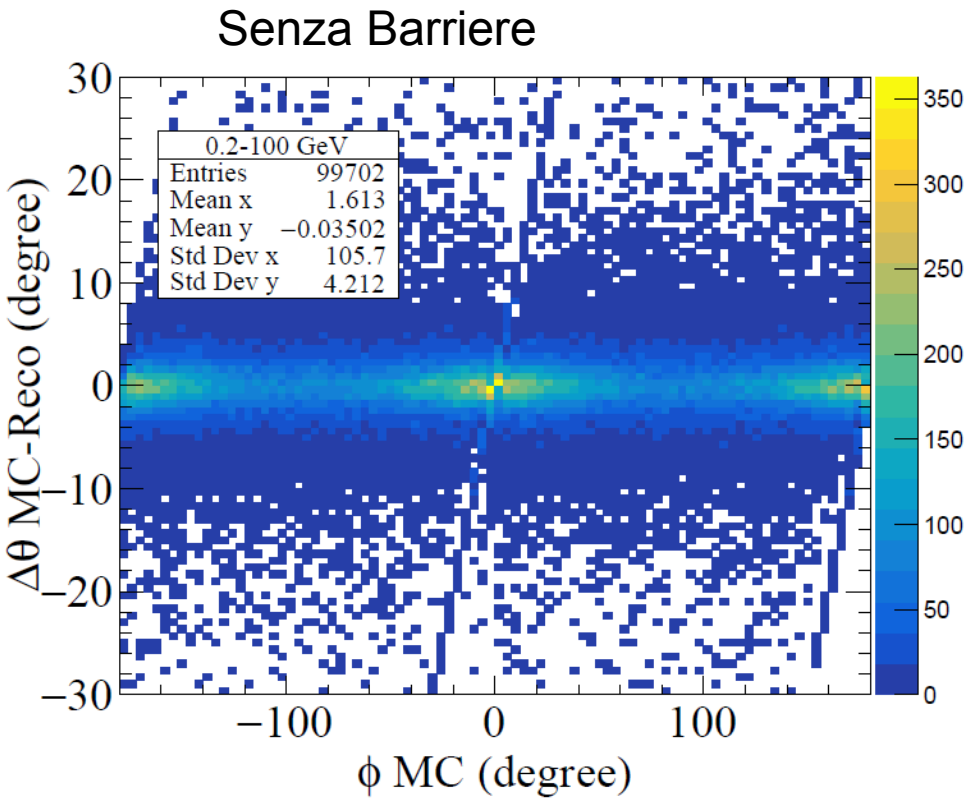
Senza Barriere



Con Barriere

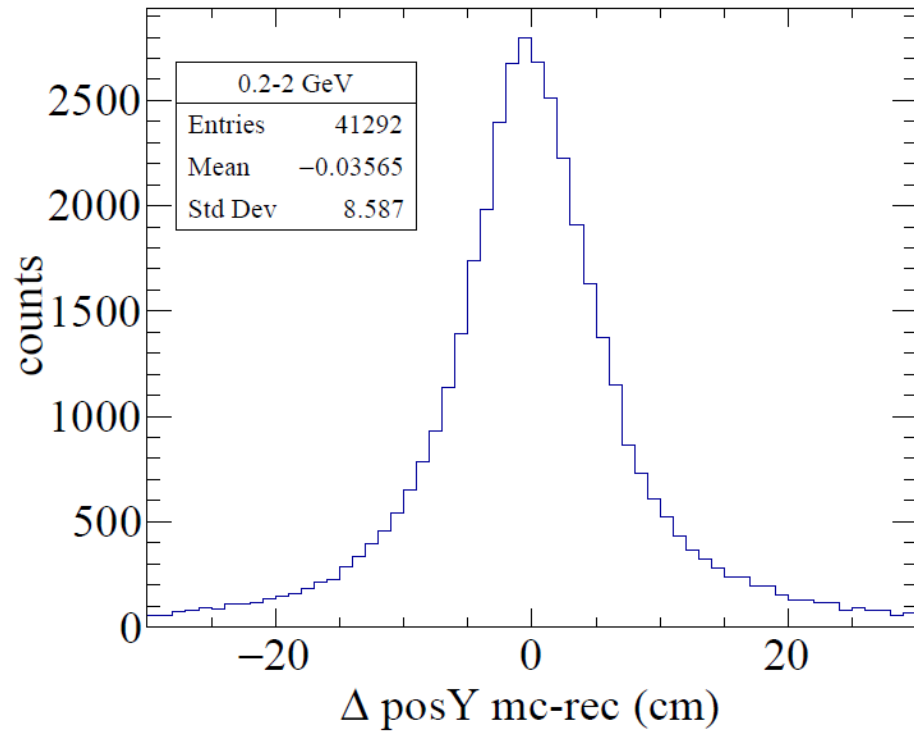


Risoluzione azimutale vs phi

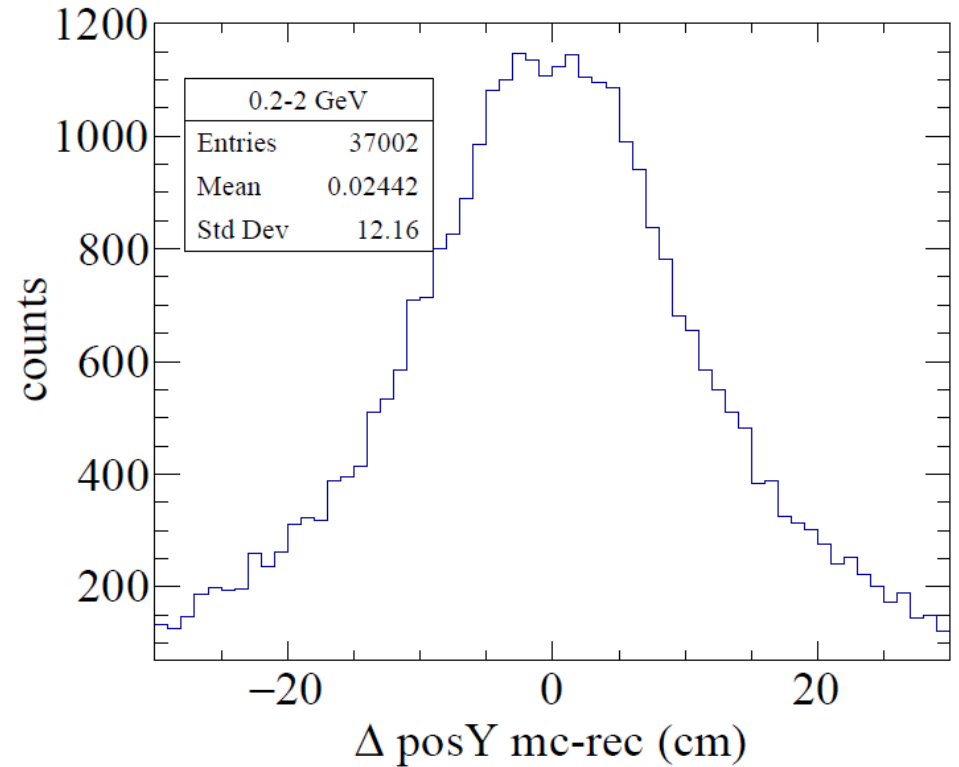


Risoluzione Y-Mid .2-2 GeV

