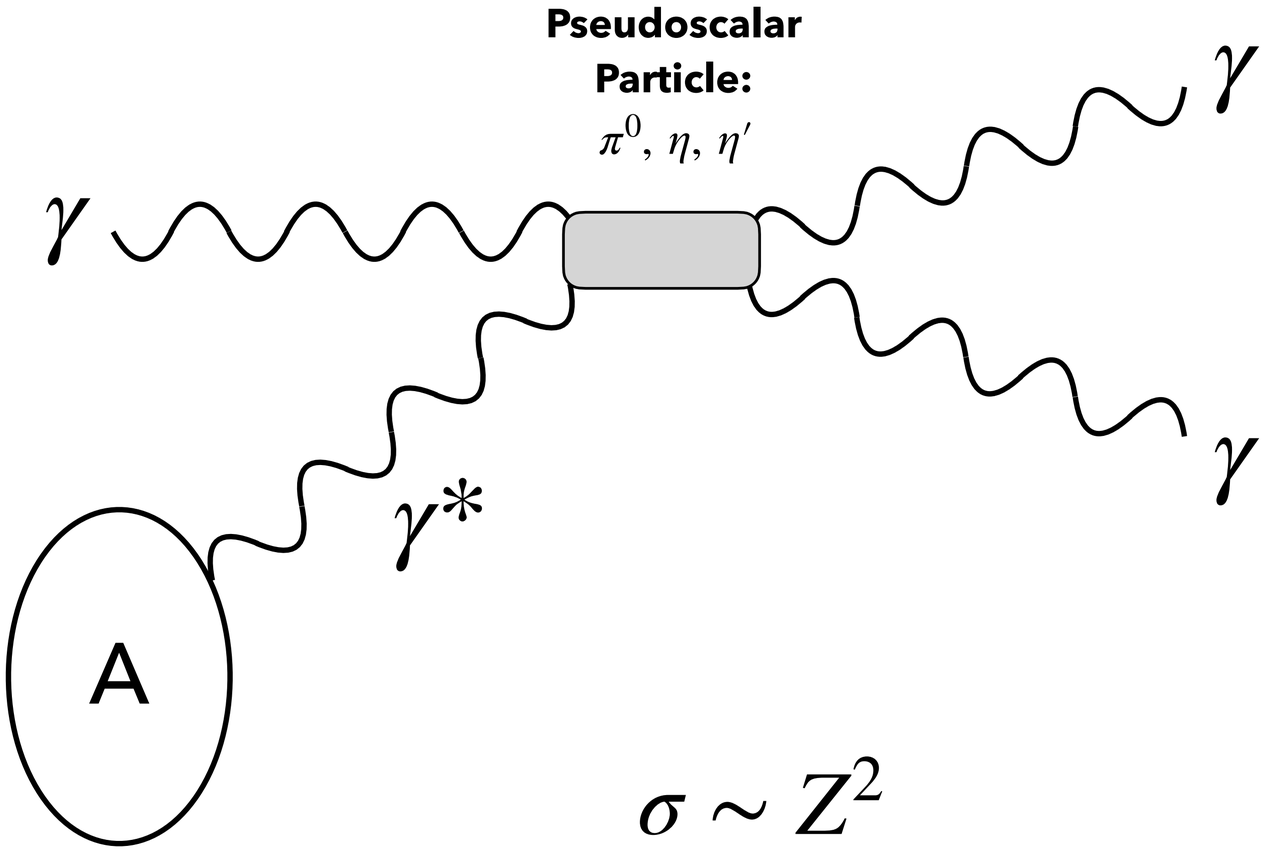
SRC-CT Diphoton Projections

Jackson Pybus

Primakoff Production

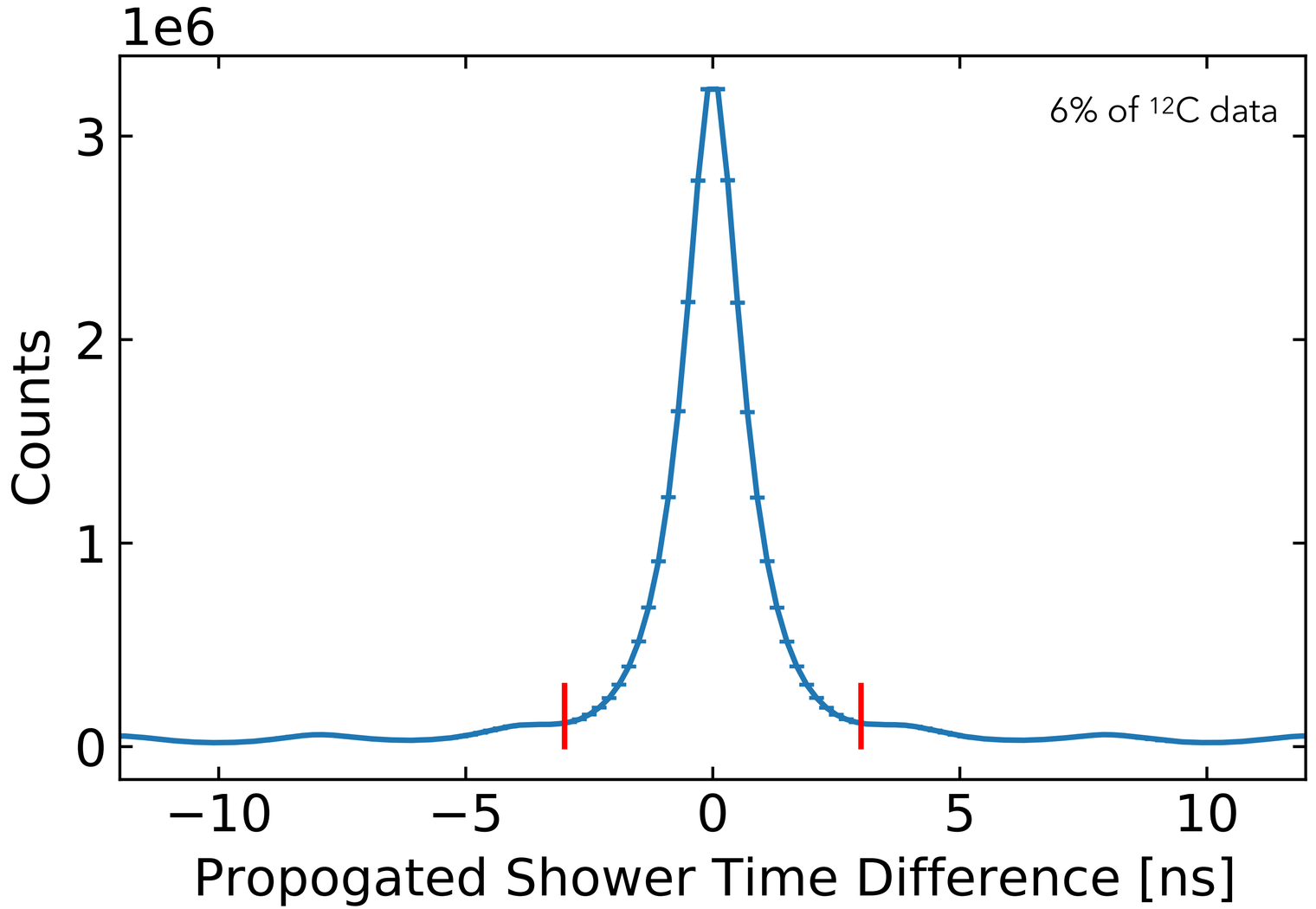


$$\sigma \sim Z^2$$

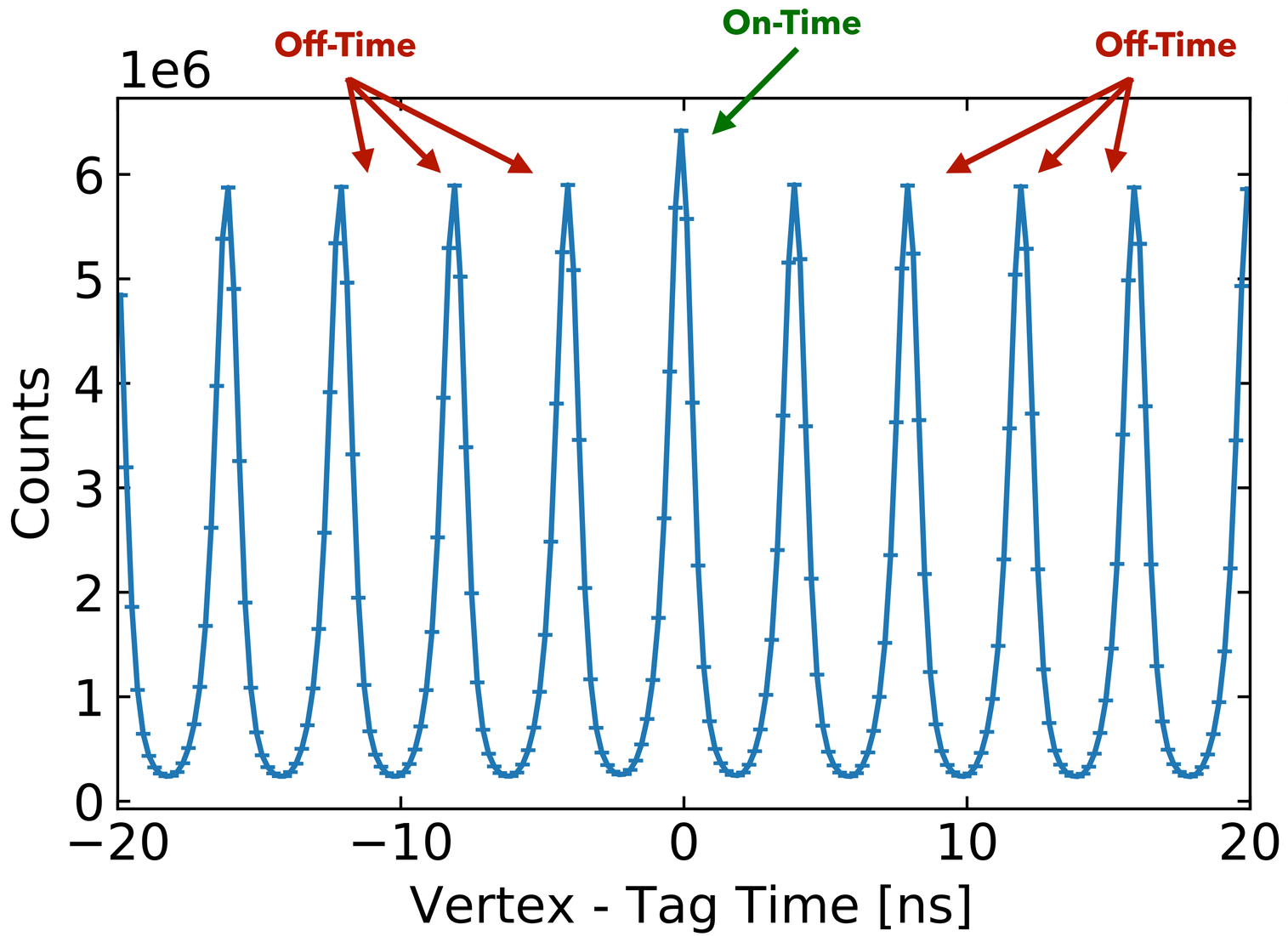
Selection Criteria

- Looking for $^{12}\mathrm{C}(\gamma,\gamma\gamma)^{12}\mathrm{C}$
- 2 neutral showers, 0 charged tracks
- No shower quality information included
- No allowance of extra showers/tracks
- Assumed vertex position at z=65 cm, x=y=0 cm

