

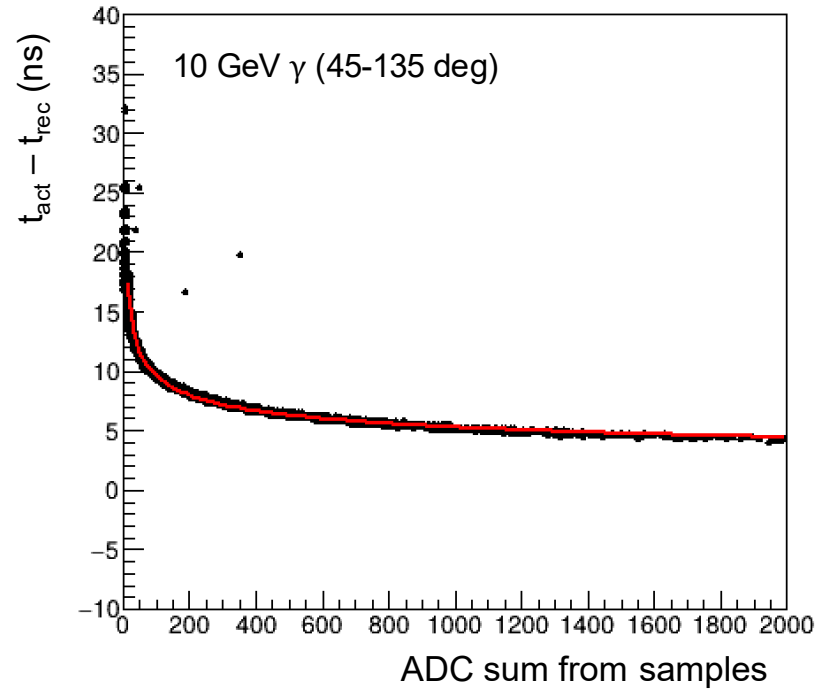
Calibration in simulation

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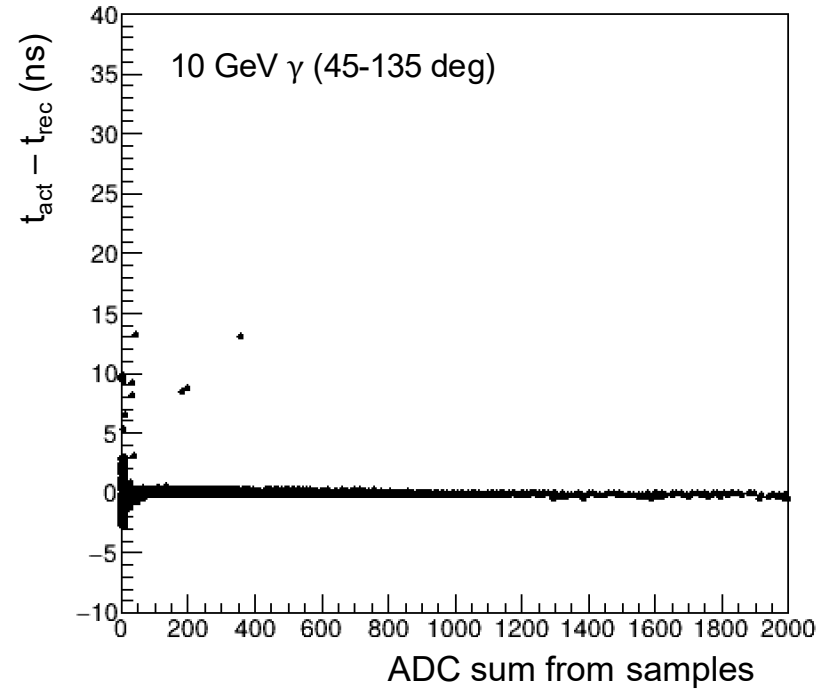
BIC Simulation Meeting
May 19, 2026

Time-walk correction

Time-walk (before)