Senza Barriere

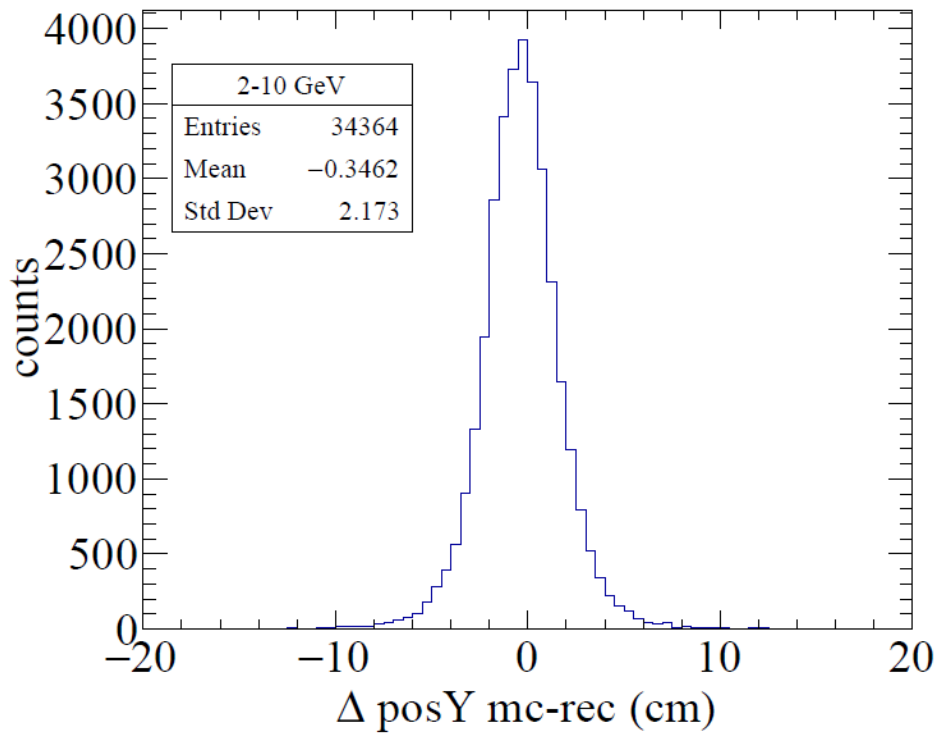


Con Barriere

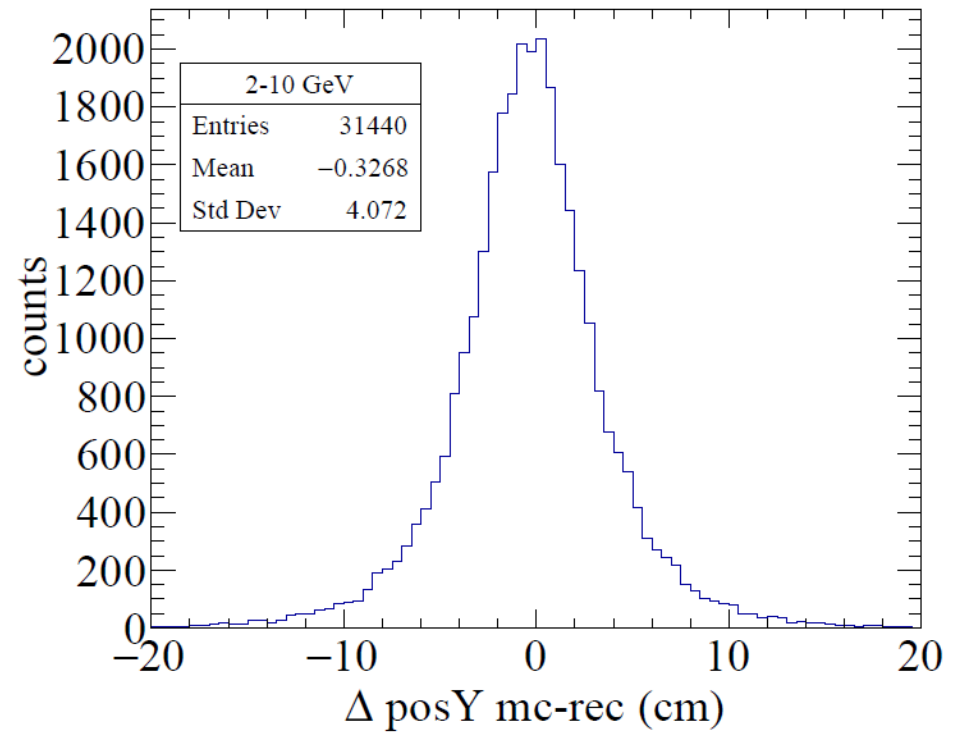


Risoluzione Y-Mid 2-10 GeV

Senza Barriere

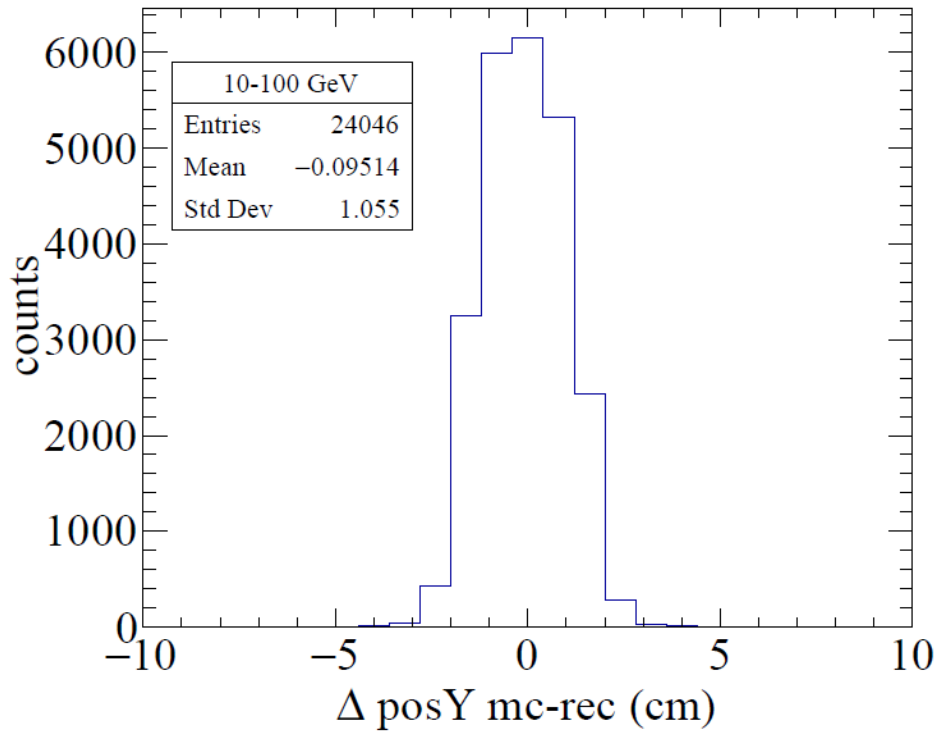