Required showers in coincidence

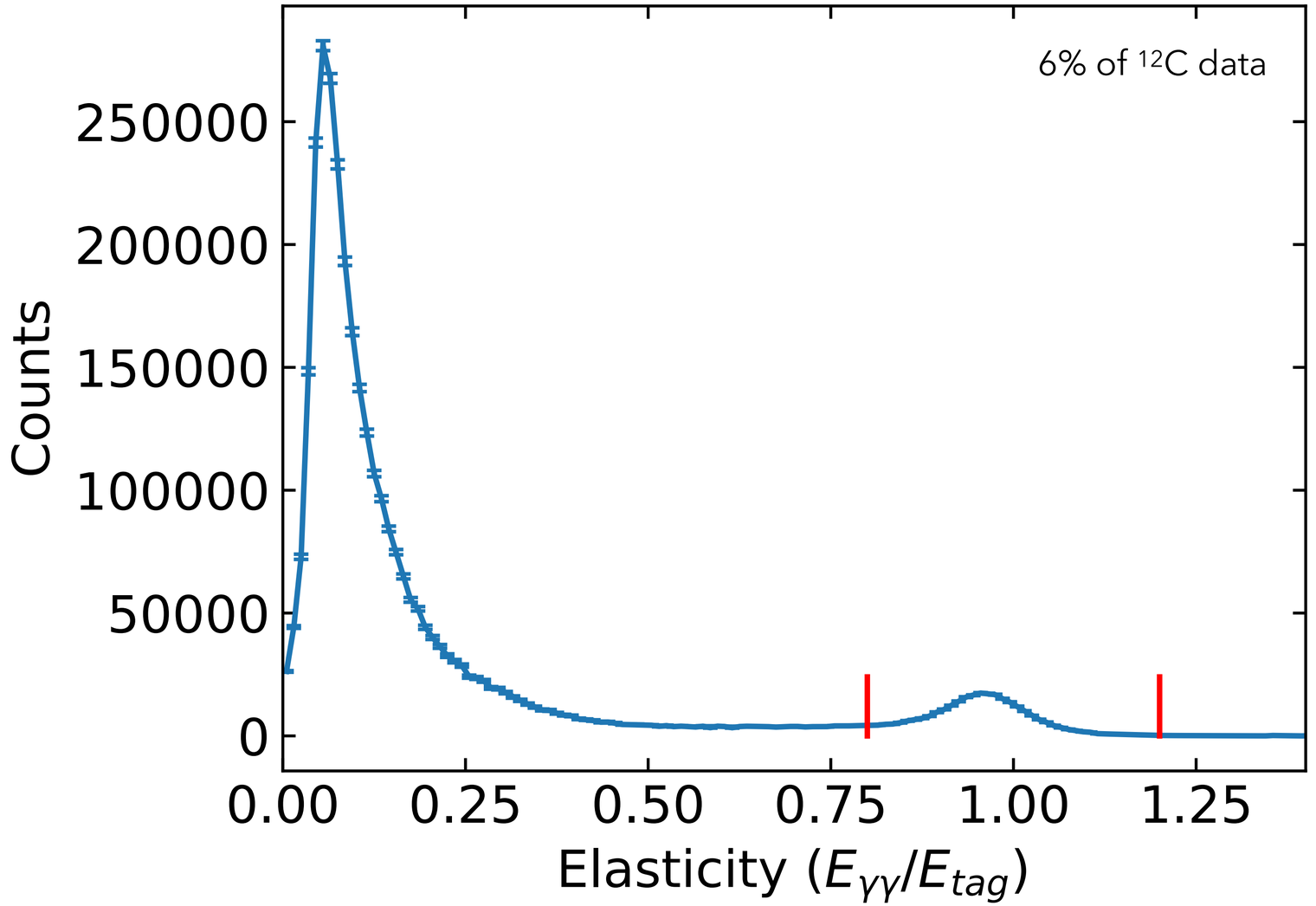


Performed accidental tagged photon subtraction

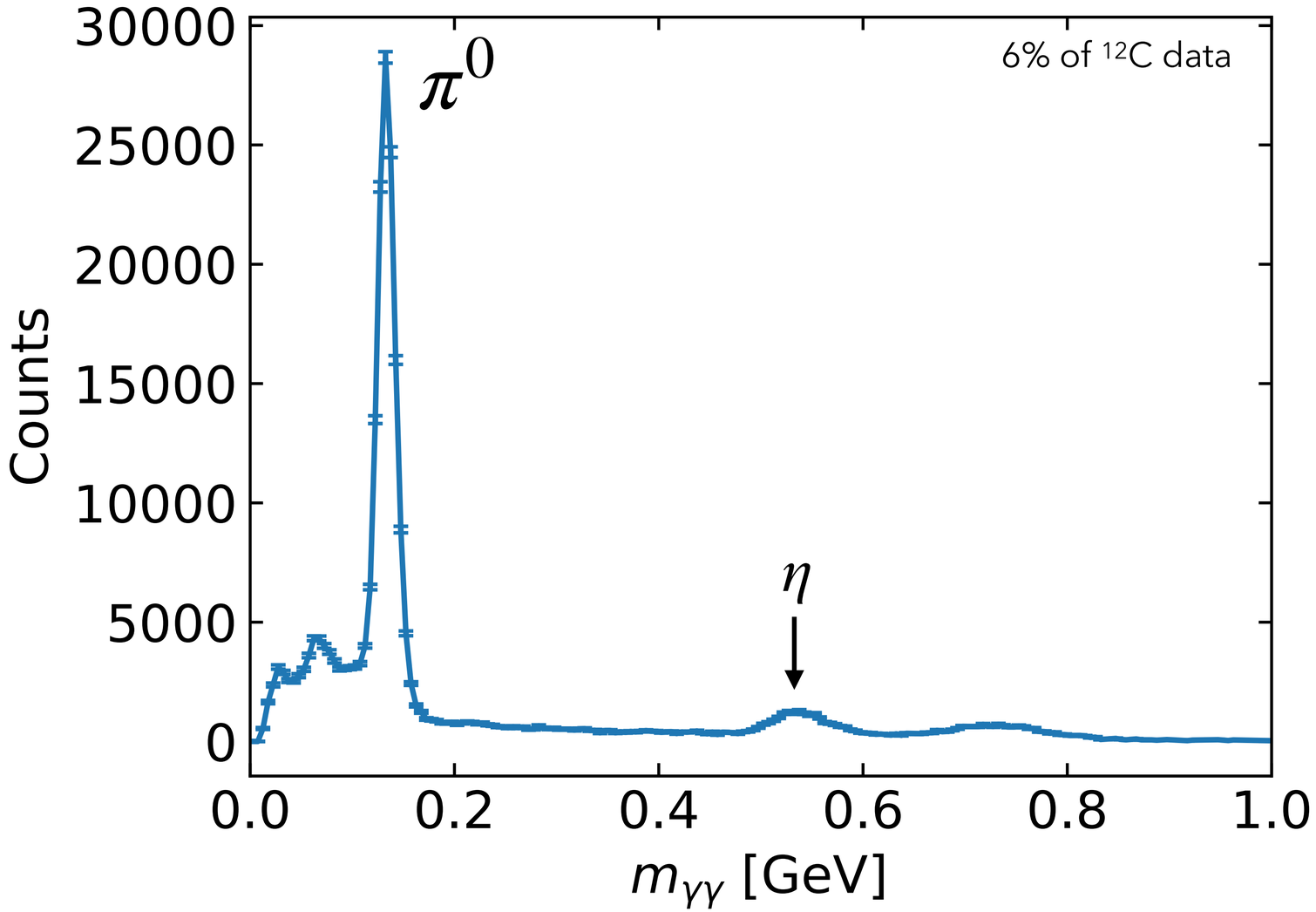


6% of ^{12}C data

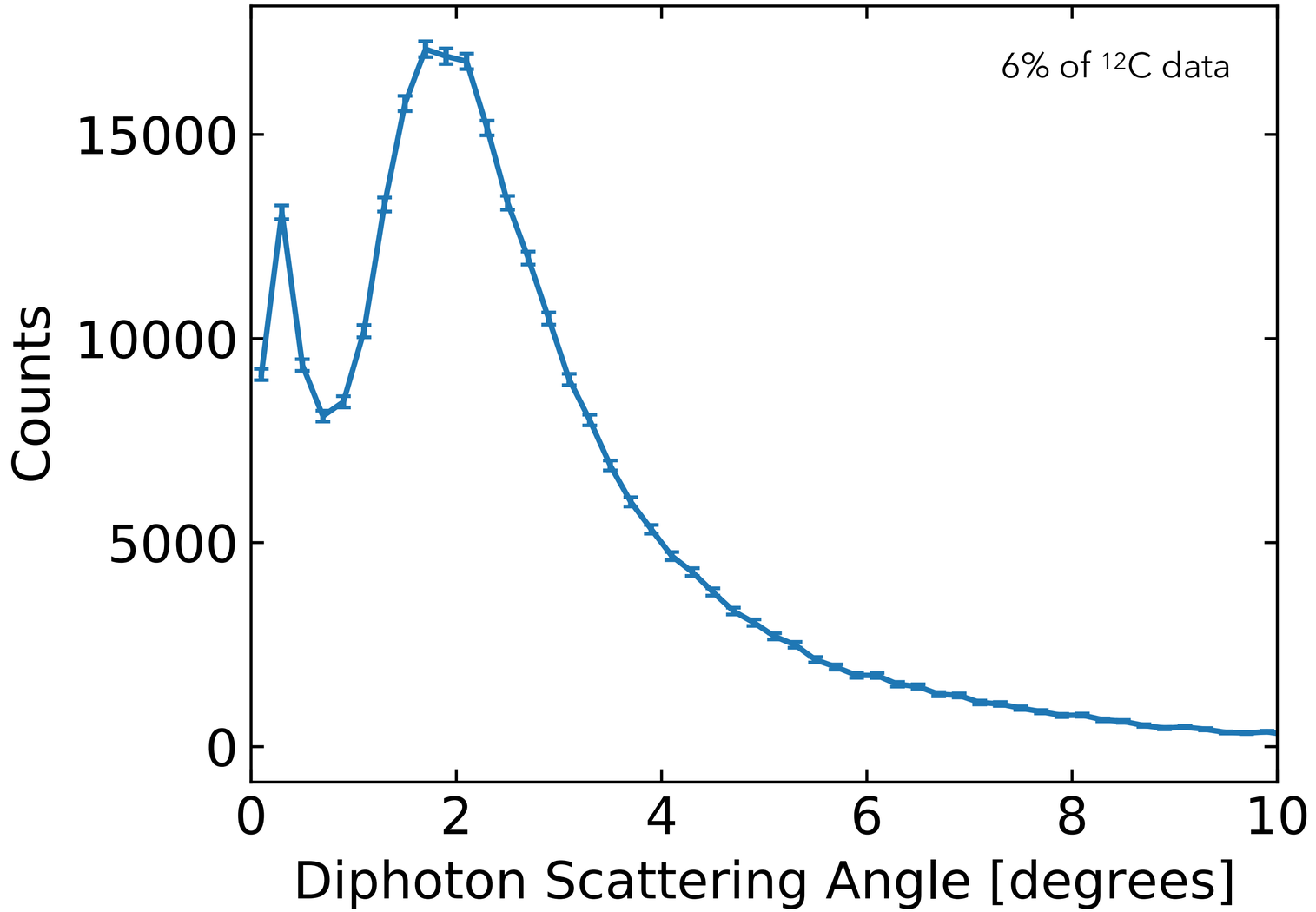
