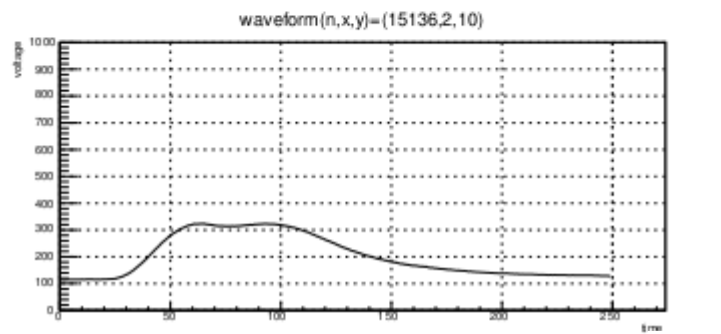
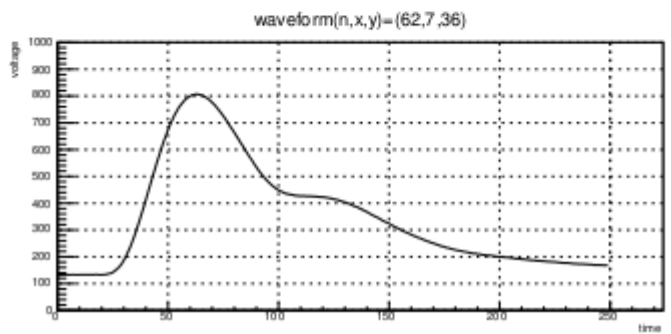
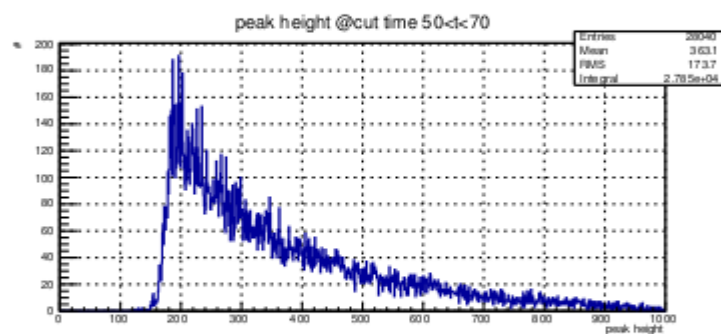
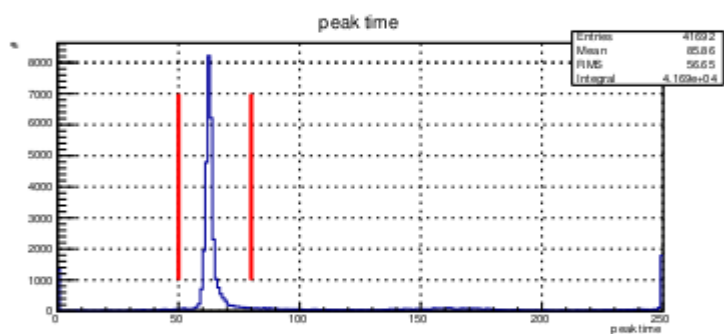
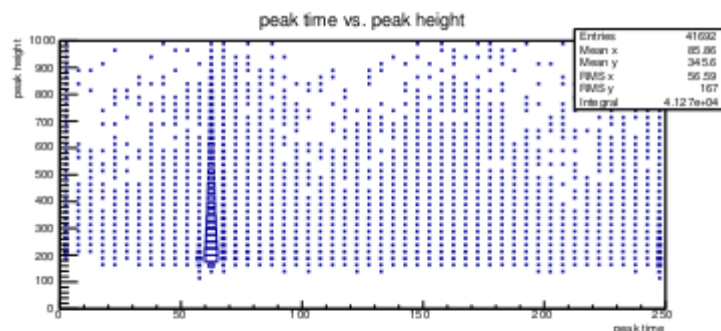
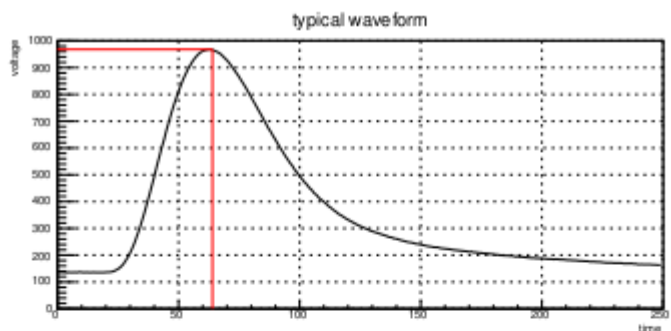