Con Barriere

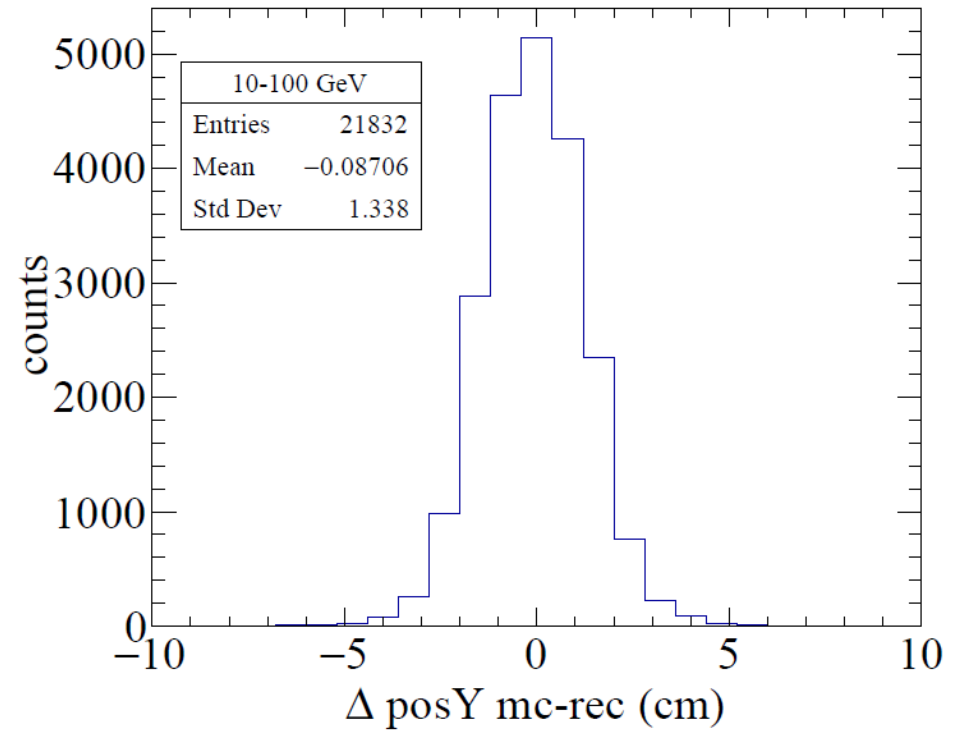


Risoluzione Y-Mid 10-100 GeV

Senza Barriere

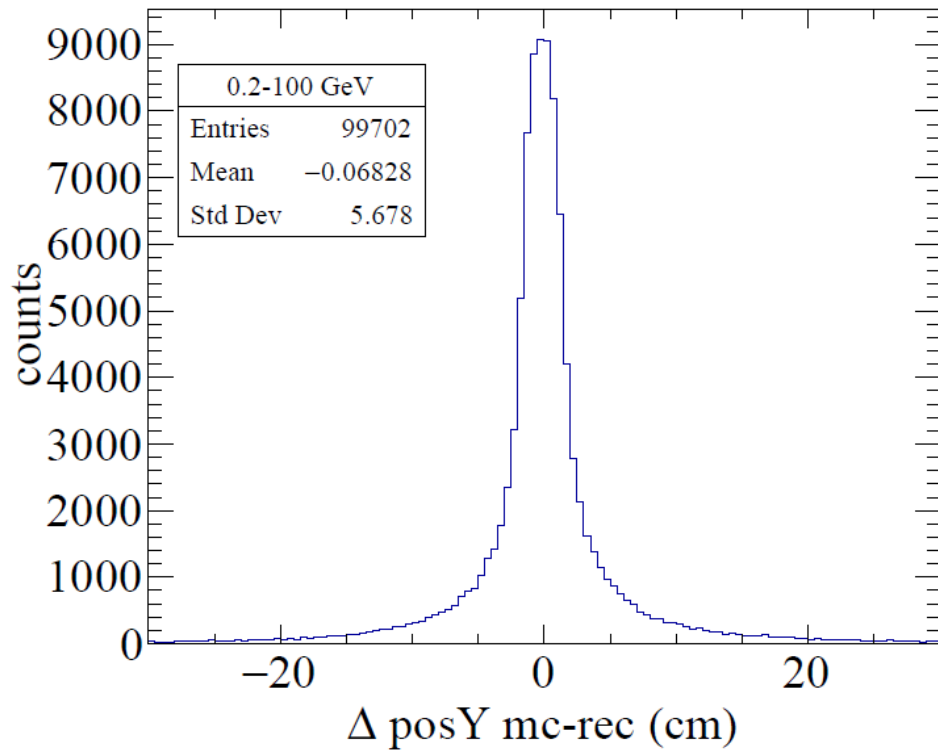


Con Barriere

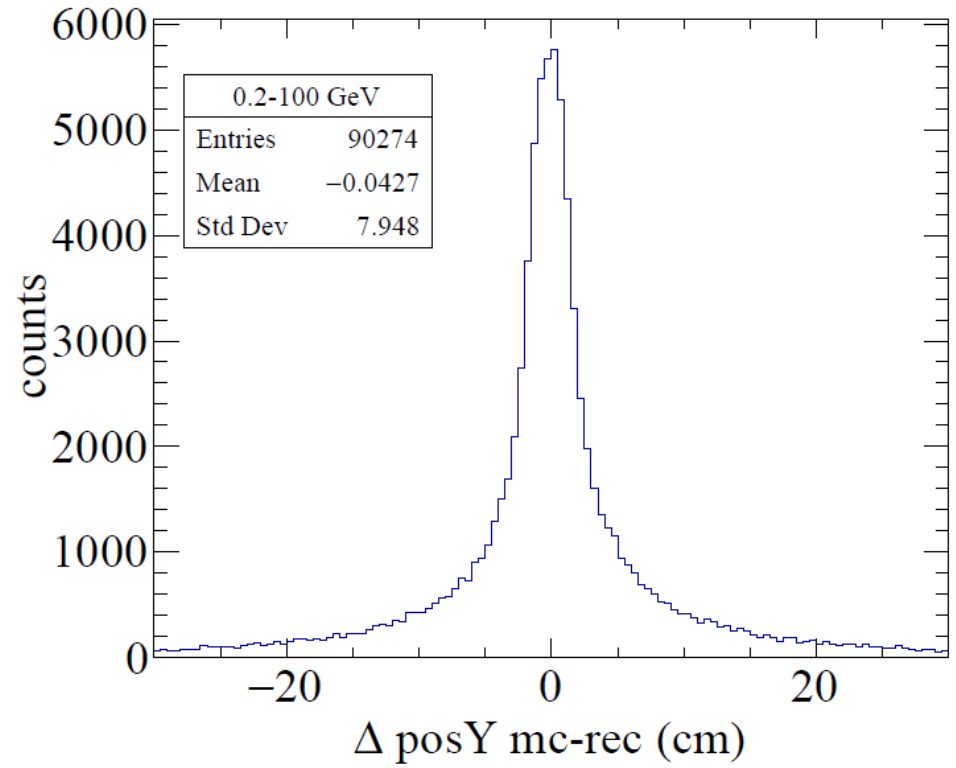


Risoluzione Y-Mid .2-100 GeV