Required diphoton to carry most of tagged energy



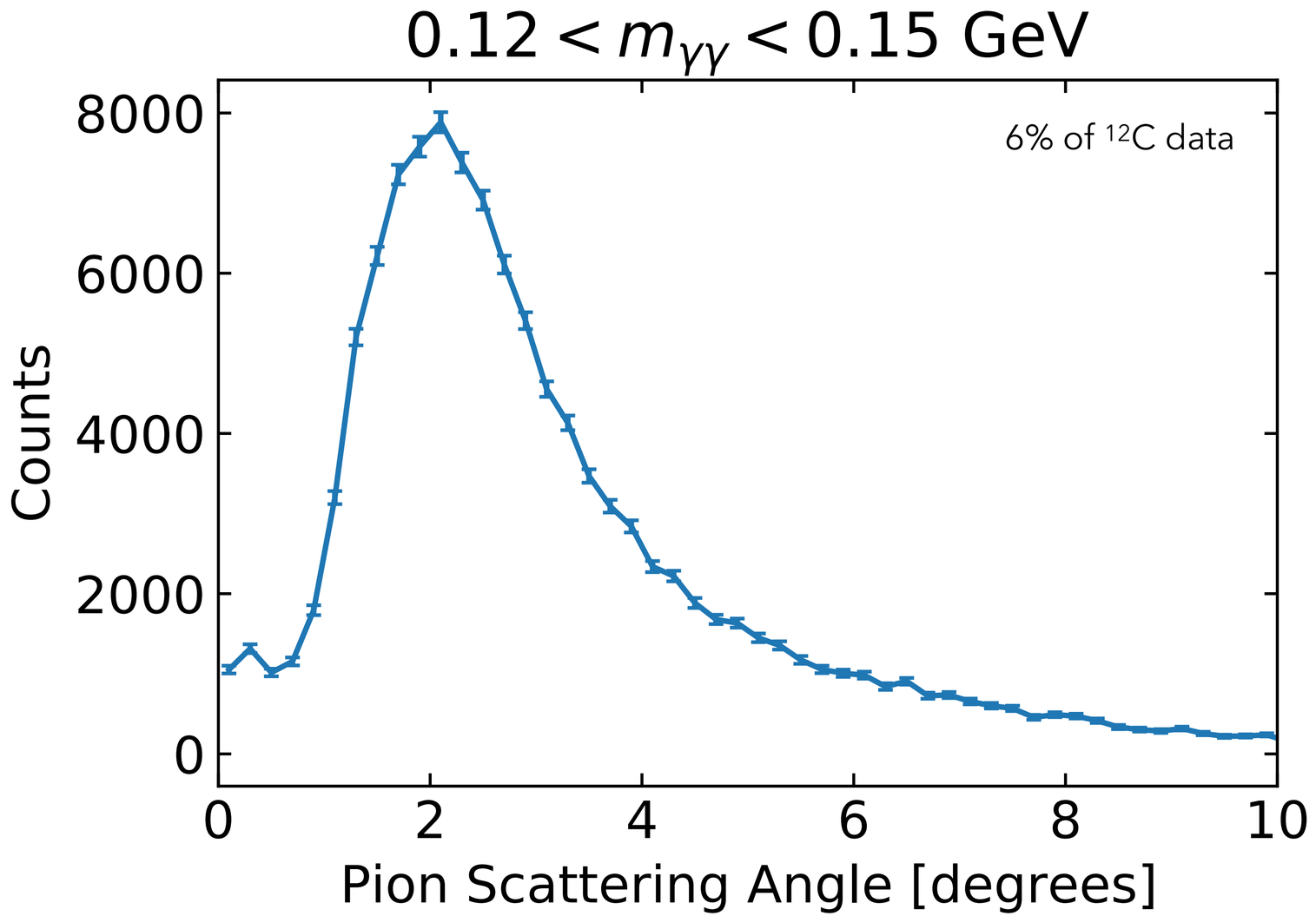
Mass spectrum includes π^0 and η



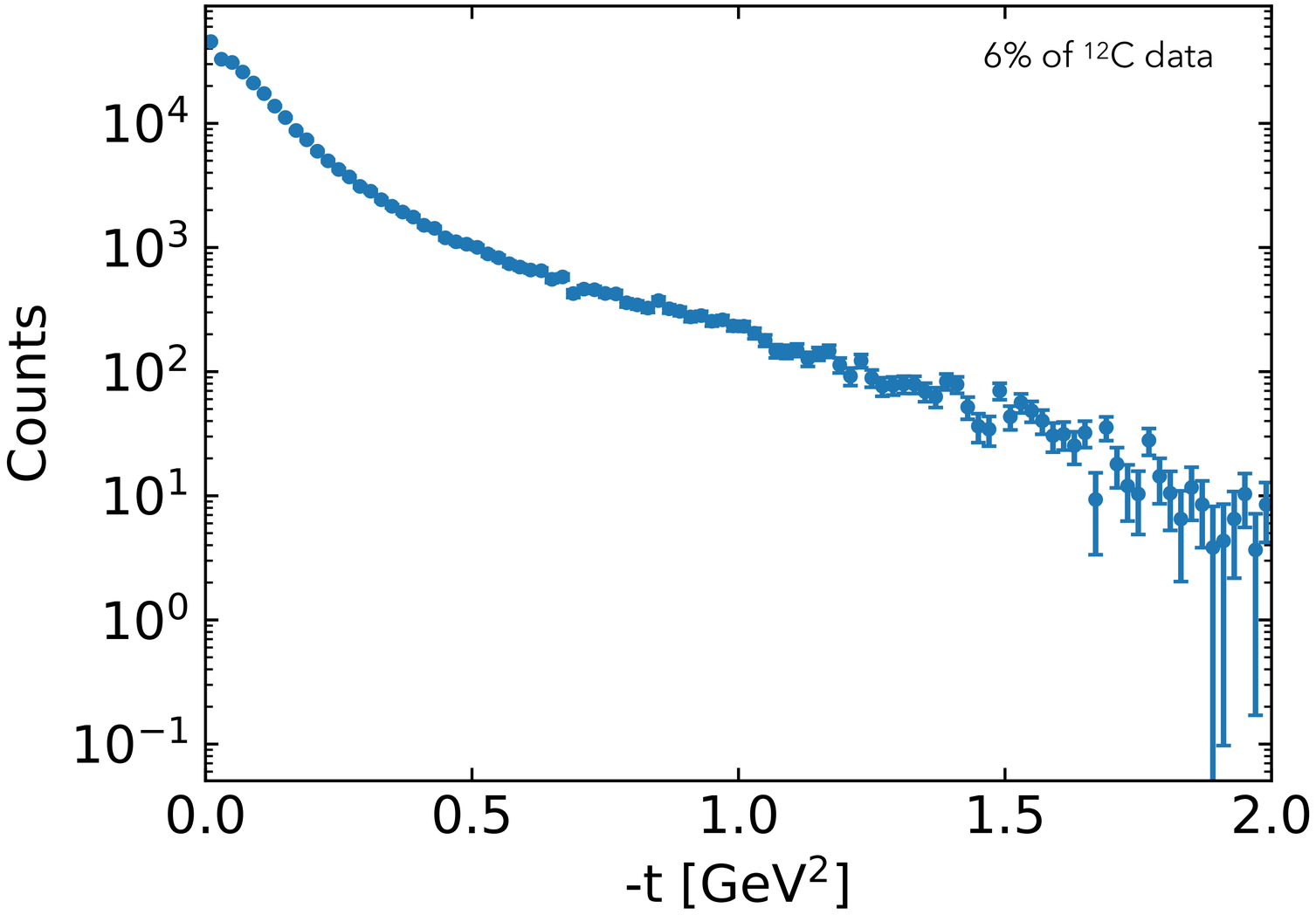
Most events have some deflection from beamline; explains why pion peak can be observed



