

Neutron Detector for
LAMPS-H
[Benard Mulilo]

FRIDAY. FEB. 10, 2017

Lab. Meeting
Korea University
Department of Physics

Last Lab Meeting

1. Applying TSpline3 Method

Fitted value of par[1]=Mean

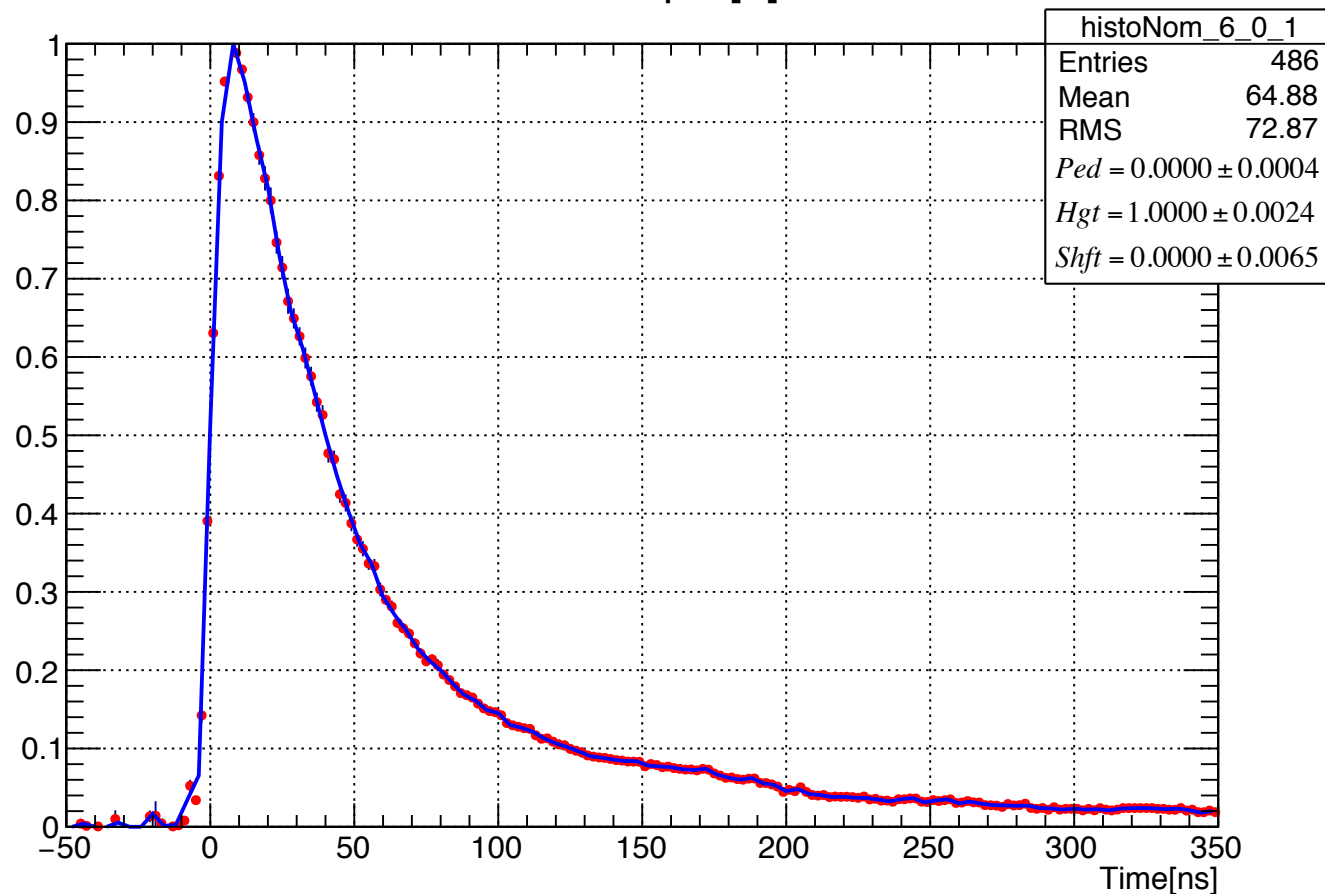


Fig.1: Ch6 mean waveform fitted with a user defined function obtained from a spline3.