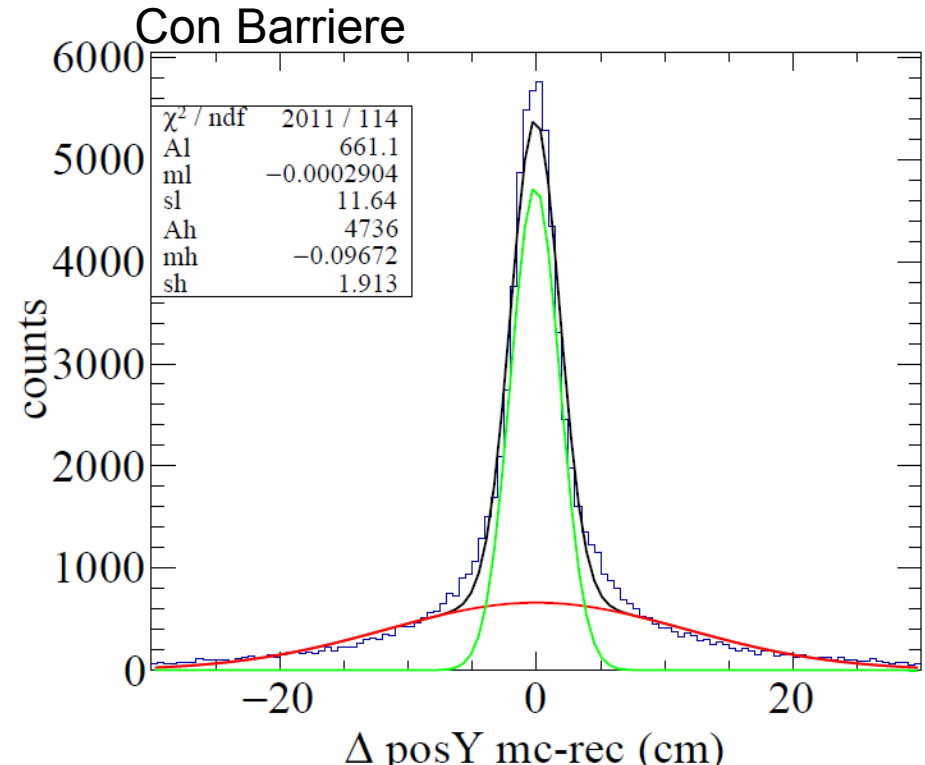
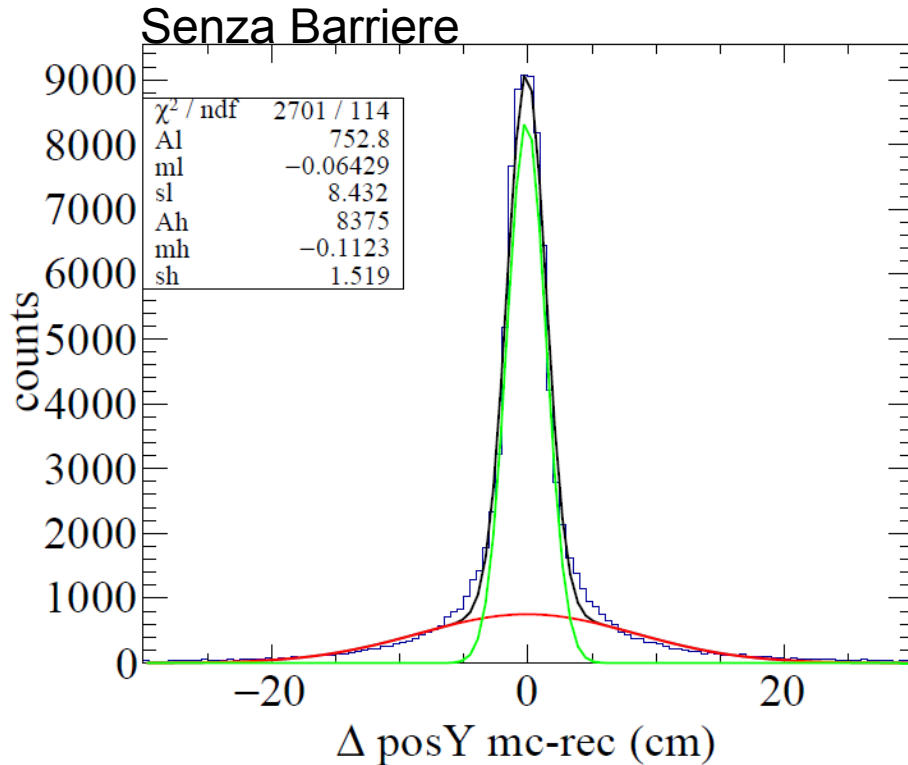
Senza Barriere



Con Barriere

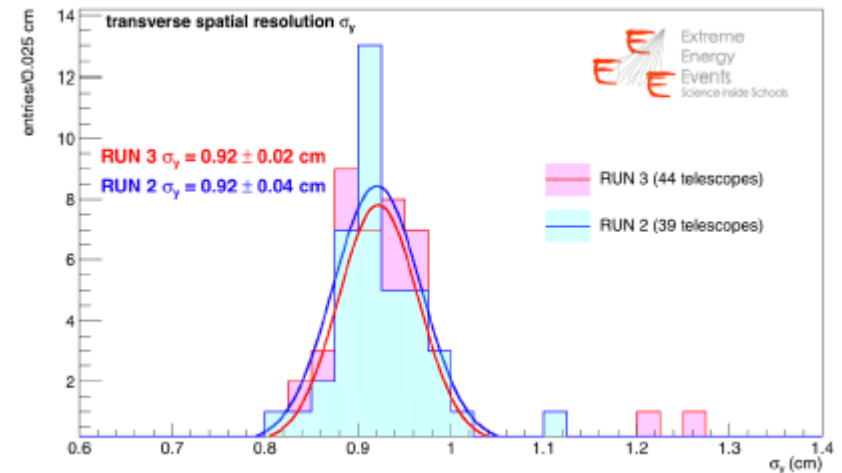
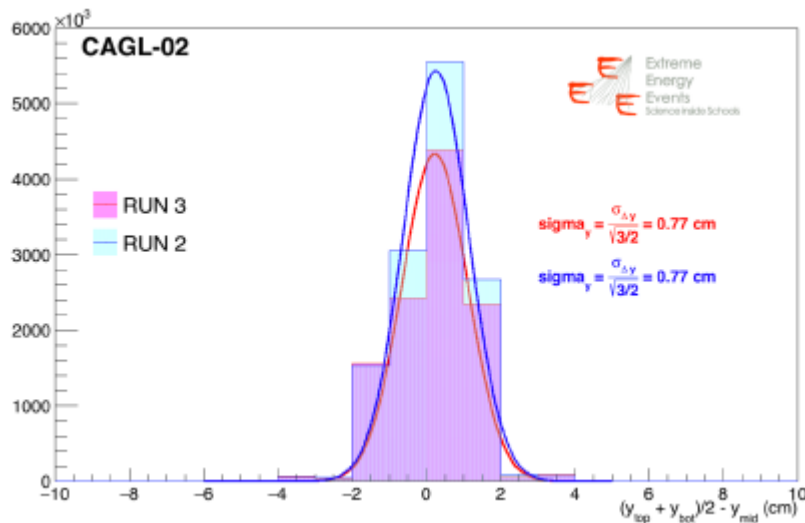