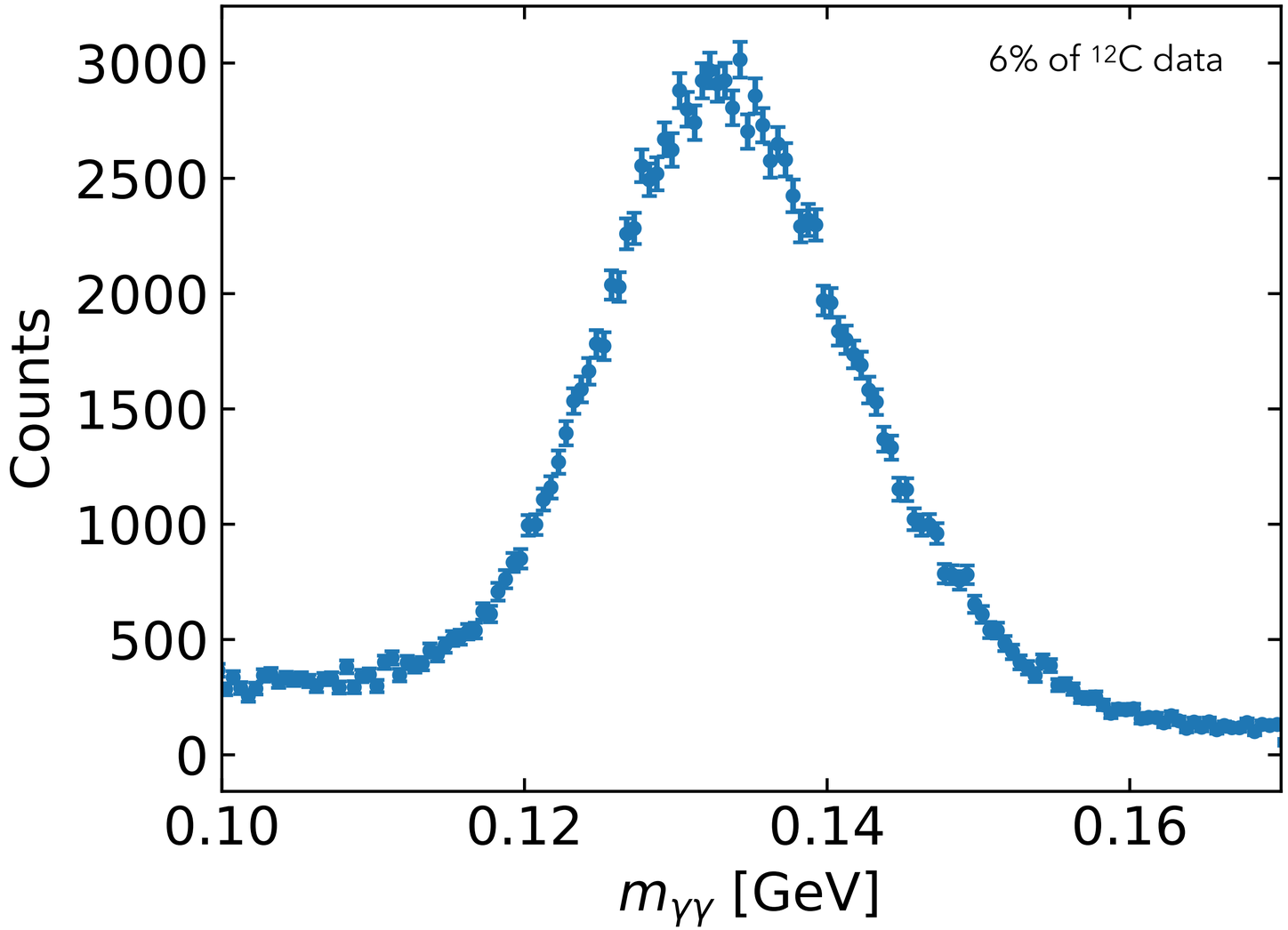
Pions mostly have large deflection



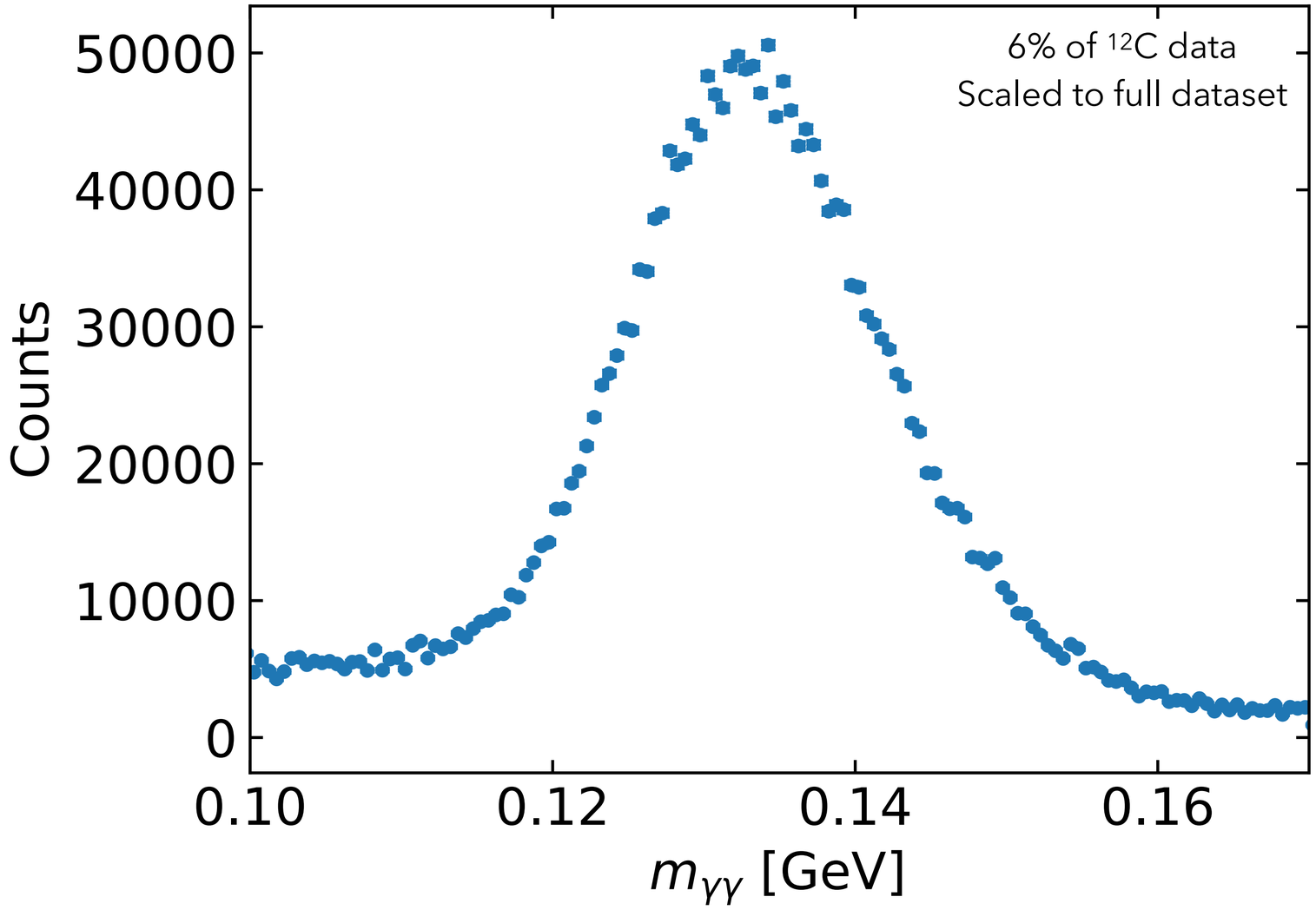
Mandelstam t coverage



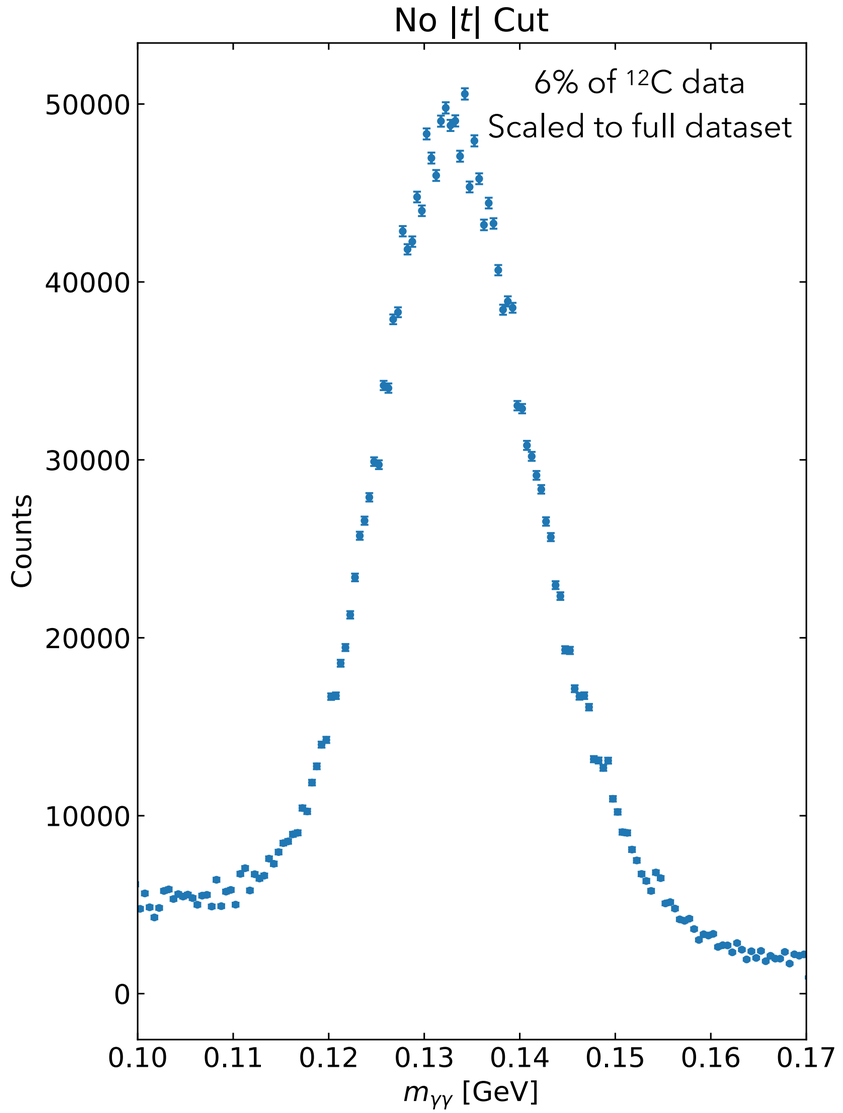
