# $a \rightarrow \gamma\gamma$ Acceptance

- Passed signal simulation of Primakoff $a \rightarrow \gamma\gamma$ production from ^{12}C at fixed beam energies and axion masses through Geant model of Hall D

- Smeared beam energy uniformly in 100 MeV bin to account for discrete+finite electron tag acceptance

- Used same reconstruction software as applied to data – further refinements are needed (fiducial regions, shower quality, TOF veto)

- Non-uniform effect of $\theta_{\gamma\gamma}$ cut across energies and masses may indicate a t cut to be more effective
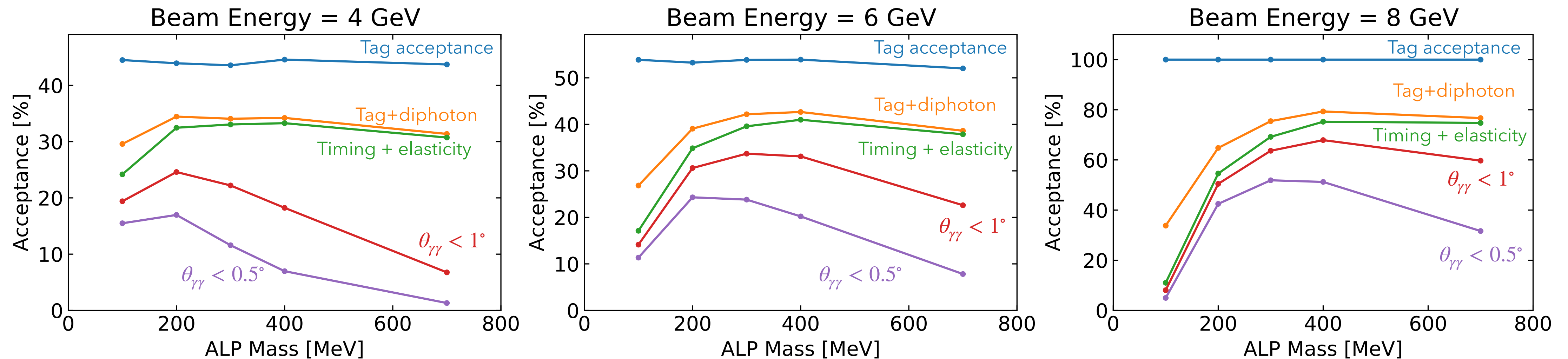
Cutting on t treats beam energies more uniformly
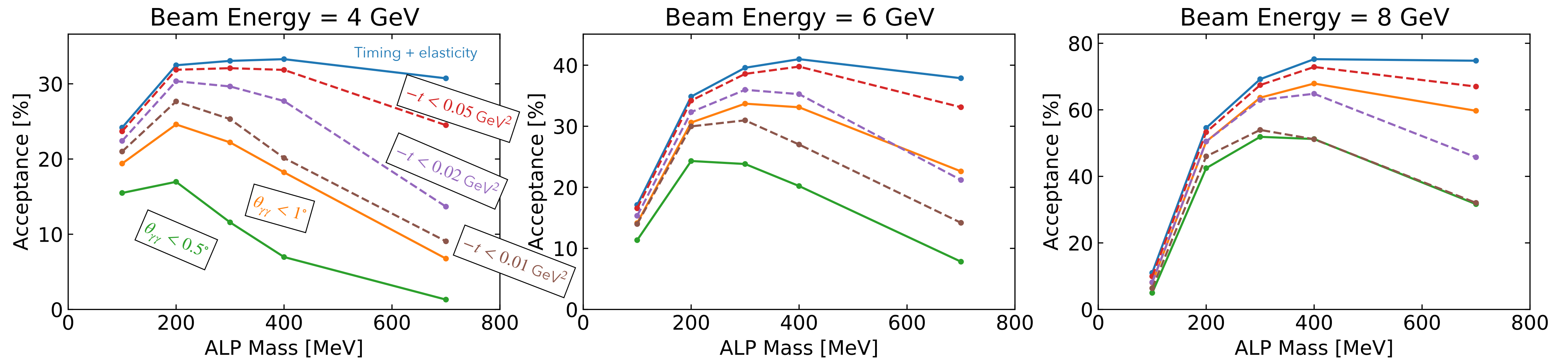
Resolutions do not strongly depend on mass or beam energy