Risoluzione Y-Mid .2-100 GeV



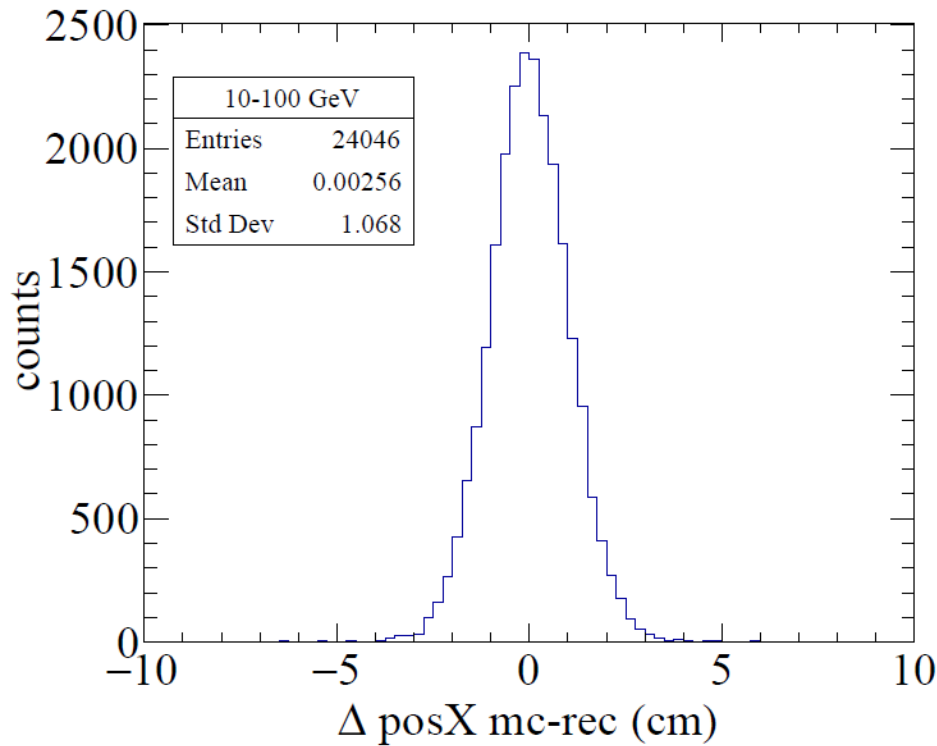
1.5 cm per la simulazione
~1 cm sperimentale

La componente stretta varia tra 1.5 (no barrier) e 1.9 cm

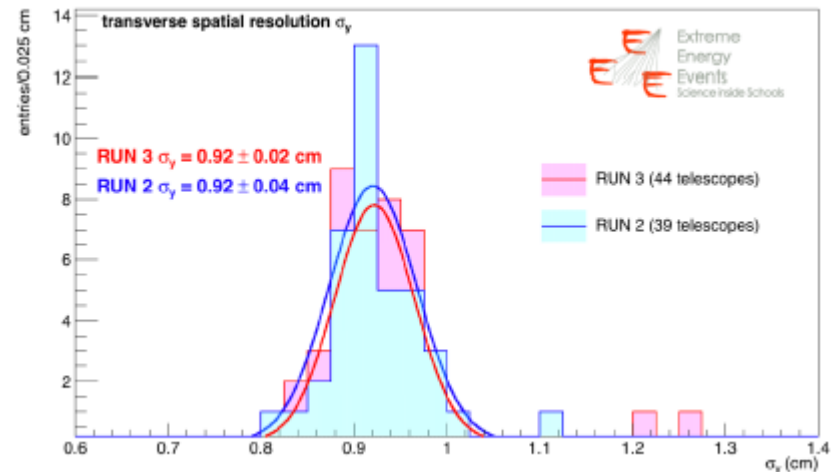
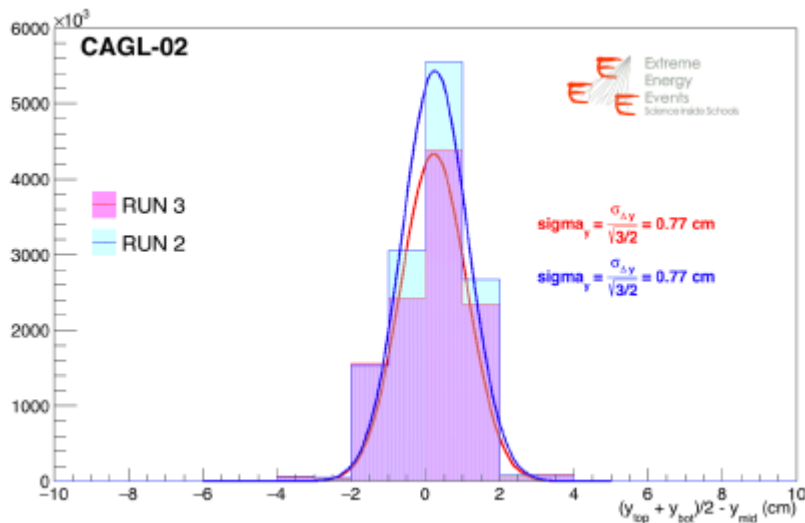


Risoluzione Y-Mid 10-100 GeV

Senza Barriere

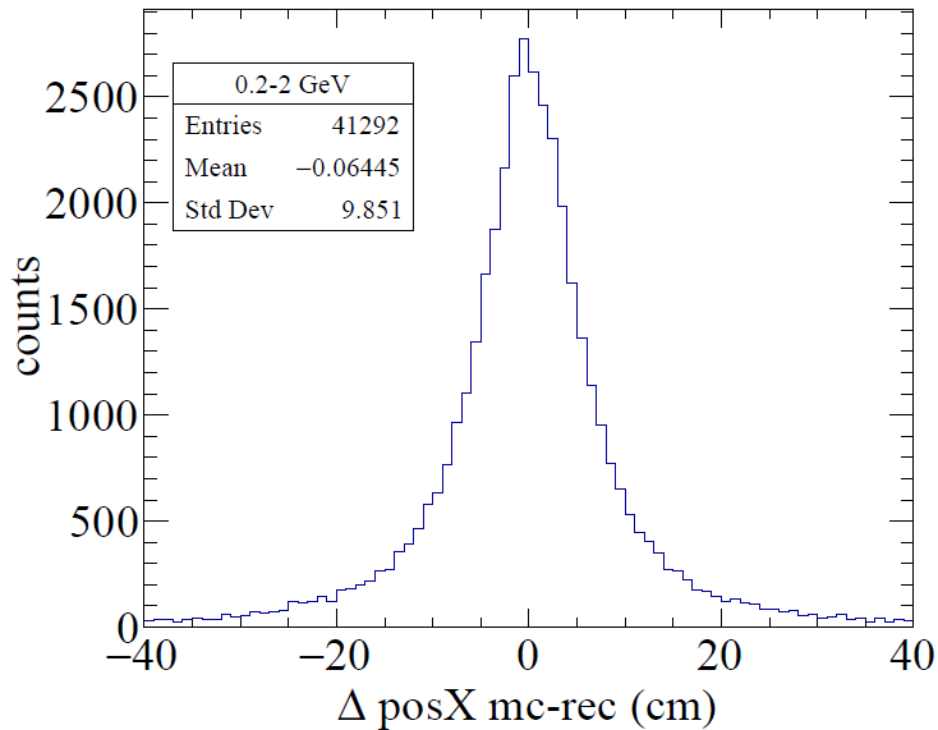


Accordo stima simulazione e stima sperimentale solo se si utilizza il campione a più alta energia
 Sigma 1.068 cm per la simulazione
 Sigma 0.92 cm sperimentale