E36 CsI waveform fitting



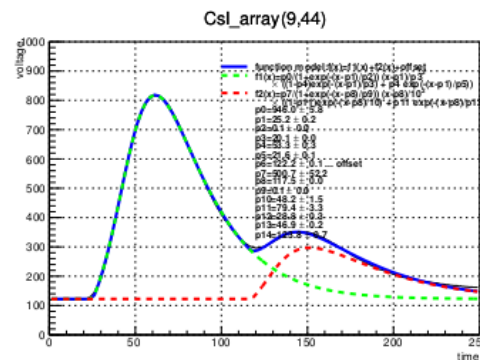
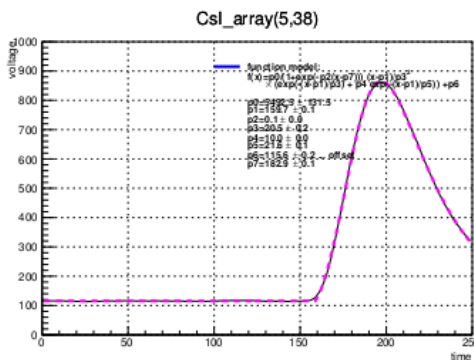
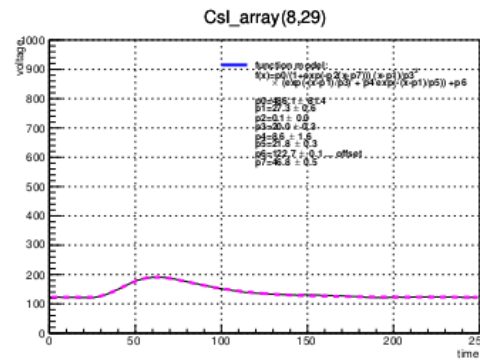
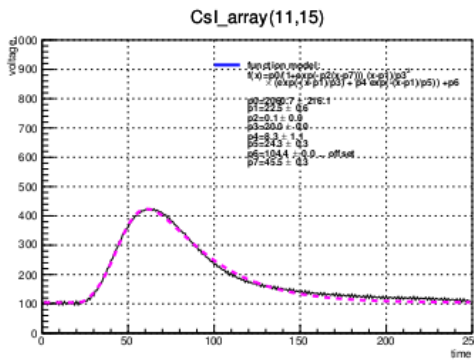
wave-run1657.dat
Total event: 10,000
Total wave: 41,692
Total skimmed wave: 28,040

