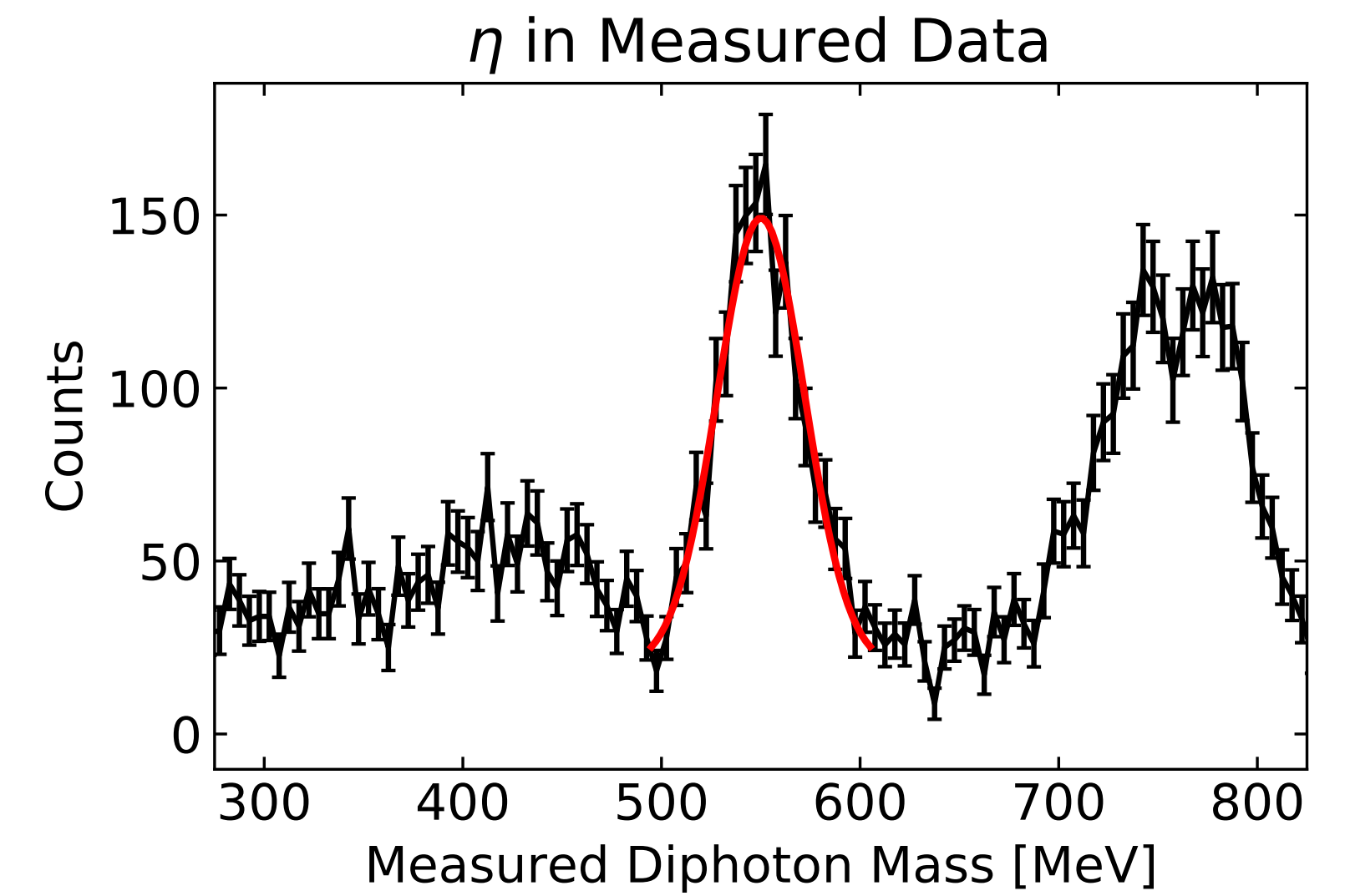
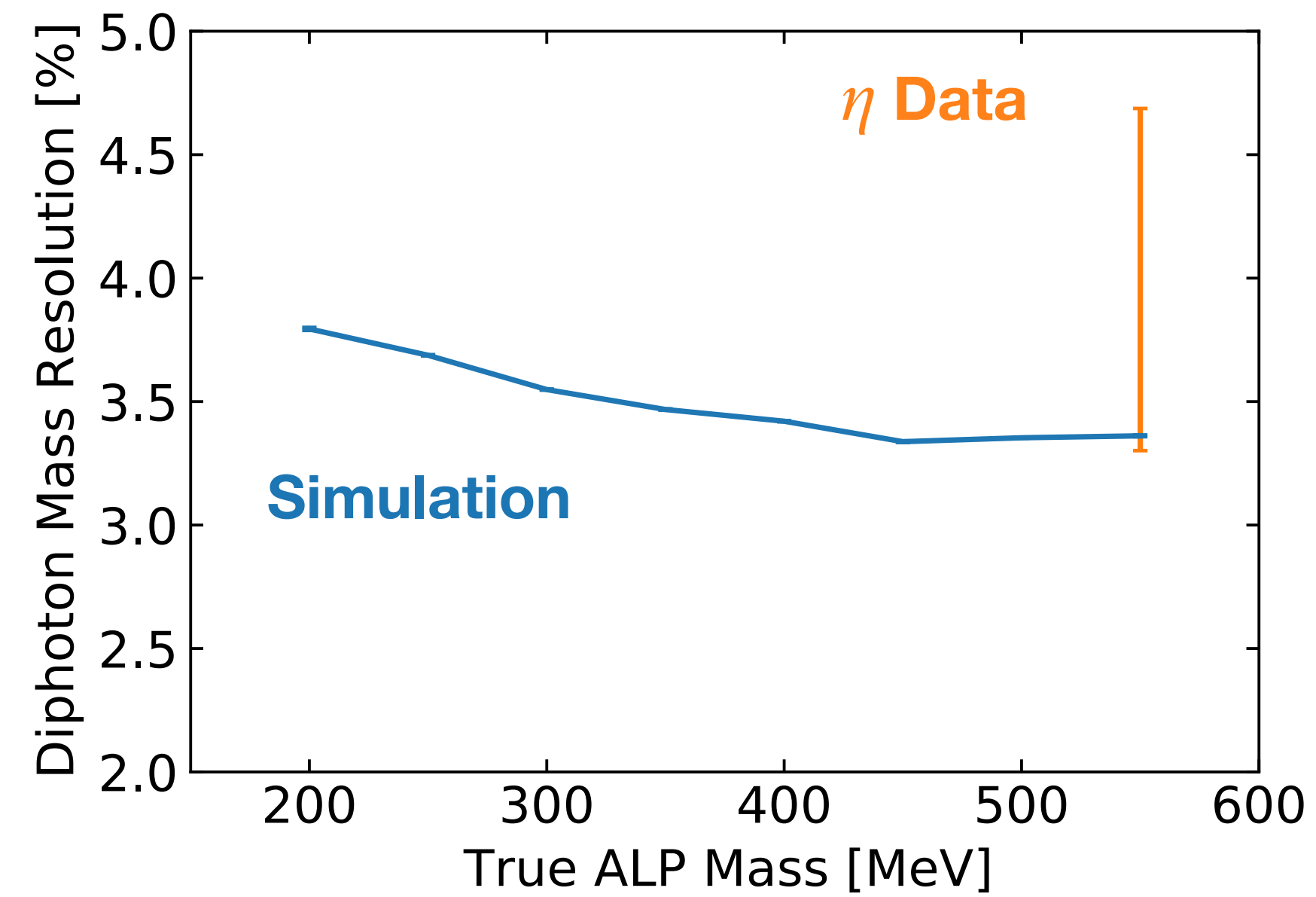
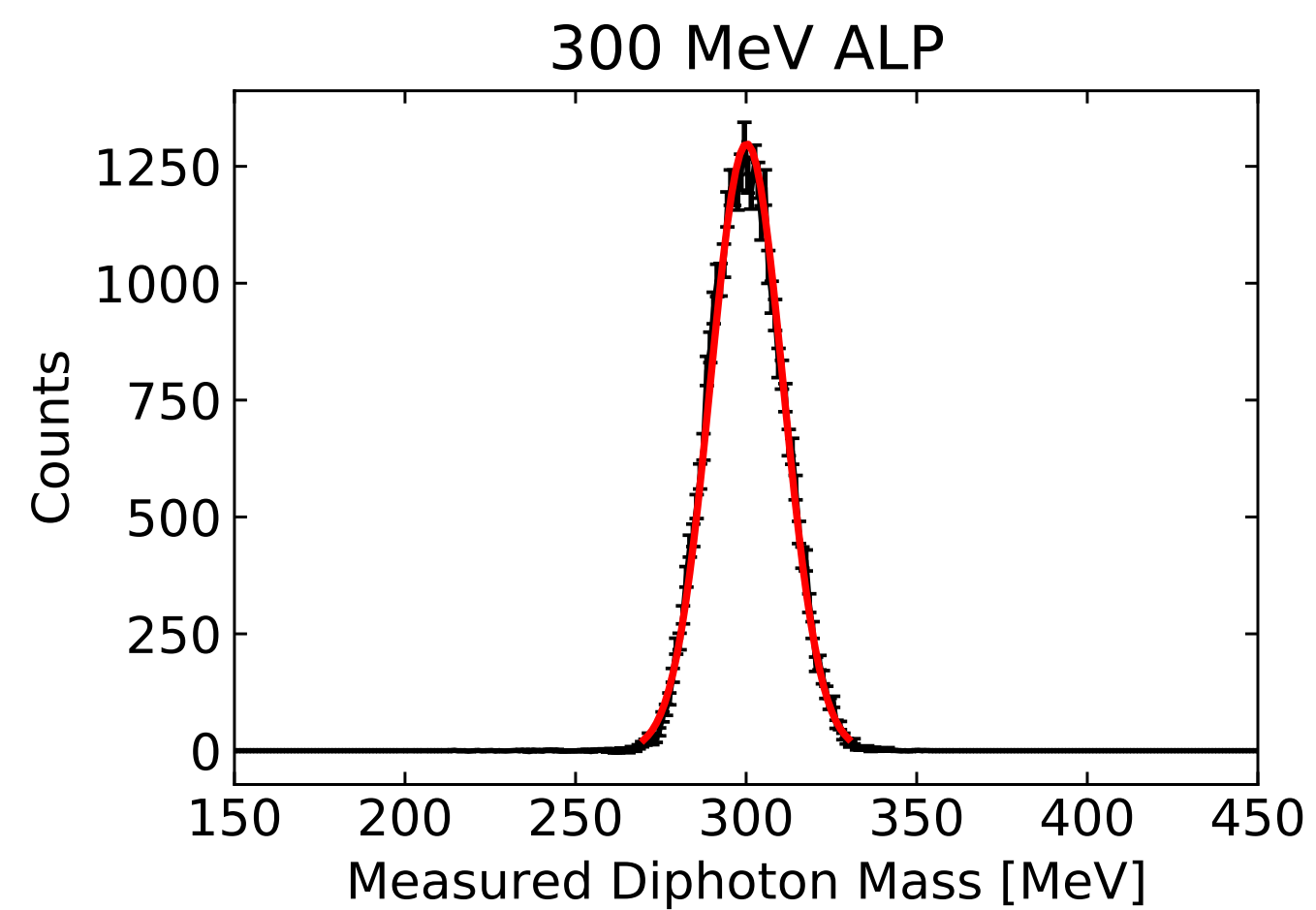