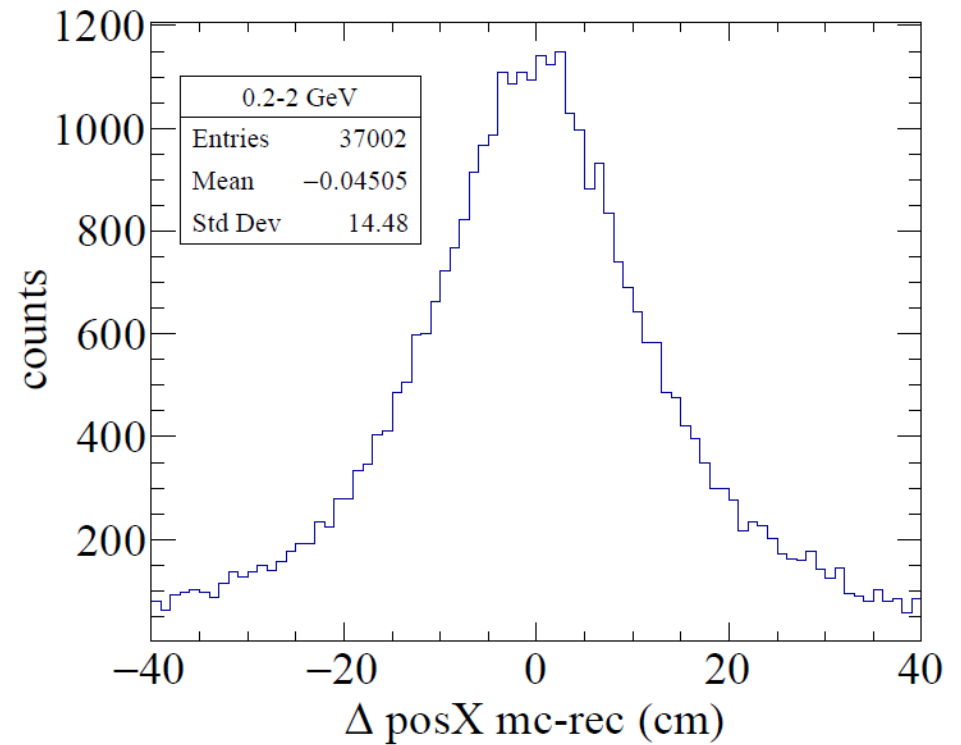


Risoluzione X-Mid .2-2 GeV

Senza Barriere

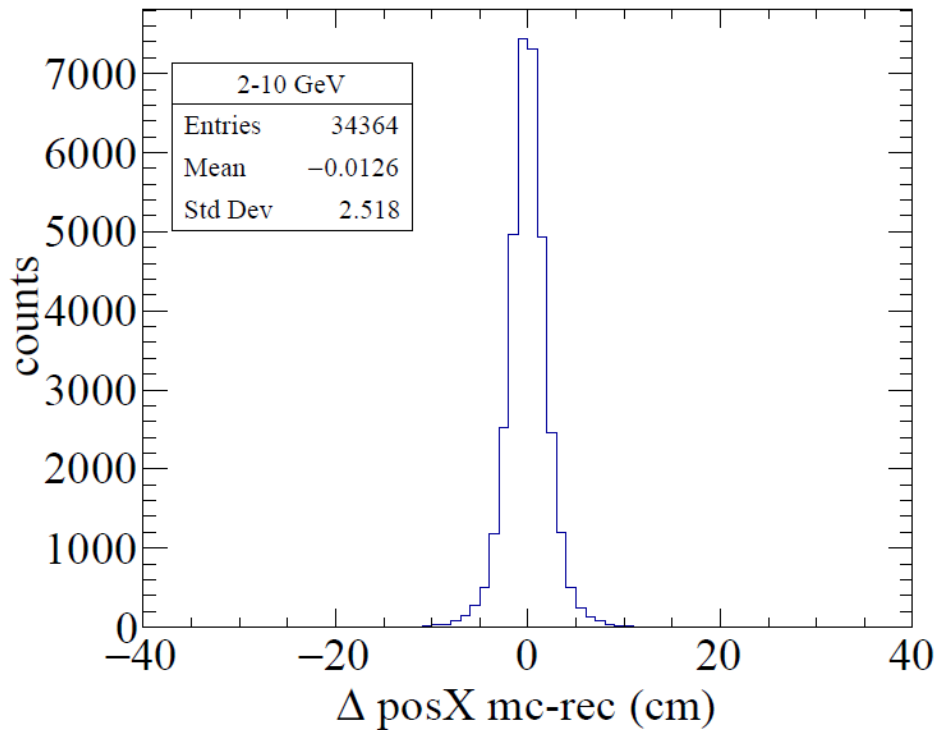


Con Barriere