Waveform Data Analysis¹

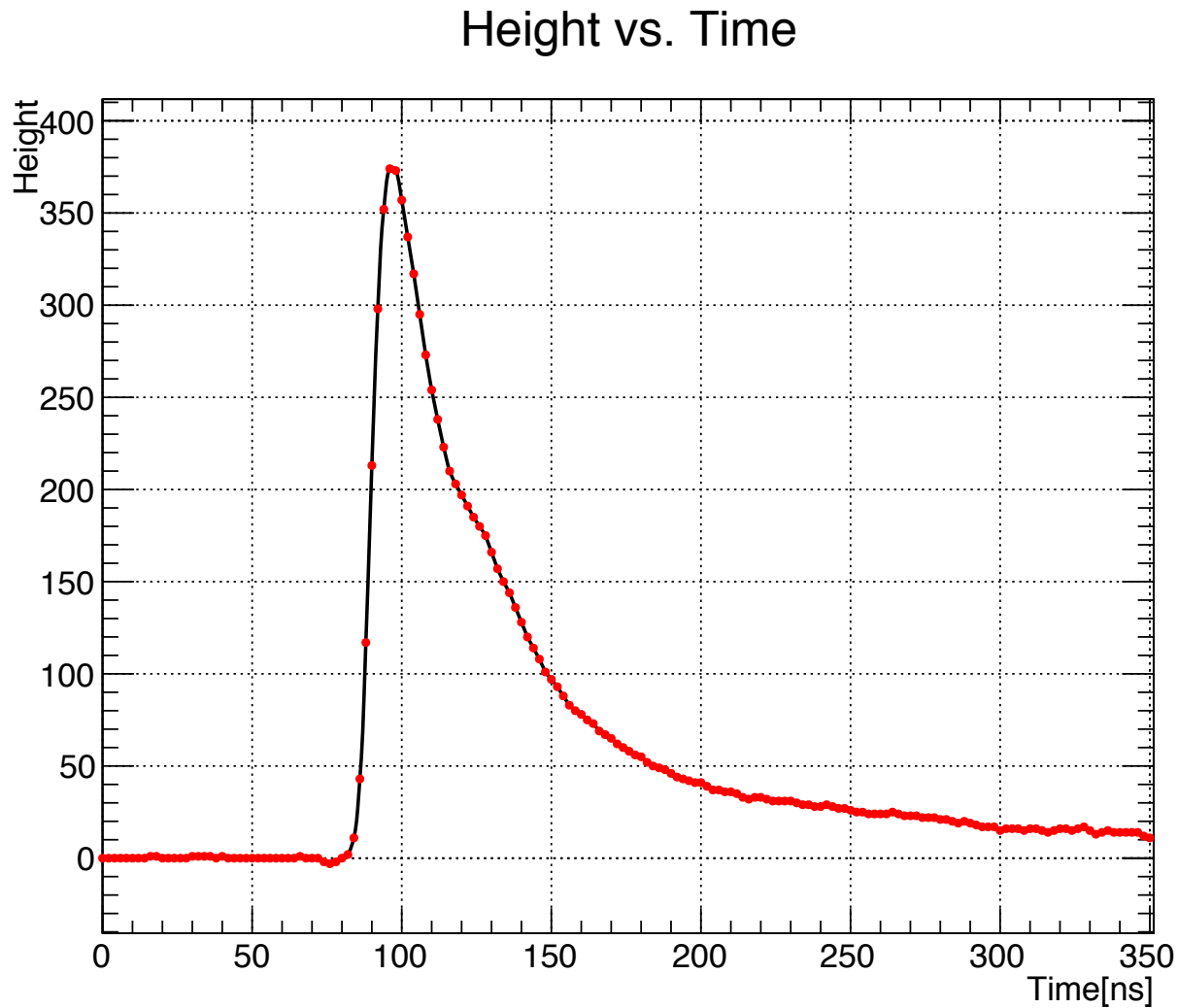


Fig.1.0: Event (0) single waveform for Channel 6 of a 2m-long scintillator bar

Waveform Data Analysis²