Pion peak with analyzed data

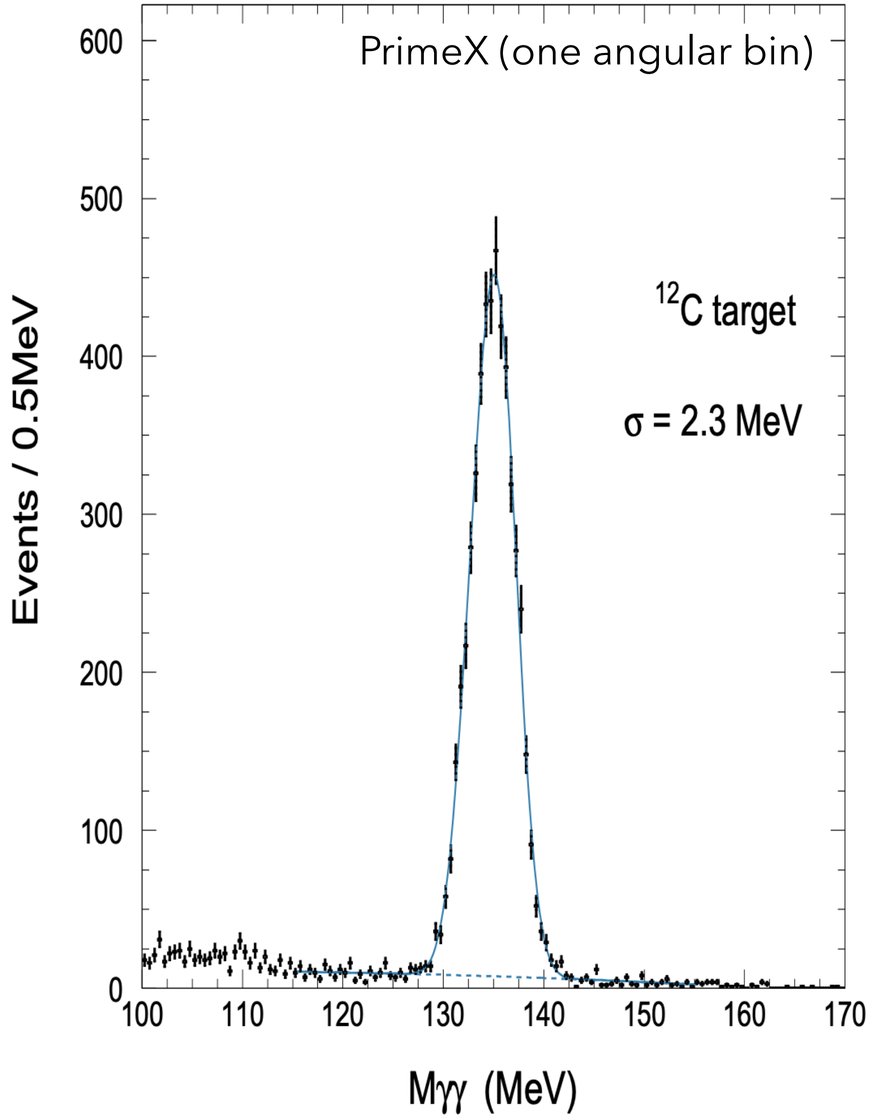


Pion peak with projected ^{12}C dataset

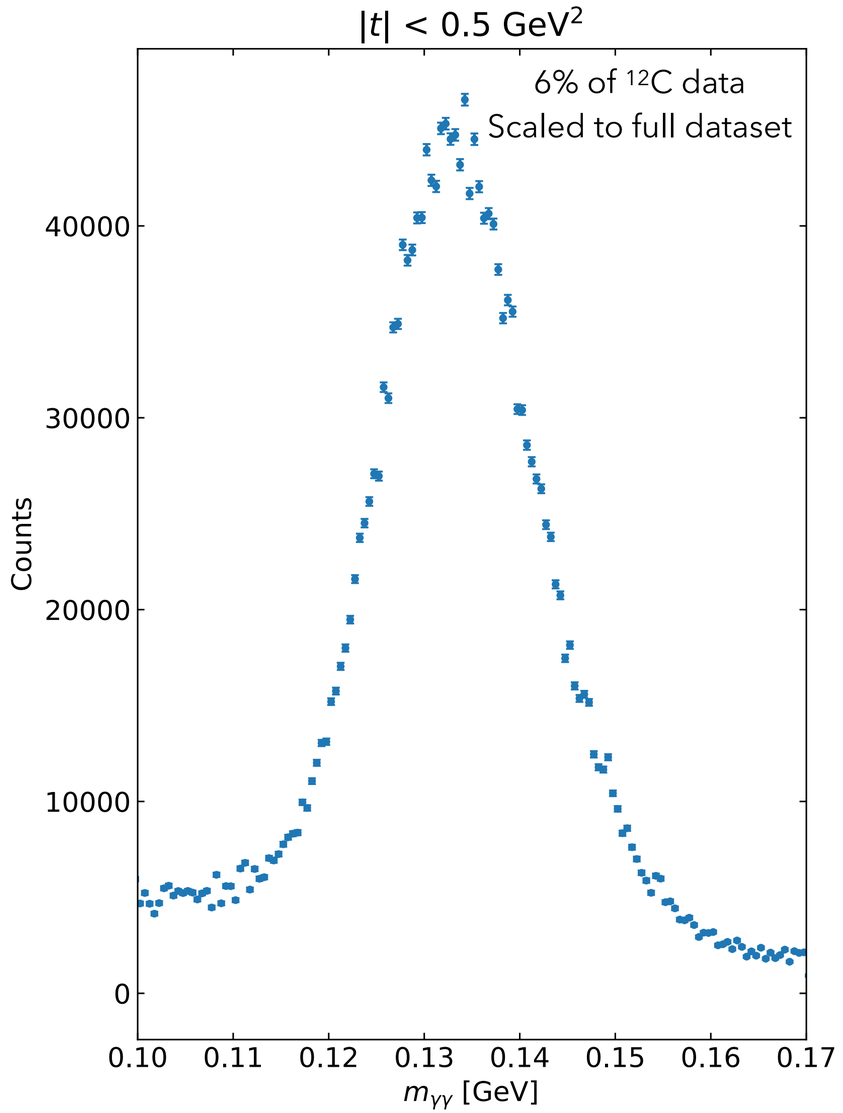


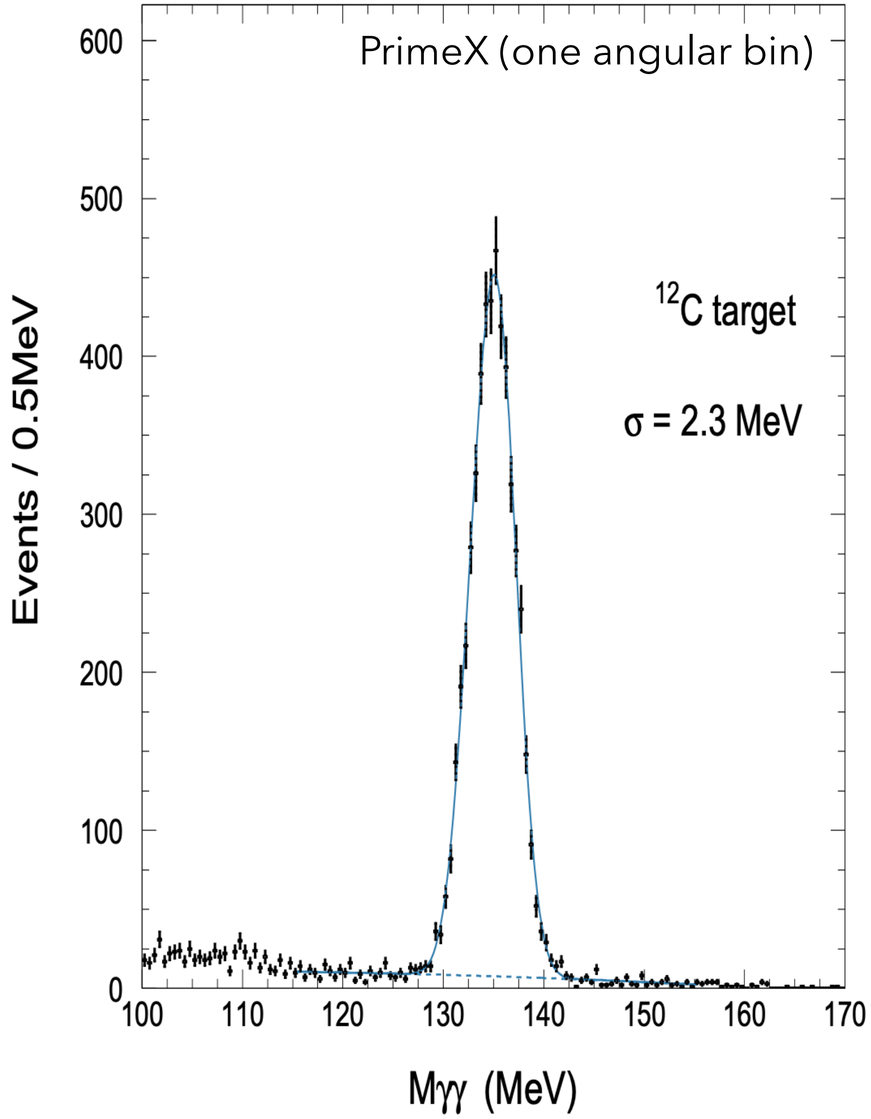
Comparison with PrimeX figure