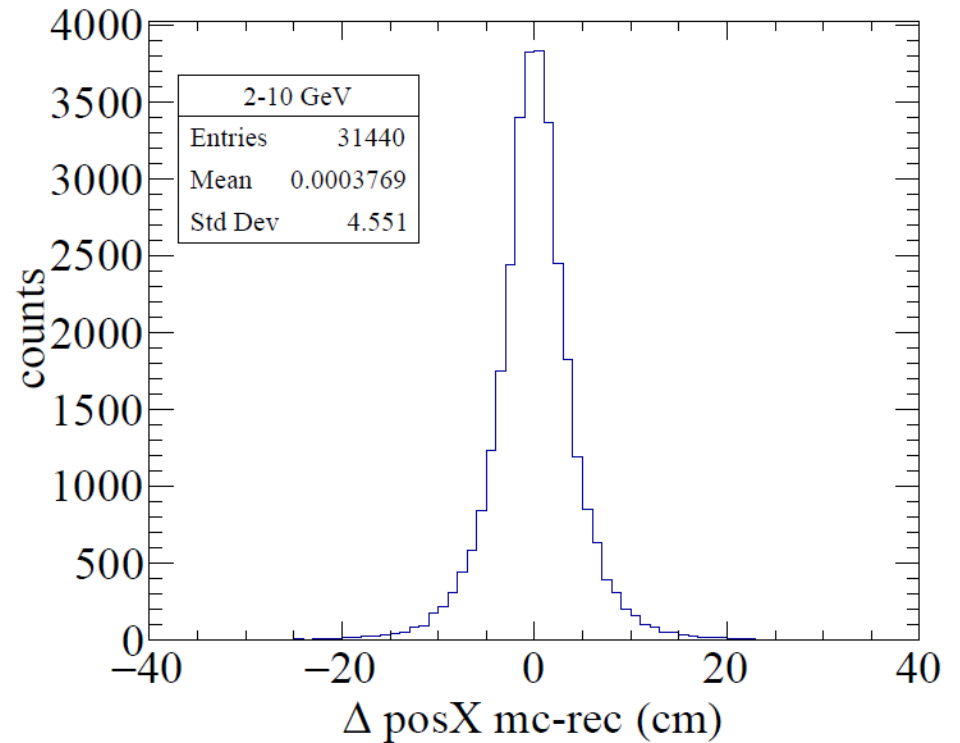


Risoluzione X-Mid 2-10 GeV

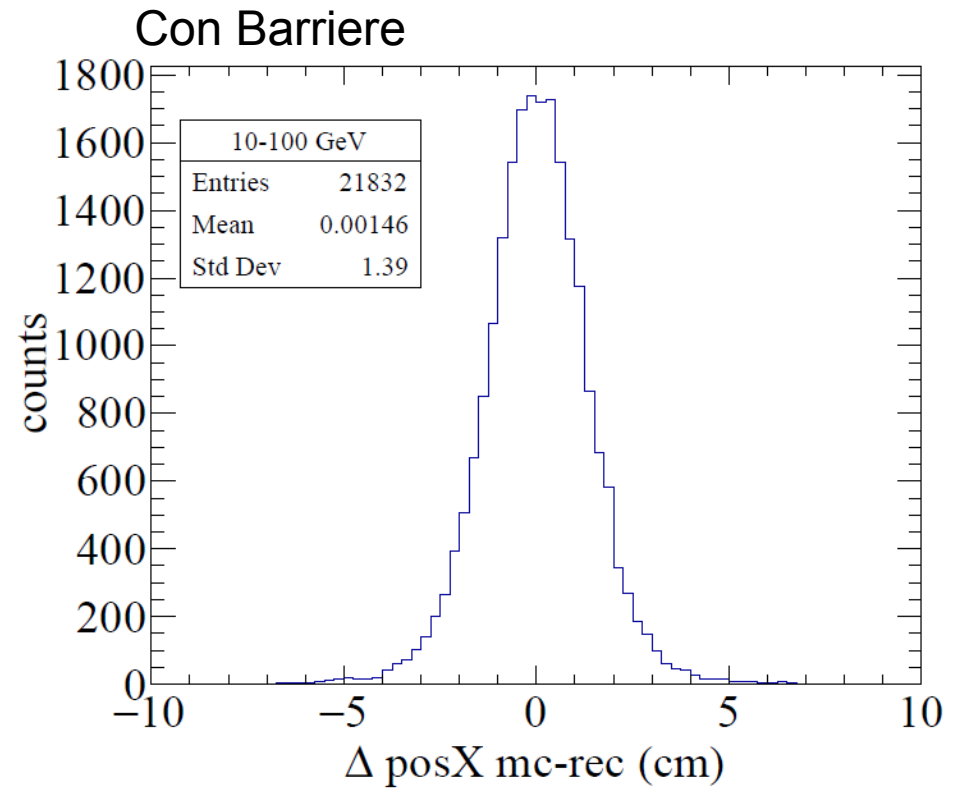
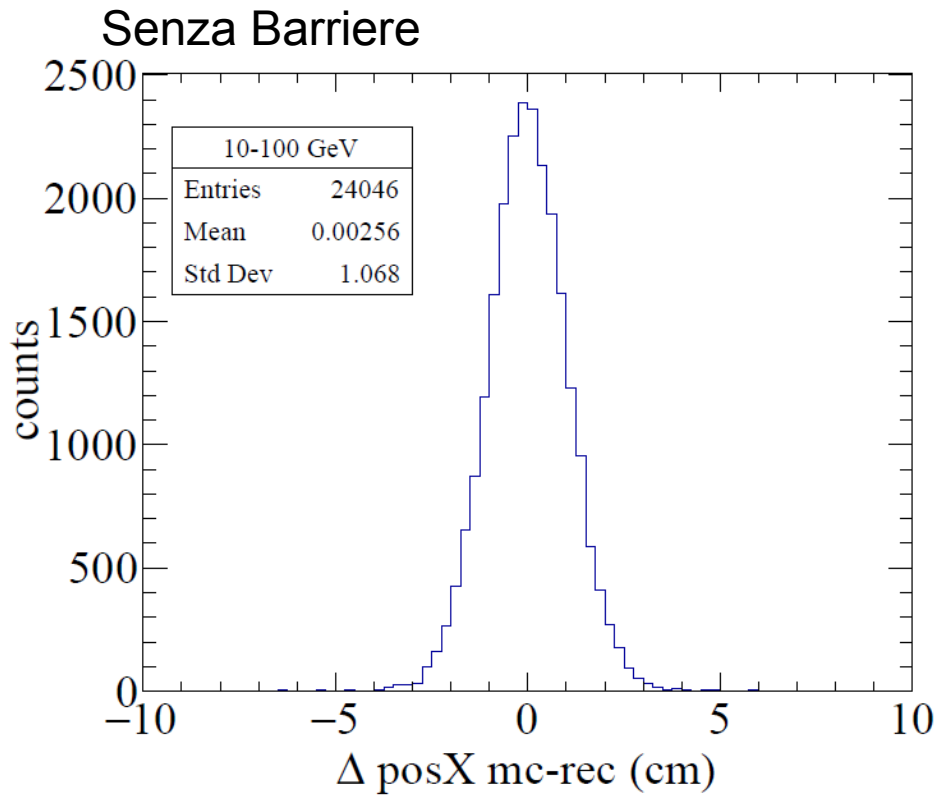
Senza Barriere