No Angular or |t| Cuts
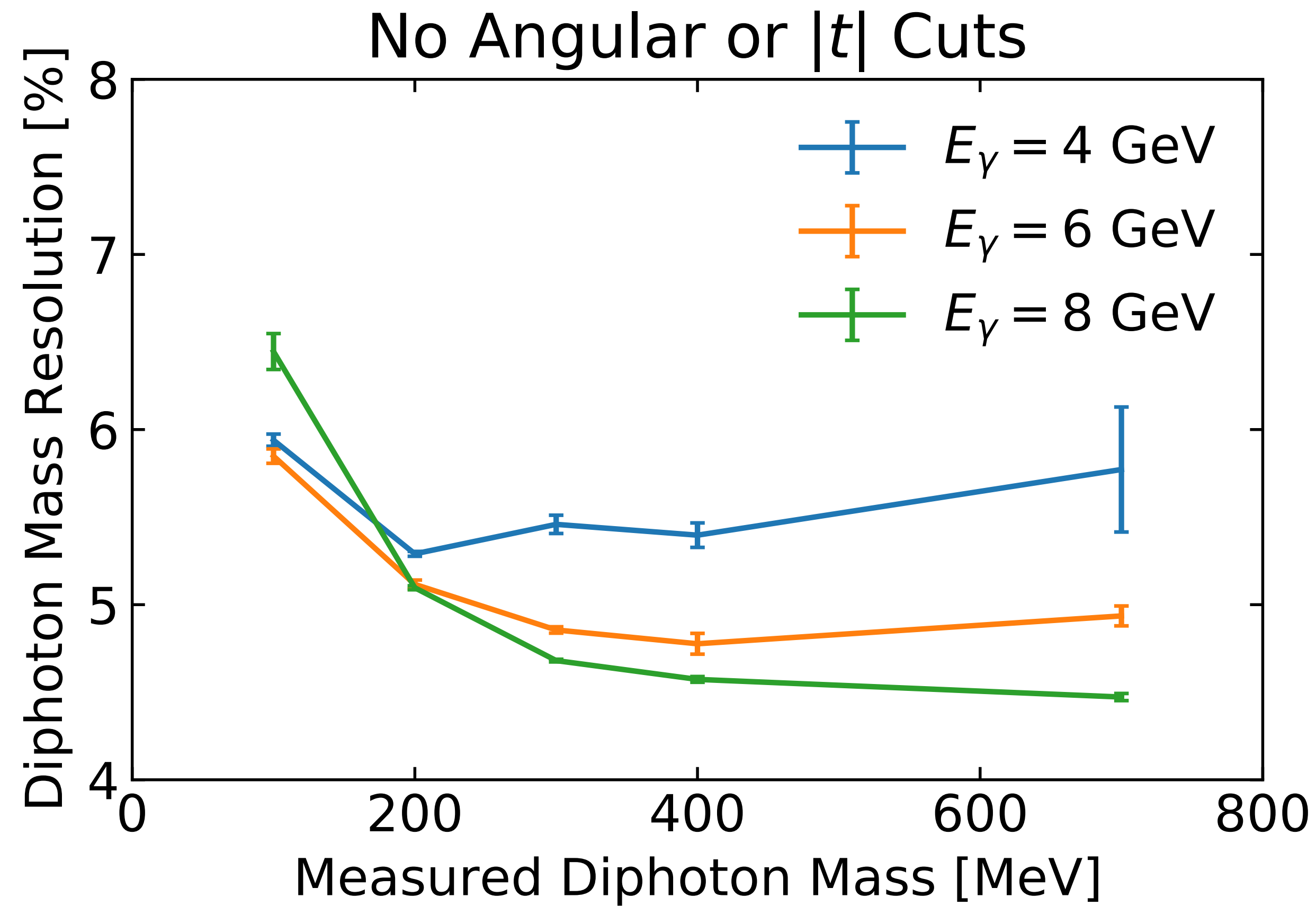
Fitting gaussian to measured diphoton mass from simulated signal:

8 GeV Beam, 400 MeV ALP