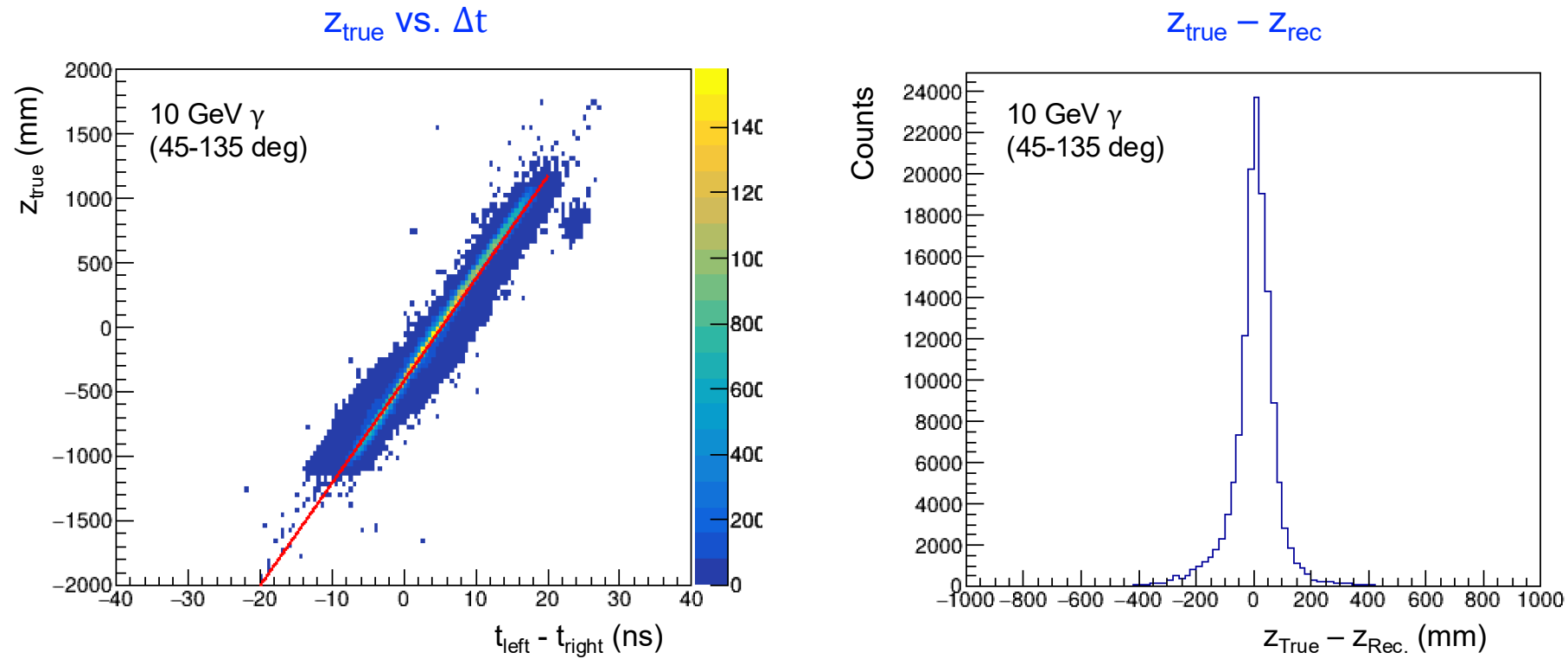


Time-walk (after)



- The time-walk curve was fitted by $y = c(x - a)^b + d$ based on the GlueX Bcal paper and corrected.