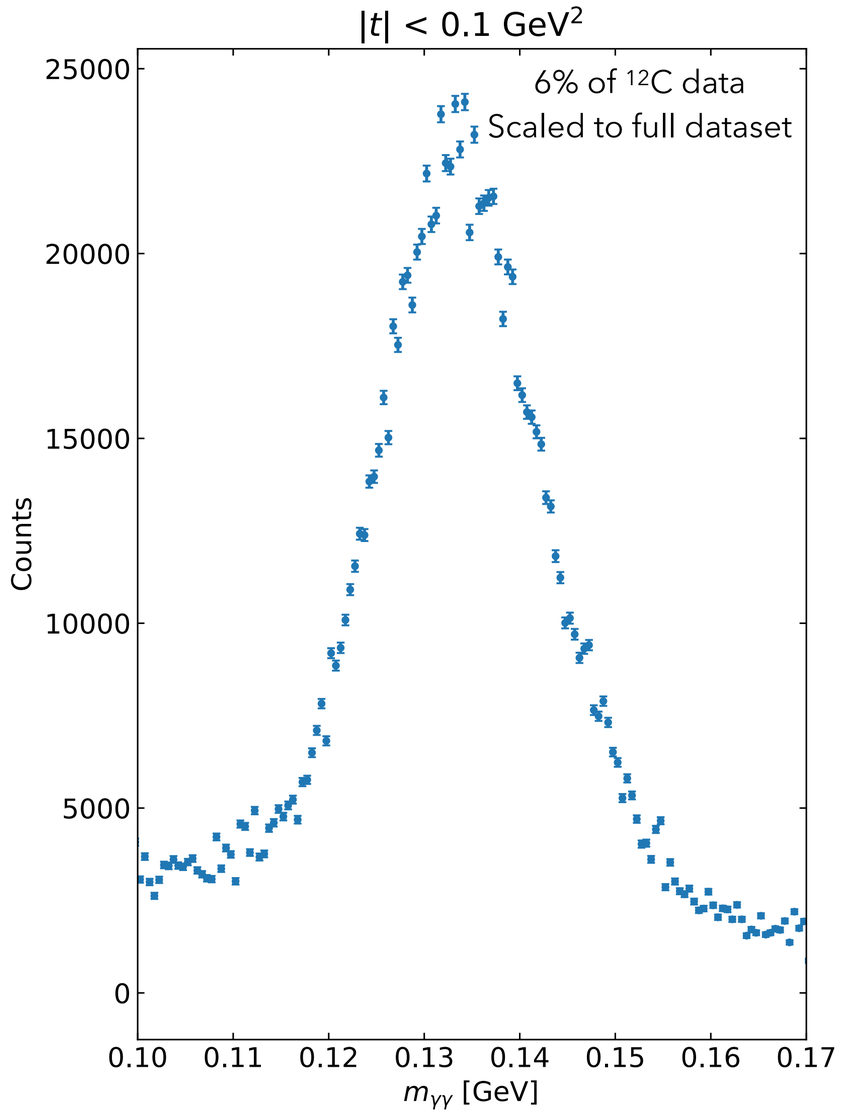


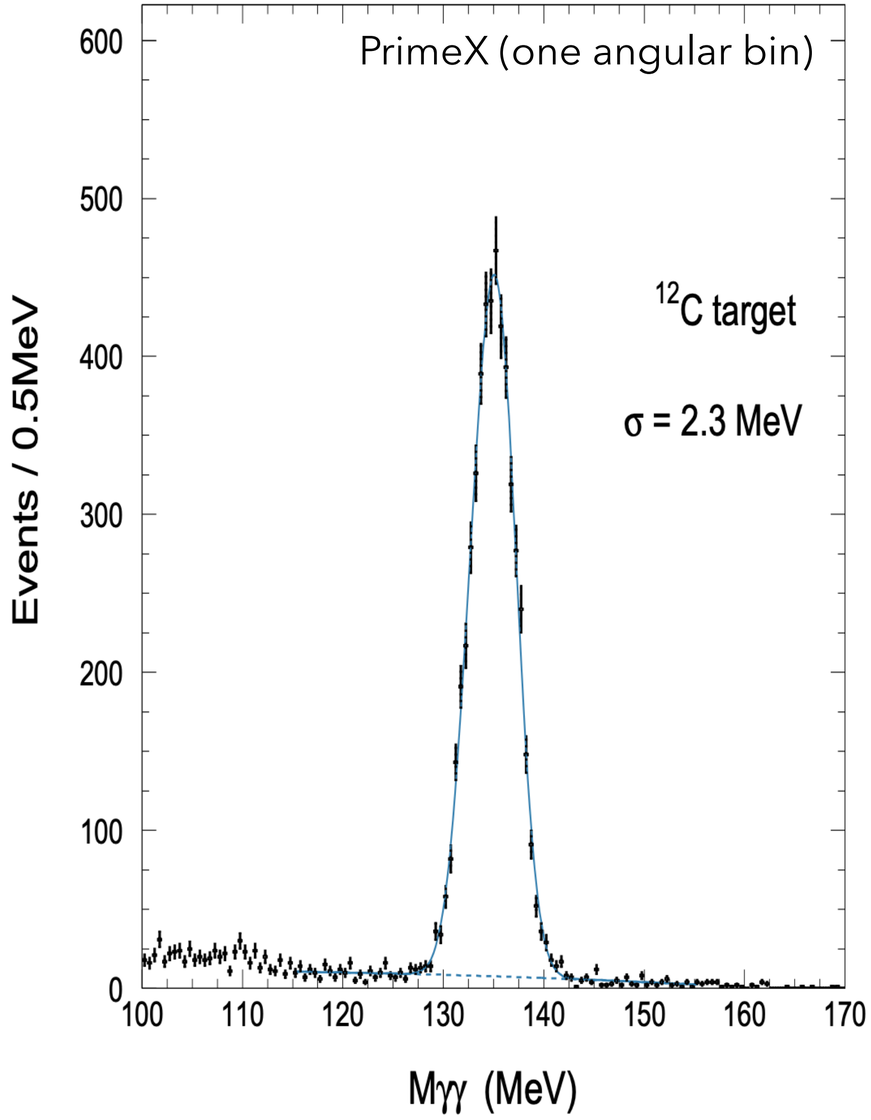
Comparison with PrimeX figure



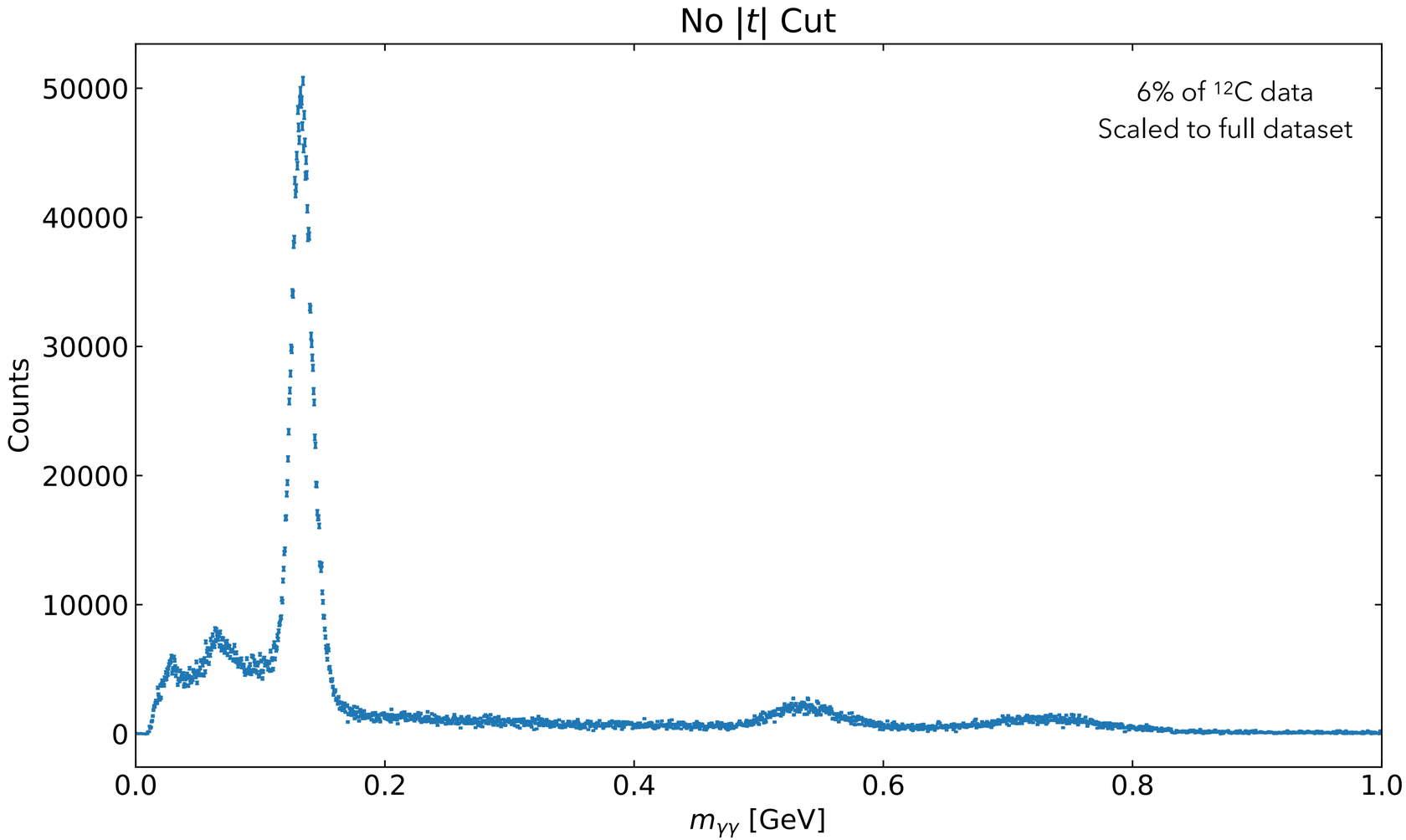


Comparison with PrimeX figure