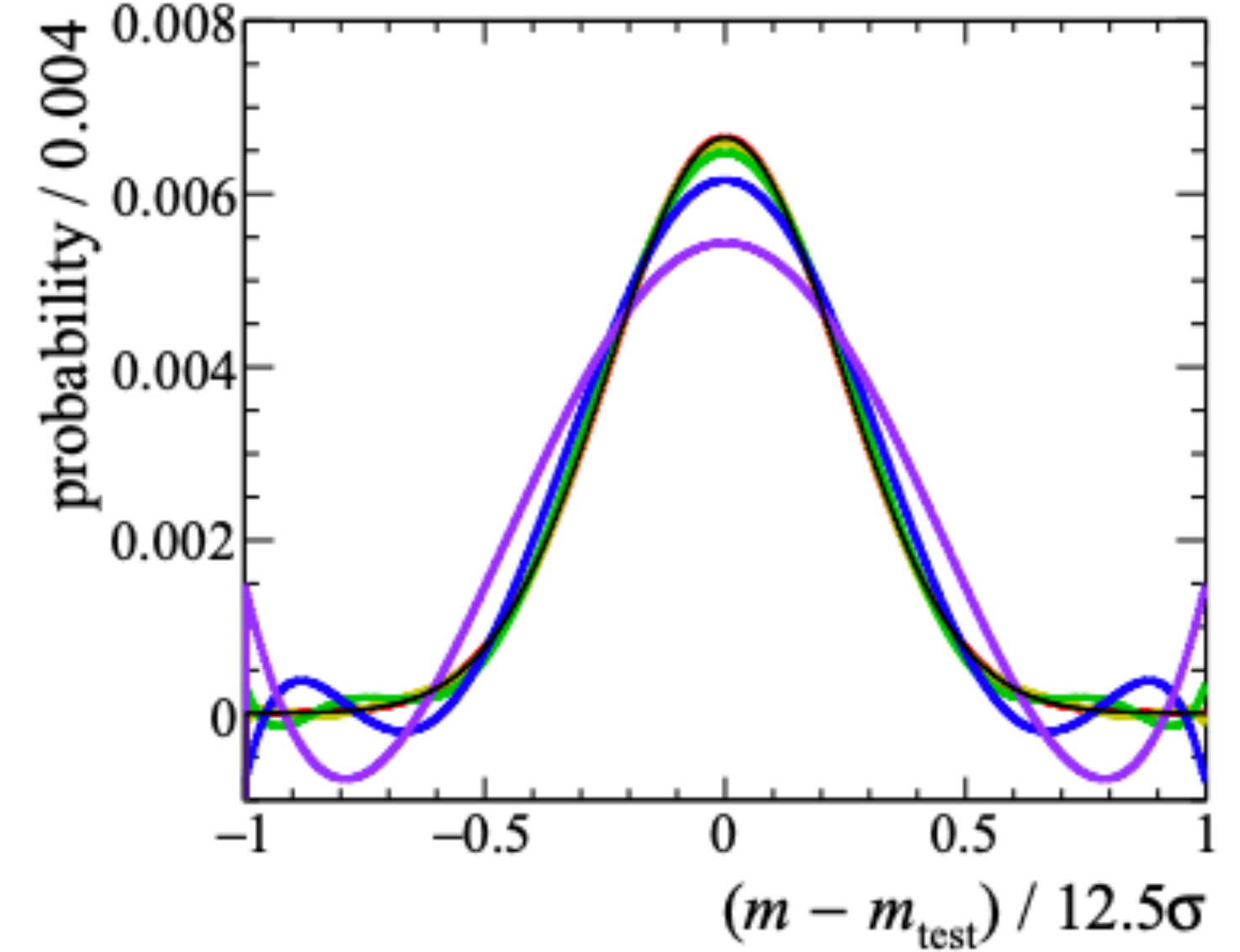
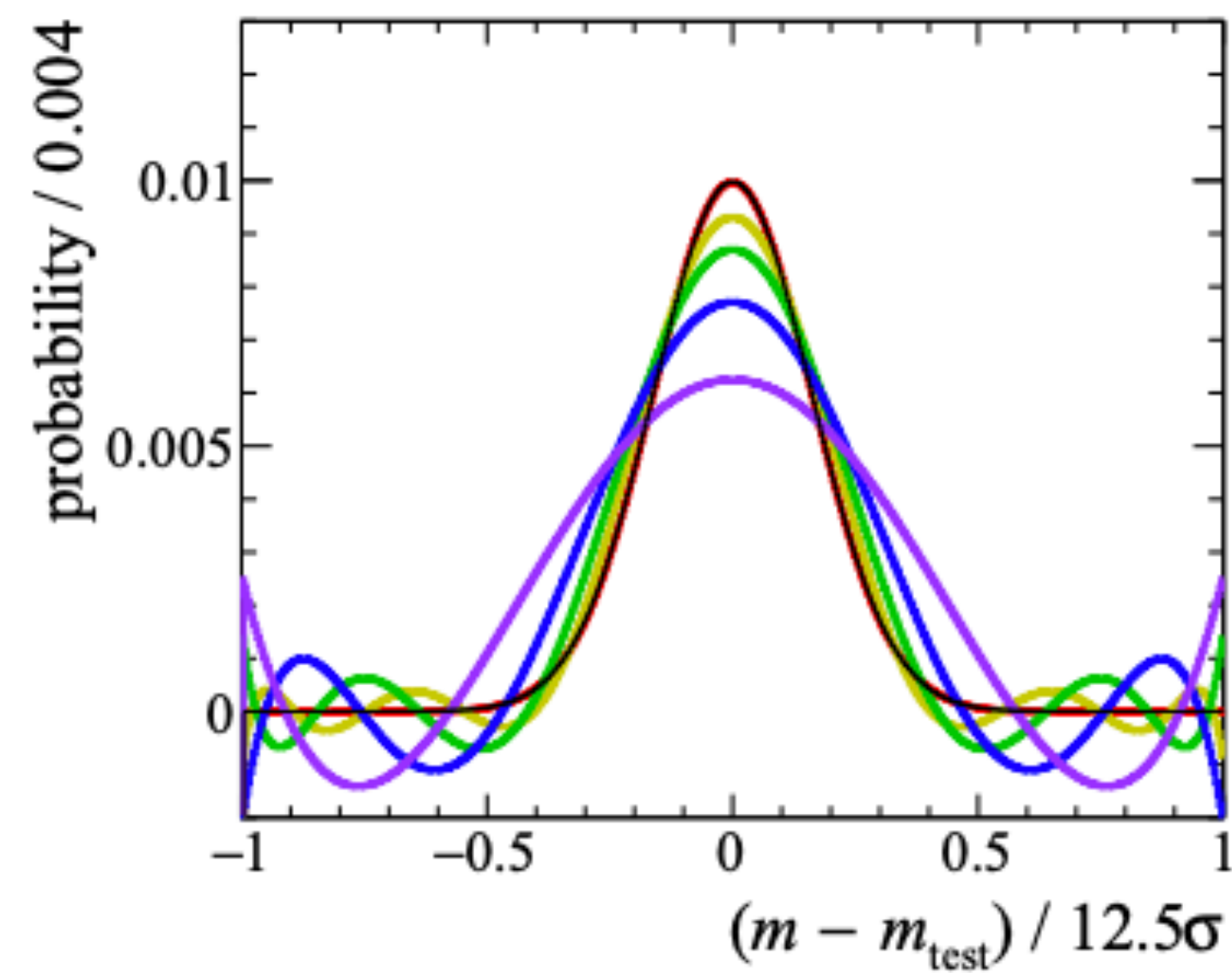
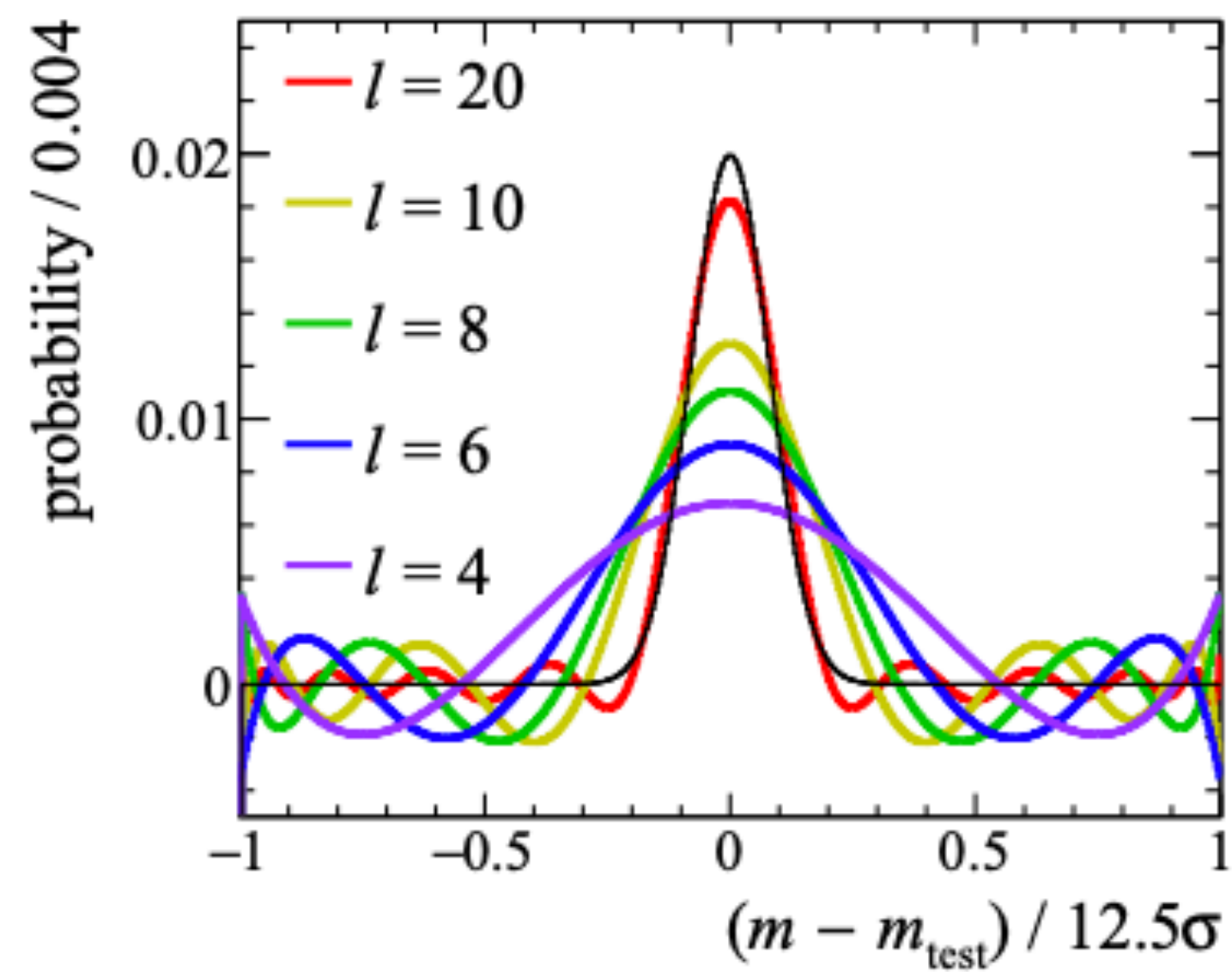