Con Barriere

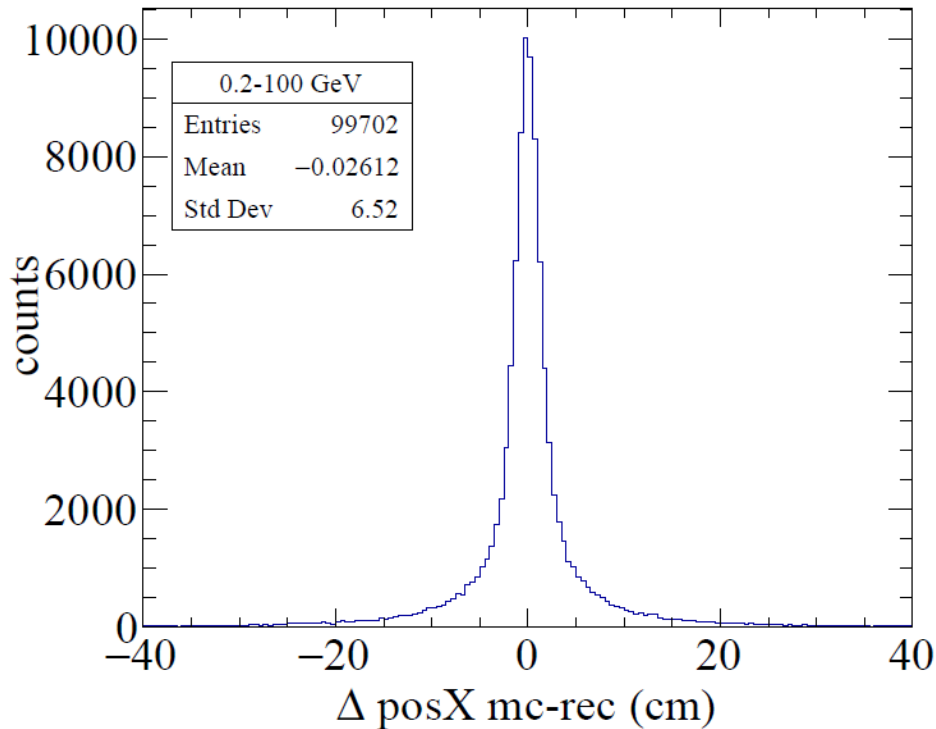


Risoluzione X-Mid 10-100 GeV

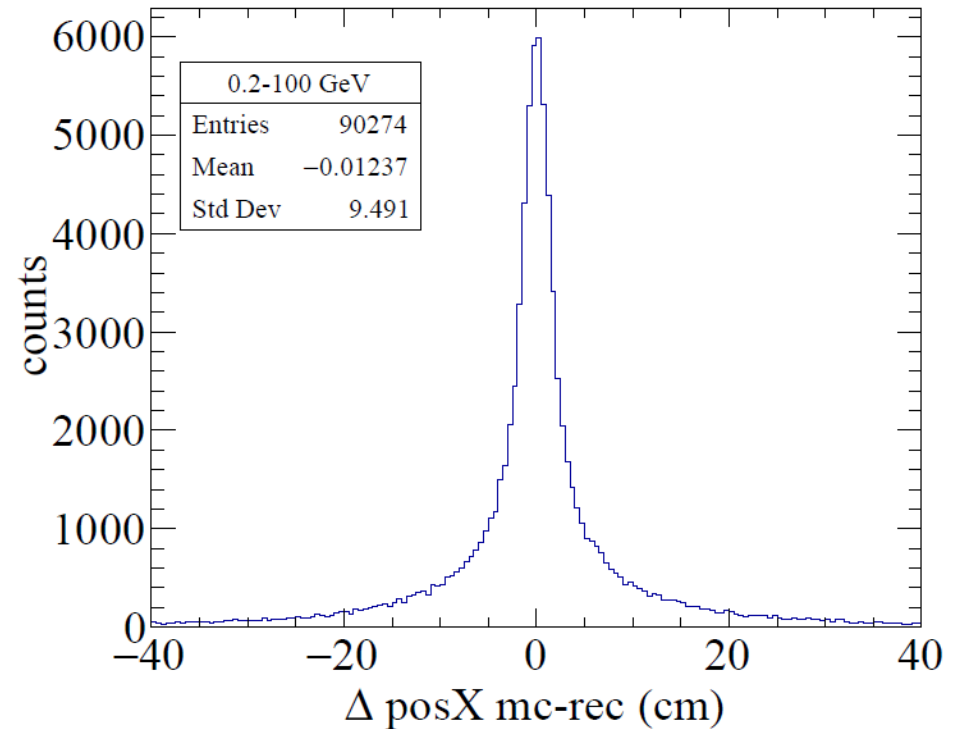


Risoluzione X-Mid .2-100 GeV

Senza Barriere

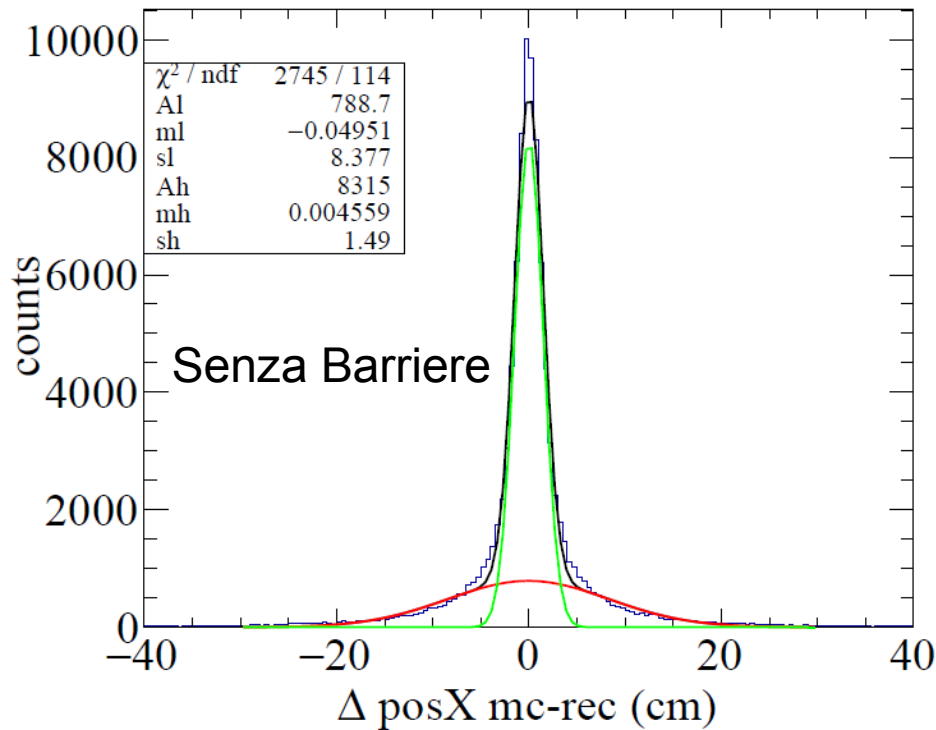


Con Barriere



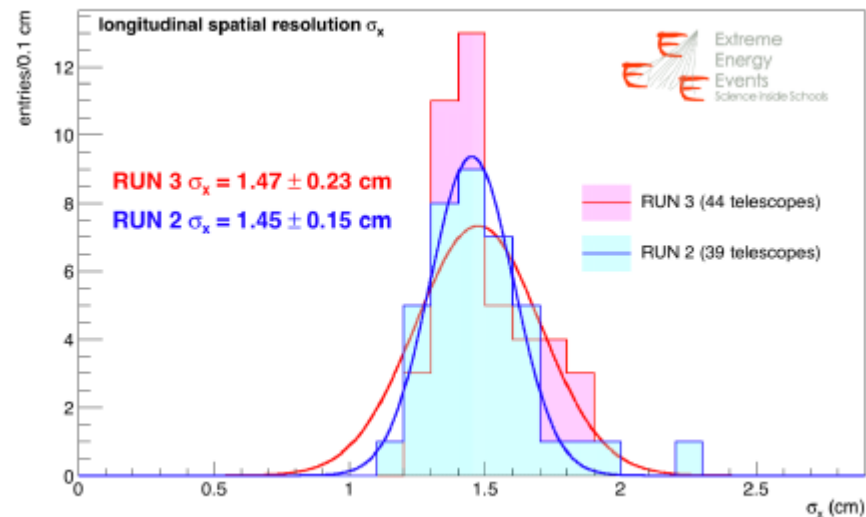
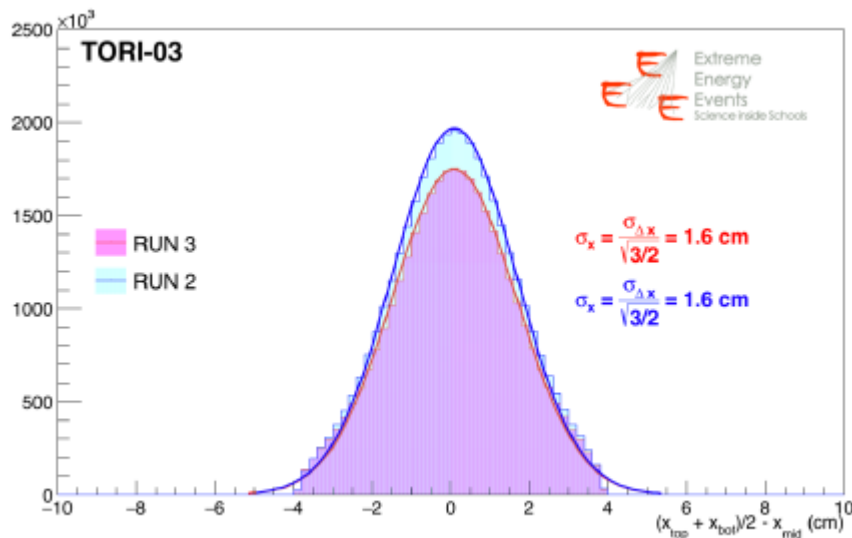
Analizzando gli spettri fittando con due gaussiane concentriche, si ottiene la risoluzione stretta intorno a 1.5 cm, analogamente a Y

Risoluzione X-Mid .2-100 GeV



Analizzando gli spettri fittando con due gaussiane concentriche, si ottiene la risoluzione stretta intorno a 1.5 cm, analogamente a Y

Senza barriere – stima risoluzione intrinseca del rivelatore. Risultato in accordo con quello sperimentale.



Conclusioni

- E' stata stimata la risoluzione polare, azimutale, e spaziale (middle-chamber)
- La risoluzione dipende dall'energia dei muoni e dalle barriere.
- Telescopio senza barriere: $R_{\theta} < 1^{\circ}$, $R_{\phi} < 2.8^{\circ}$, $R_{PosY} < 1.5\text{cm}$, $R_{PosX} < 1.6\text{ cm}$
- Telescopio incasinato di muri e tetti:
 $R_{\theta} < 1.7^{\circ}$, $R_{\phi} < 3.3^{\circ}$, $R_{PosY} < 1.9\text{cm}$, $R_{PosX} < 2\text{ cm}$