E36 CsI waveform fitting

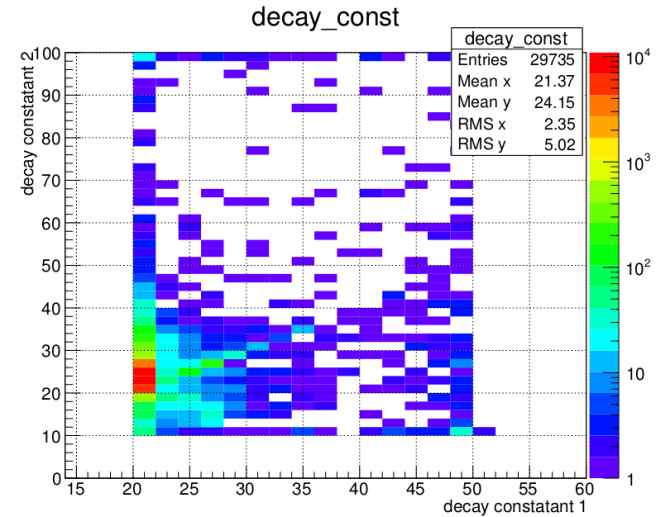
Fitting Algorithm

① Fitting Function Model

$$f(t) = \frac{N}{1 + \exp(-a(t - t_r))} \frac{t - t_0}{\tau_1^2} \left(\exp\left[-\frac{t - t_0}{\tau_1}\right] + \varepsilon \exp\left[-\frac{t - t_0}{\tau_2}\right] \right) \quad (t > t_0)$$



Relation of both decay time coefficients



>> Focusing parameters is 20 and 25.