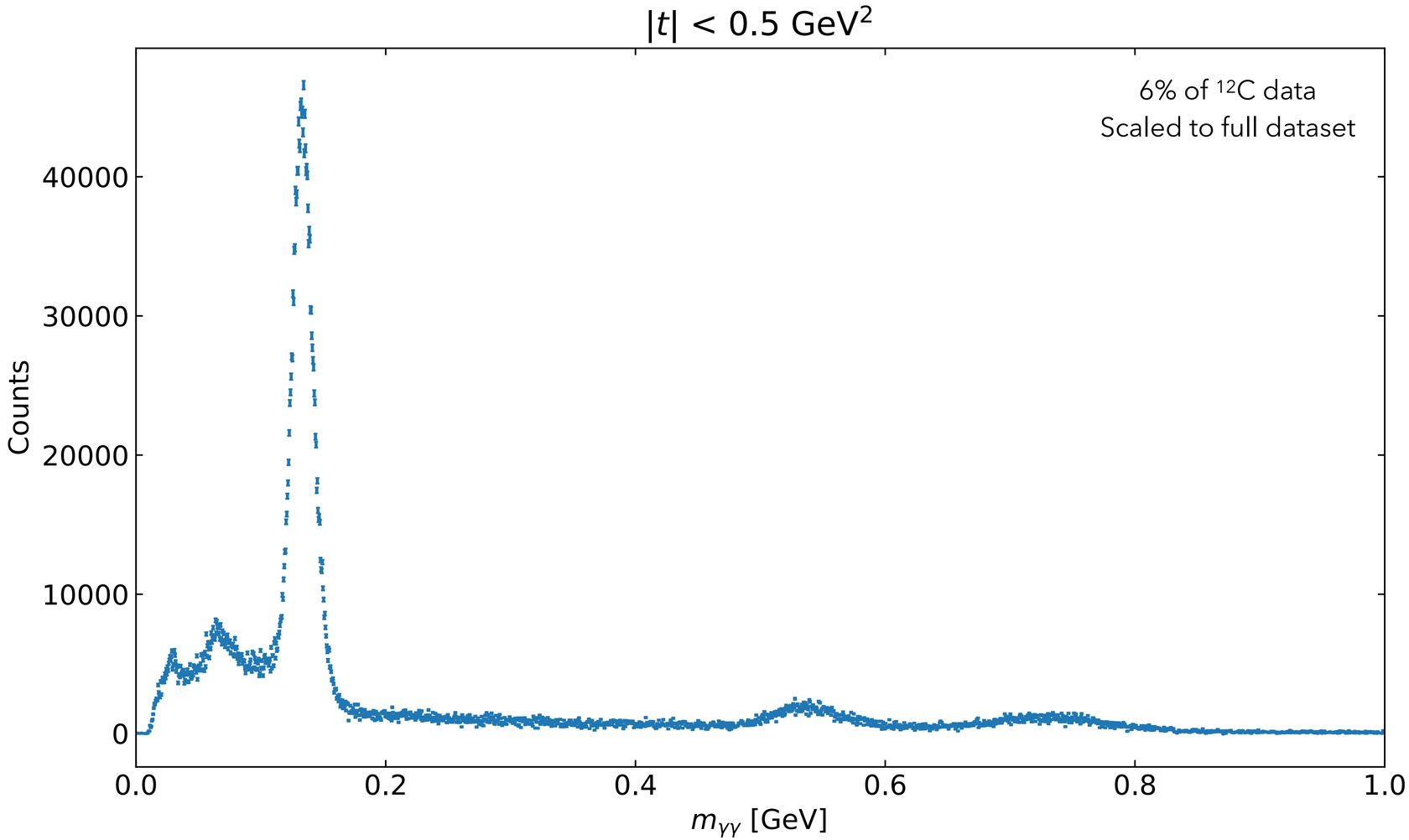




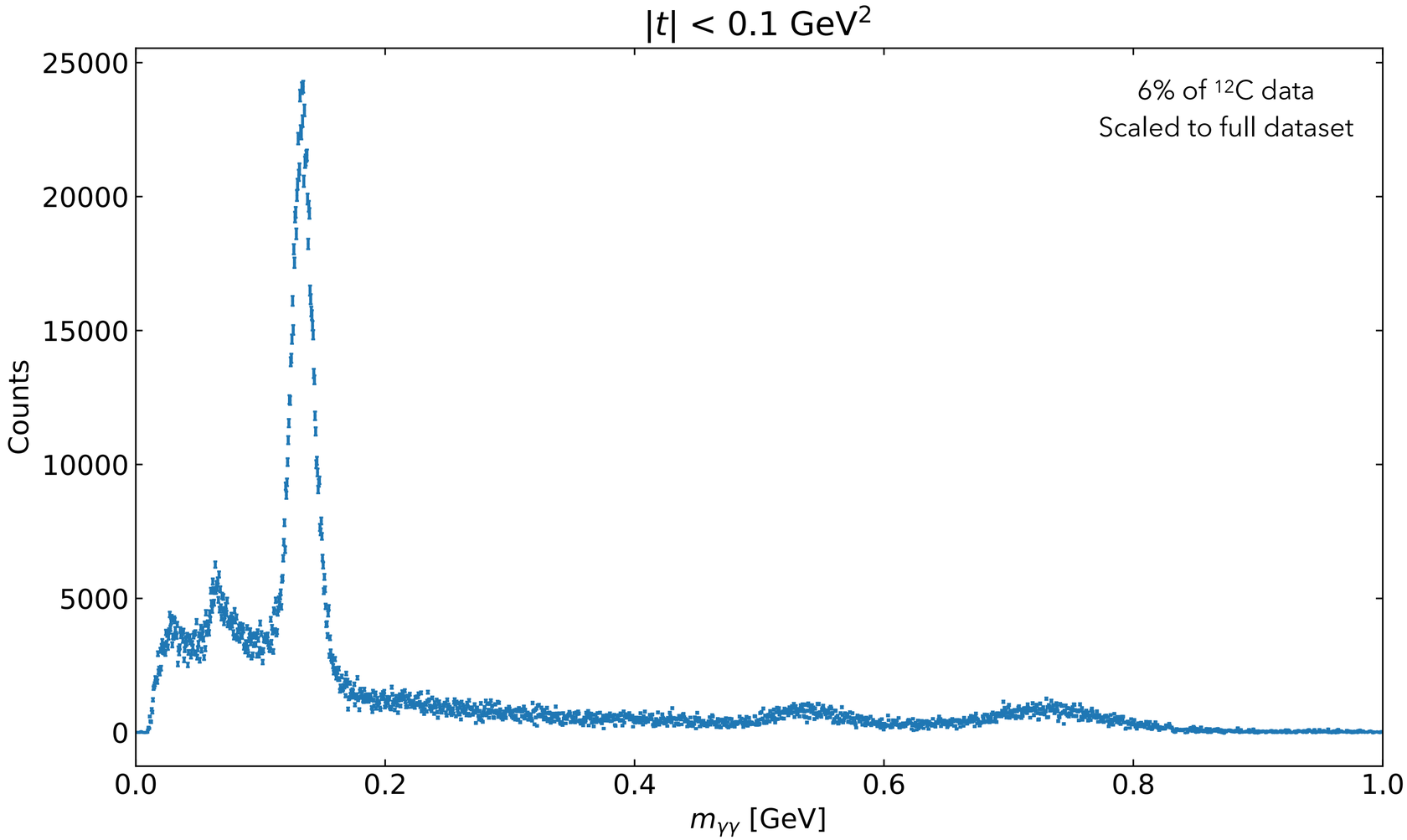
Full mass spectrum (projected)



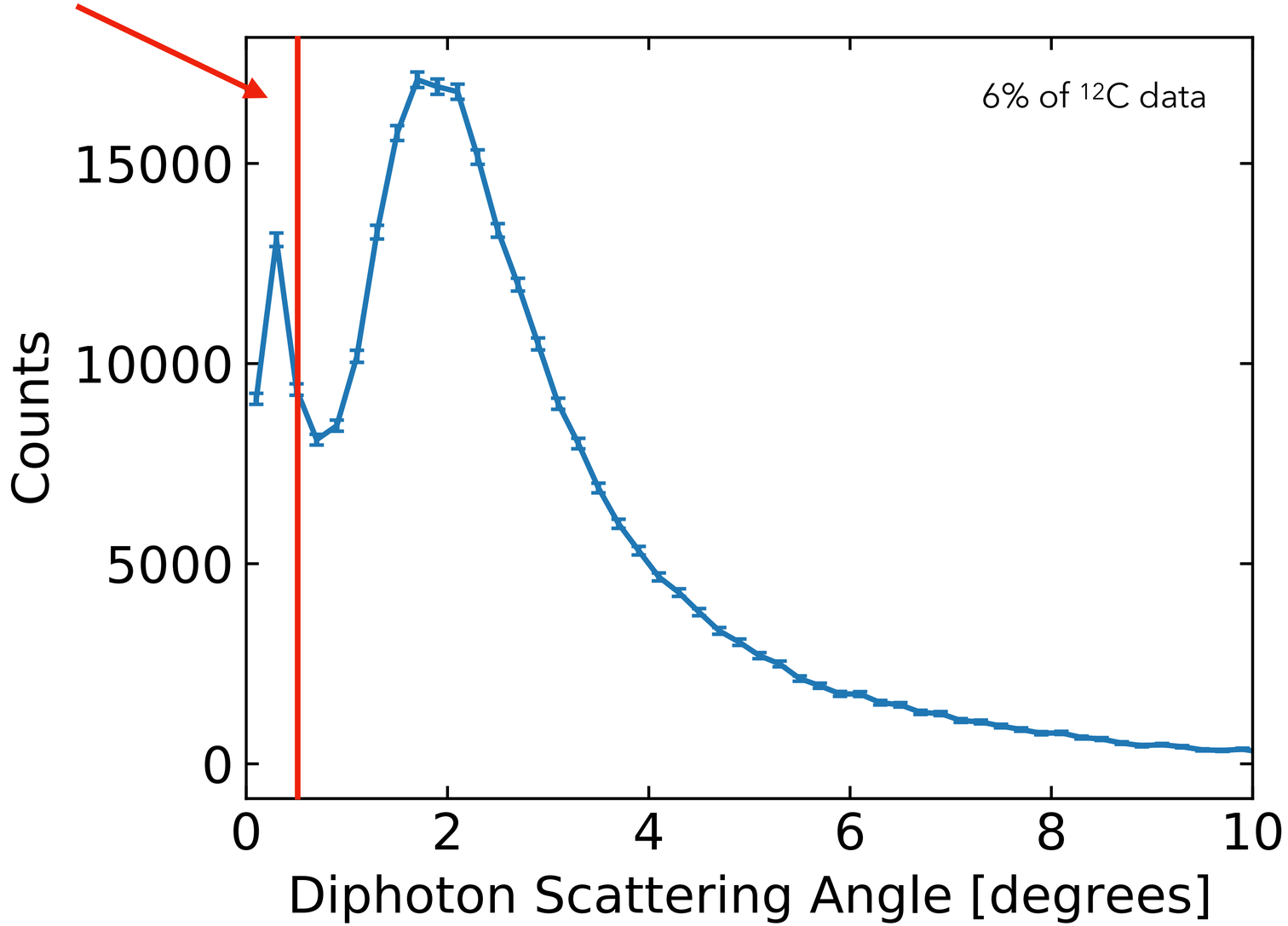
Full mass spectrum (projected)