Bump Hunting Procedure

Jackson Pybus

Signal well-modeled by gaussian distribution with 3-4% resolution

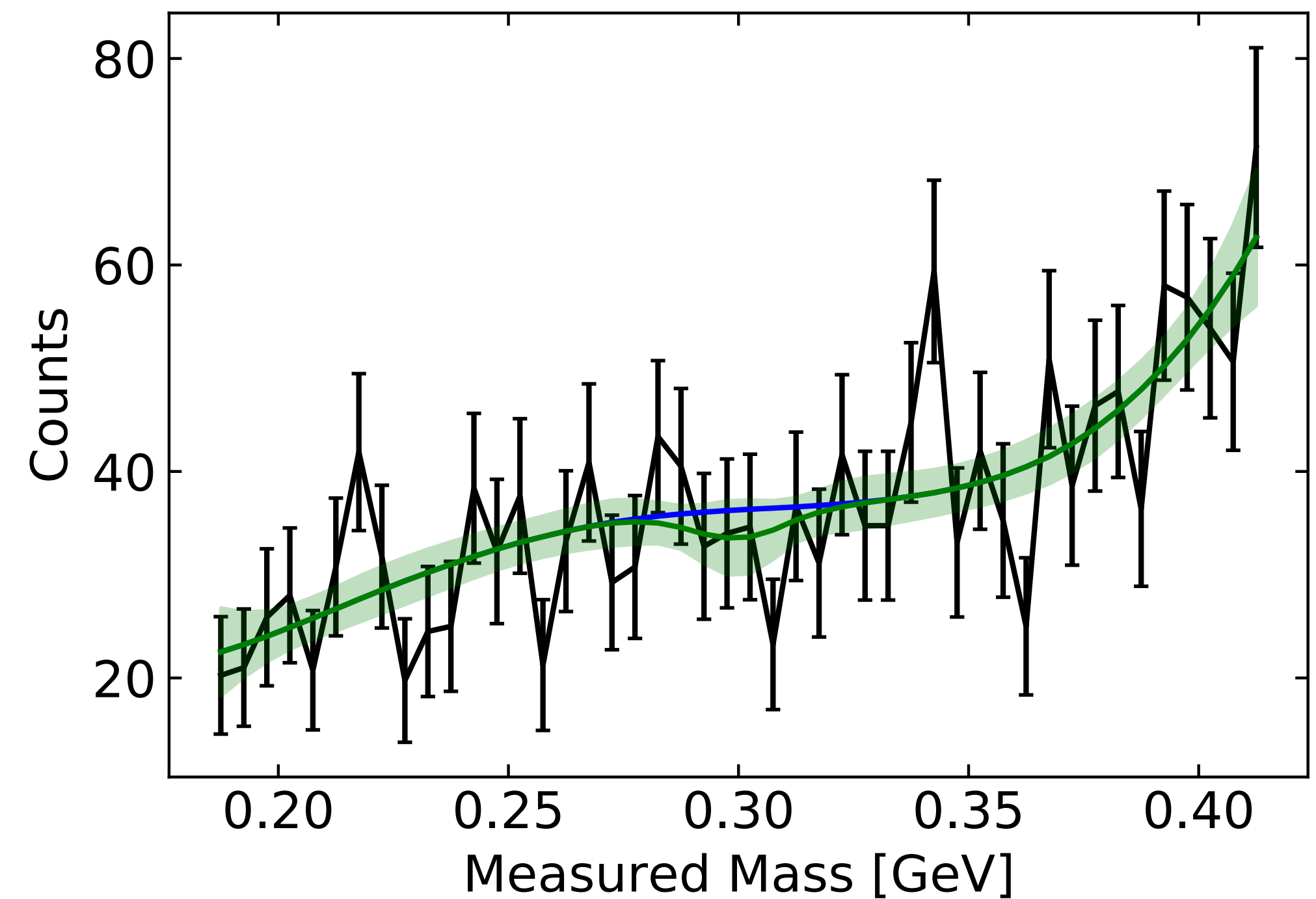


Polynomial background fits of order ~ 4 avoid competing with signal (given appropriate fit window)



Bump Hunting Procedure

- Pick fit window $\sim 20\text{-}25\sigma$ wide around the hypothesis mass
- Fit the data with background model + signal with variable strength
- Examine likelihood distribution of the signal strength
 - Conversion into upper bound still being examined — Frequentist vs Bayesian approach?



Example: 300 MeV ALP hypothesis