E36 CsI waveform fitting

Fitting Algorithm

② Multi wave fitting

1. Fixed decay time: $t_1 = 20$, $t_2 = 29$



2. Fit with single waveform



3. Calculation difference of raw data and fitted function



4. In the case of the difference $> 3\%$, fit with double waveforms.

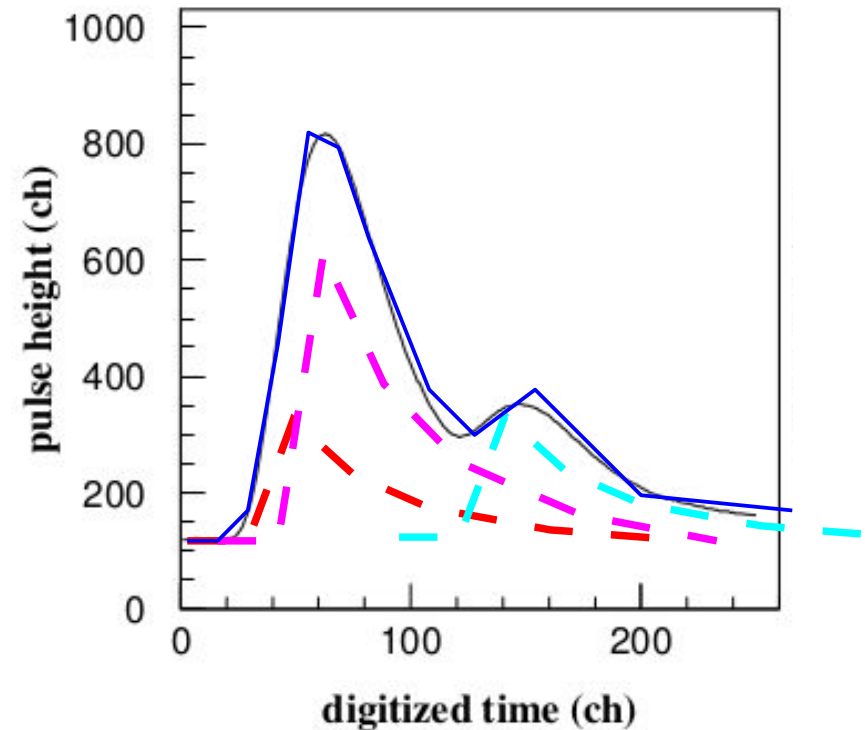


5. Calculation difference of raw data and fitted function



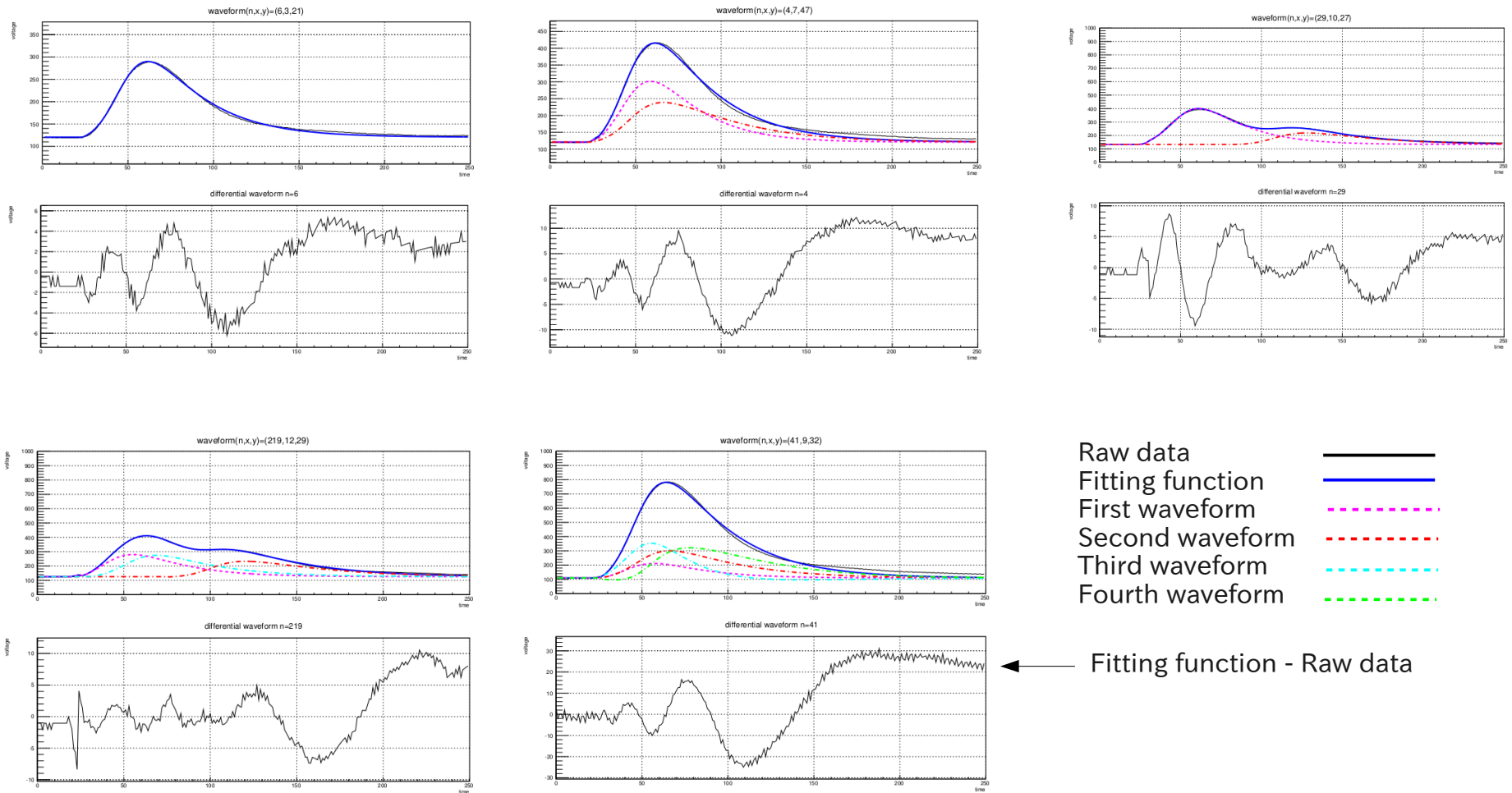
6. In the case of the difference $> 3\%$, fit with triple waveforms.