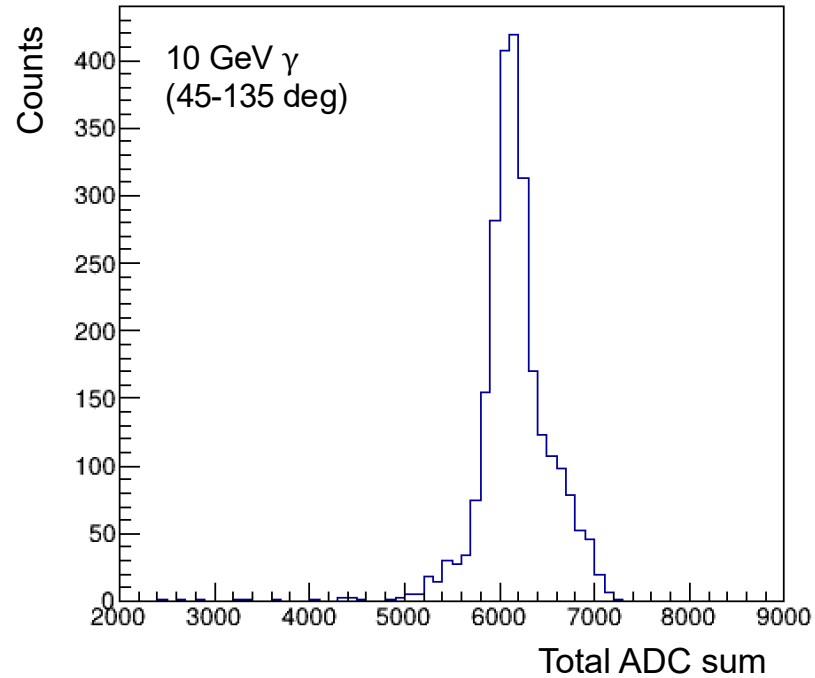
z determination by time difference



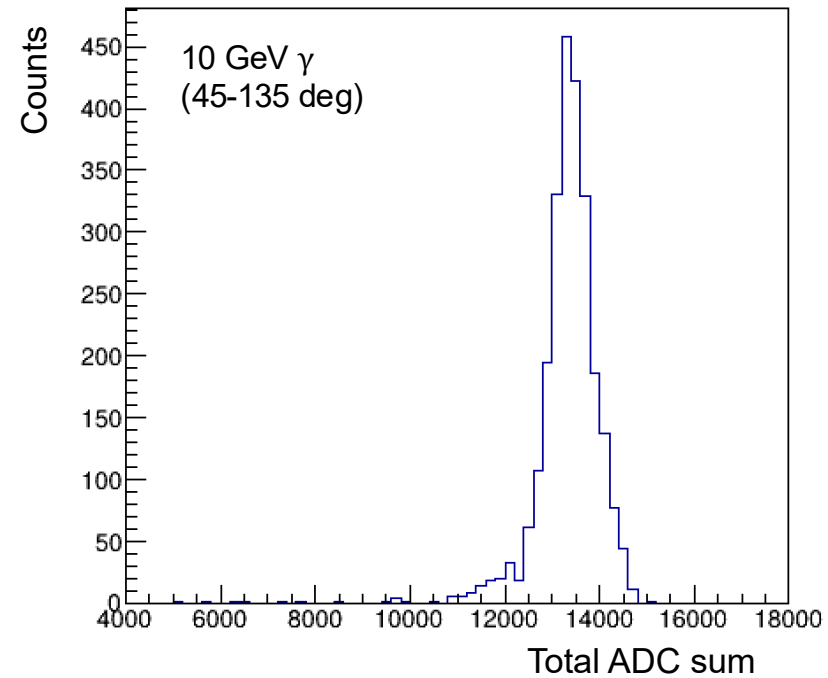
- Z_{True} vs. Time difference distribution was fitted by a 1st-order polynomial and z was reconstructed using that fitting function.
- The σ of the sharp Gaussian peak in the $Z_{\text{True}} - Z_{\text{Rec.}}$ distribution is about 40 mm.

Attenuation correction

Total ADC sum (before)



Total ADC sum (after)



- After the attenuation correction, the total ADC sum follows the crystal-ball shape.
- A small residual bump may be an effect of the η -dependent sampling fraction.

Next steps

- E- and η -dependent sampling fraction.
- Overflow and the corresponding dynamic range study when high-energy γ enters BIC at oblique angles.