Initial Simulation Results

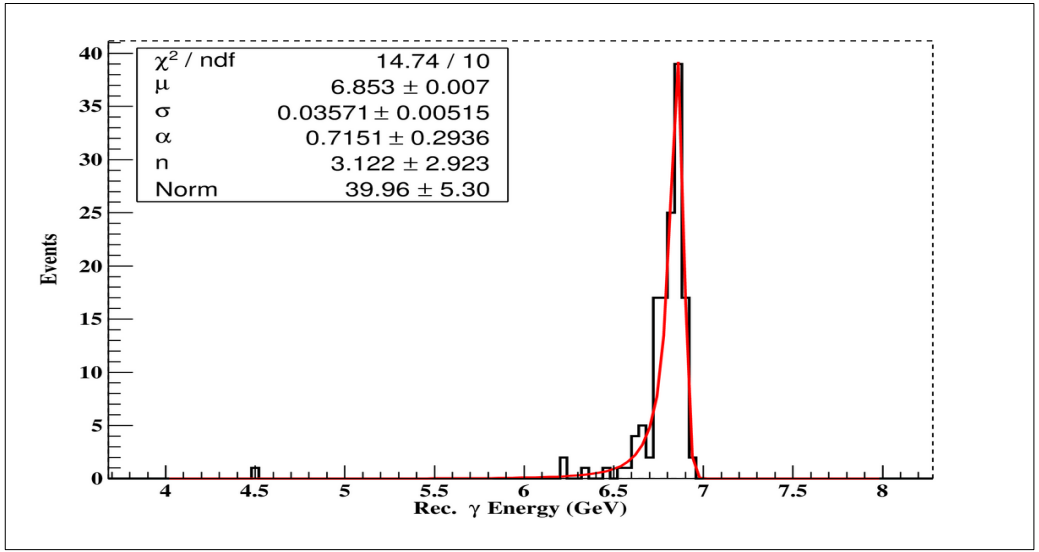

Fig. Reconstructed γ Energy from Calorimeter

Crystal Ball Fit : A piecewise-defined, consisting of a Gaussian peak and a power-law tail.

$$f_{CB}(x;\mu,\sigma,\alpha,n) = N\begin{cases} e^{-\frac{(x-\mu)^2}{2\sigma^2}}, & \text{for } \frac{x-\mu}{\sigma} > -\alpha \\ A\left(\frac{n}{|\alpha|} - |\alpha| - \frac{x-\mu}{\sigma}\right)^{-n}, & \text{for } \frac{x-\mu}{\sigma} \le -\alpha \end{cases}$$

$$\text{with } A = \left(\frac{n}{|\alpha|}\right)^n e^{-\frac{|\alpha|^2}{2}},$$

- μ & σ : mean & std. dev. of the Gaussian peak,
- n : exponent of the tail function,
- α : connecting point of the Gaussian and tail function,
- N is a normalization factor.

- 25000 γ generated at 7 GeV
- $E_\gamma = E_{e-} + E_{e+}$
- $E_\gamma = 6.853 \pm 0.007$ GeV

σ = 0.0357 ± 0.005 is known as resolution of a calorimeter.

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