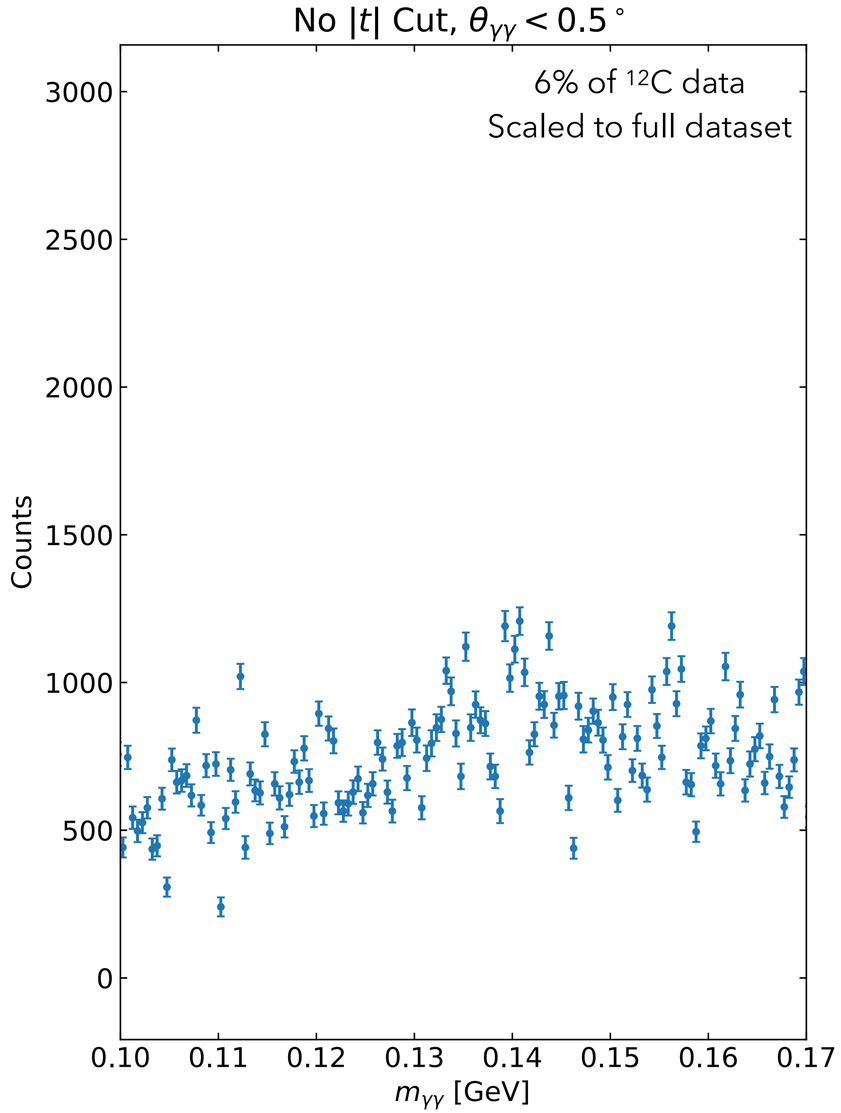
Full mass spectrum (projected)

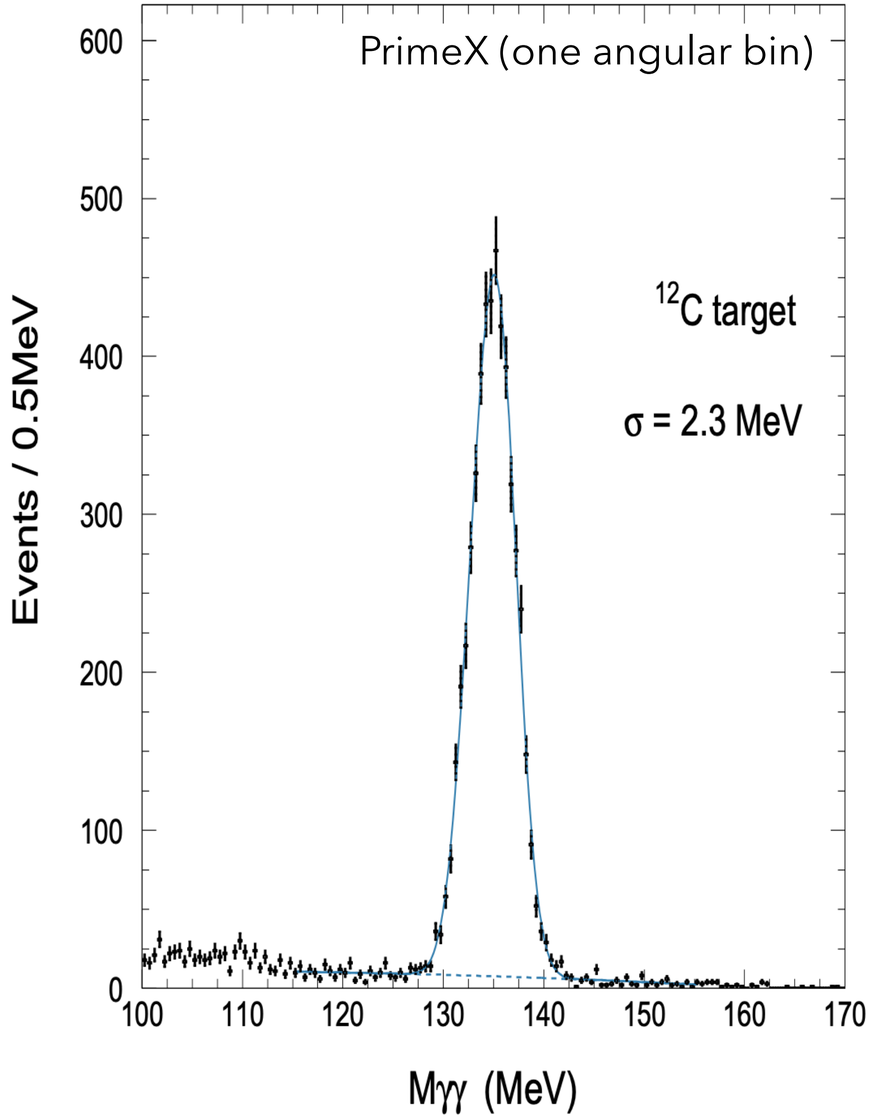


Coherent events dominate at $\theta_{\gamma\gamma} < 0.5^{\circ}$

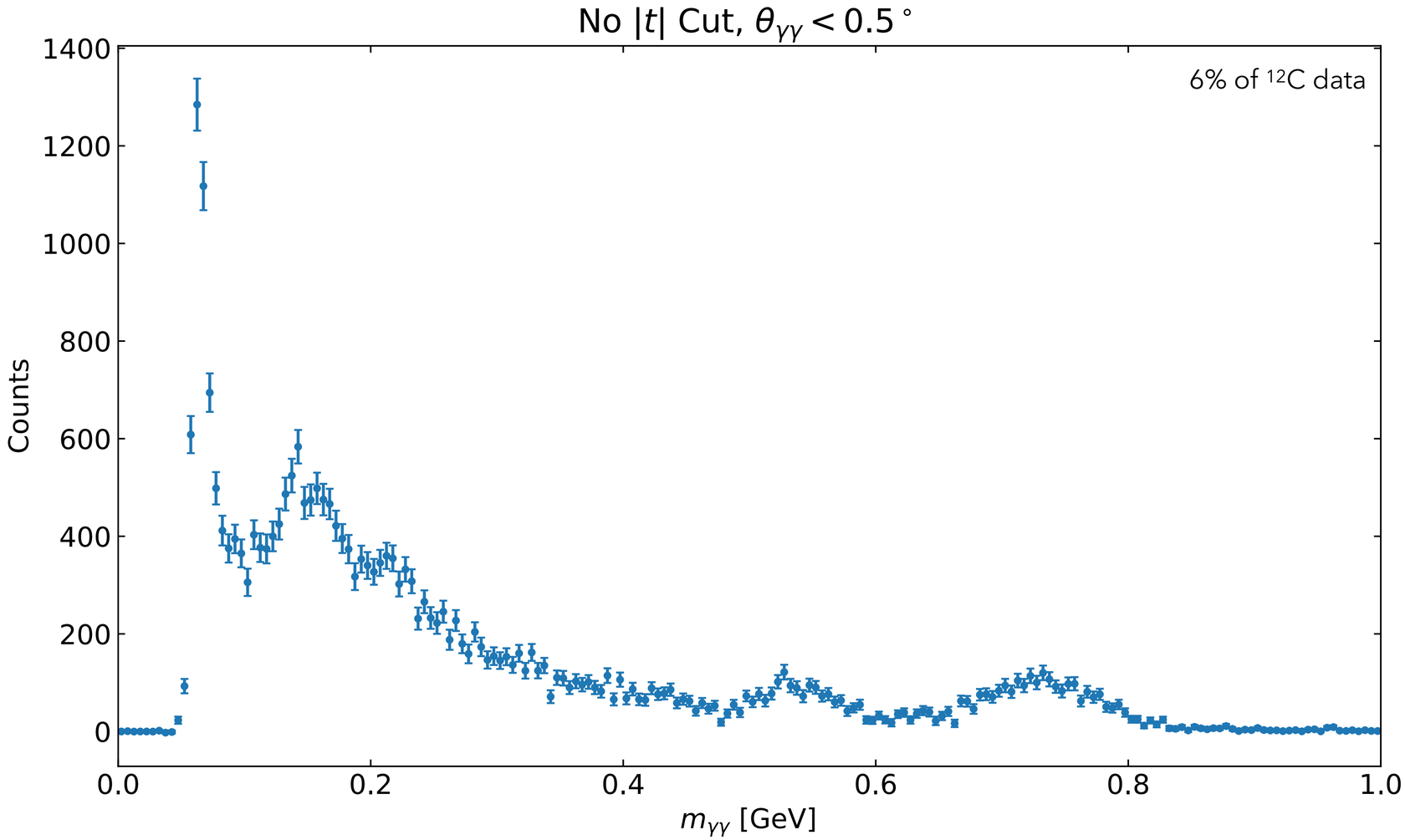


Comparison with PrimeX figure





Full forward mass spectrum (projected)



Full forward mass spectrum (projected)