⋮



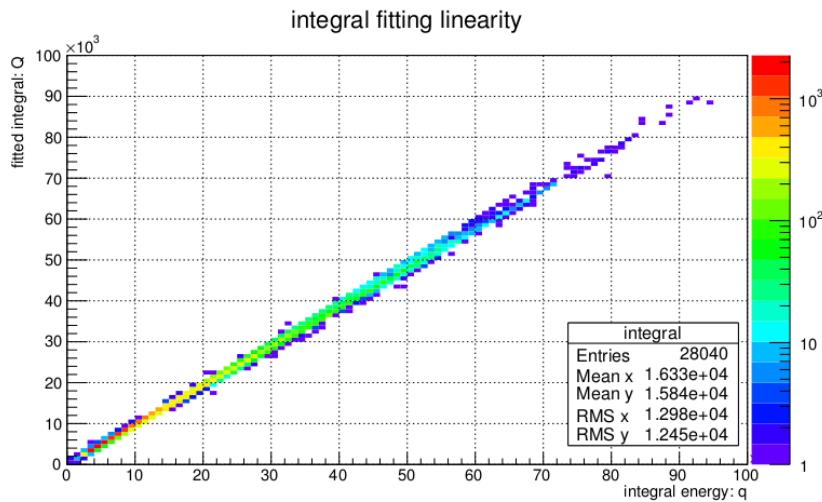
E36 CsI waveform fitting

Result of Fitting

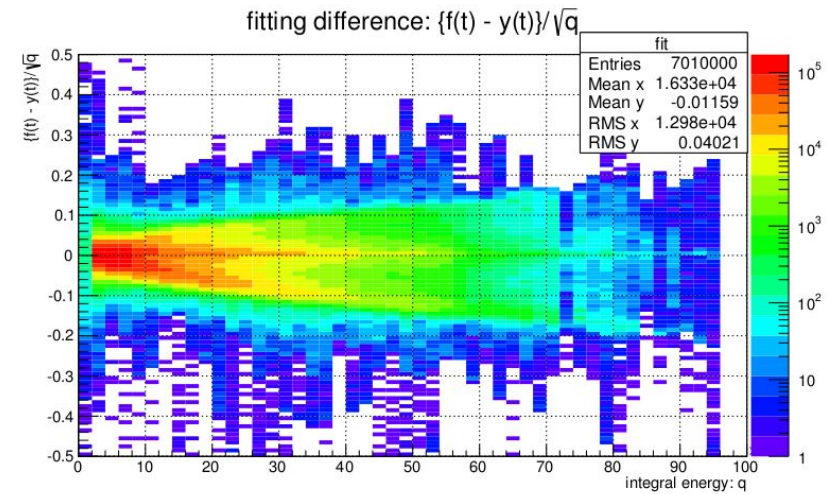


E36 CsI waveform fitting

Result of Fitting



Relation of linearity with raw data integration v.s. Fitted function integration

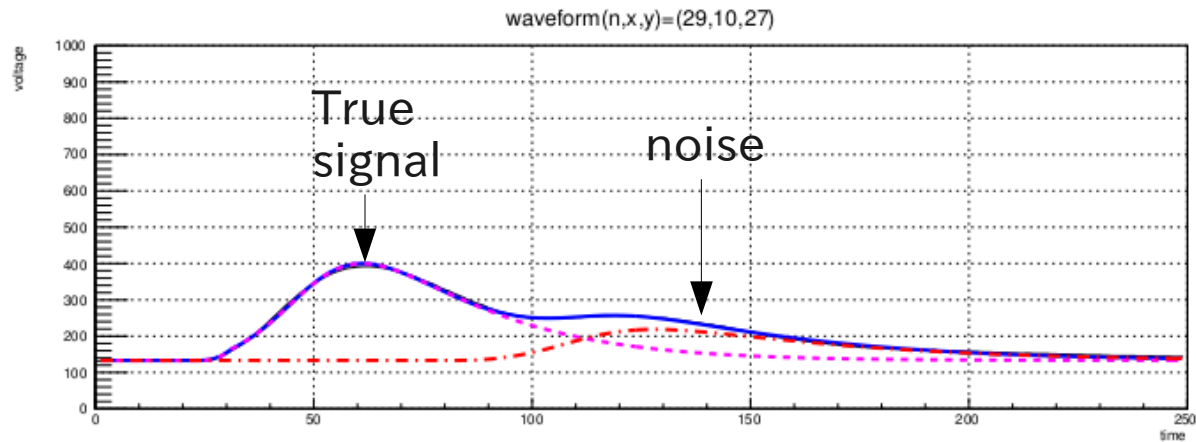


Relation of linearity on raw data integration

E36 CsI waveform fitting

Future Work

1. Energy correct



2. optimization for over range wave