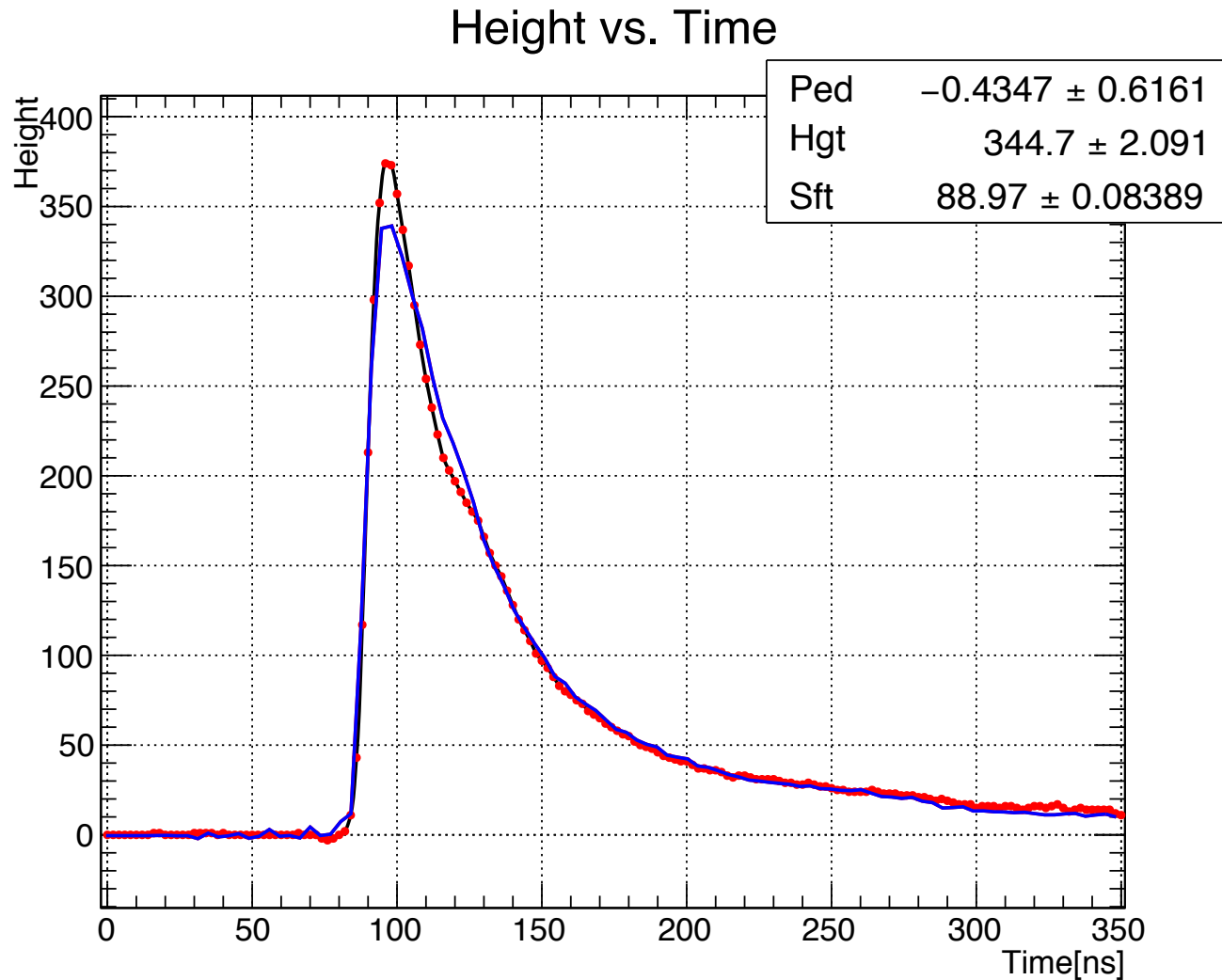


Fig.1.1: Single waveform for Event (0) in Ch. 6 fitted with a mean waveform function

Waveform Data Analysis³

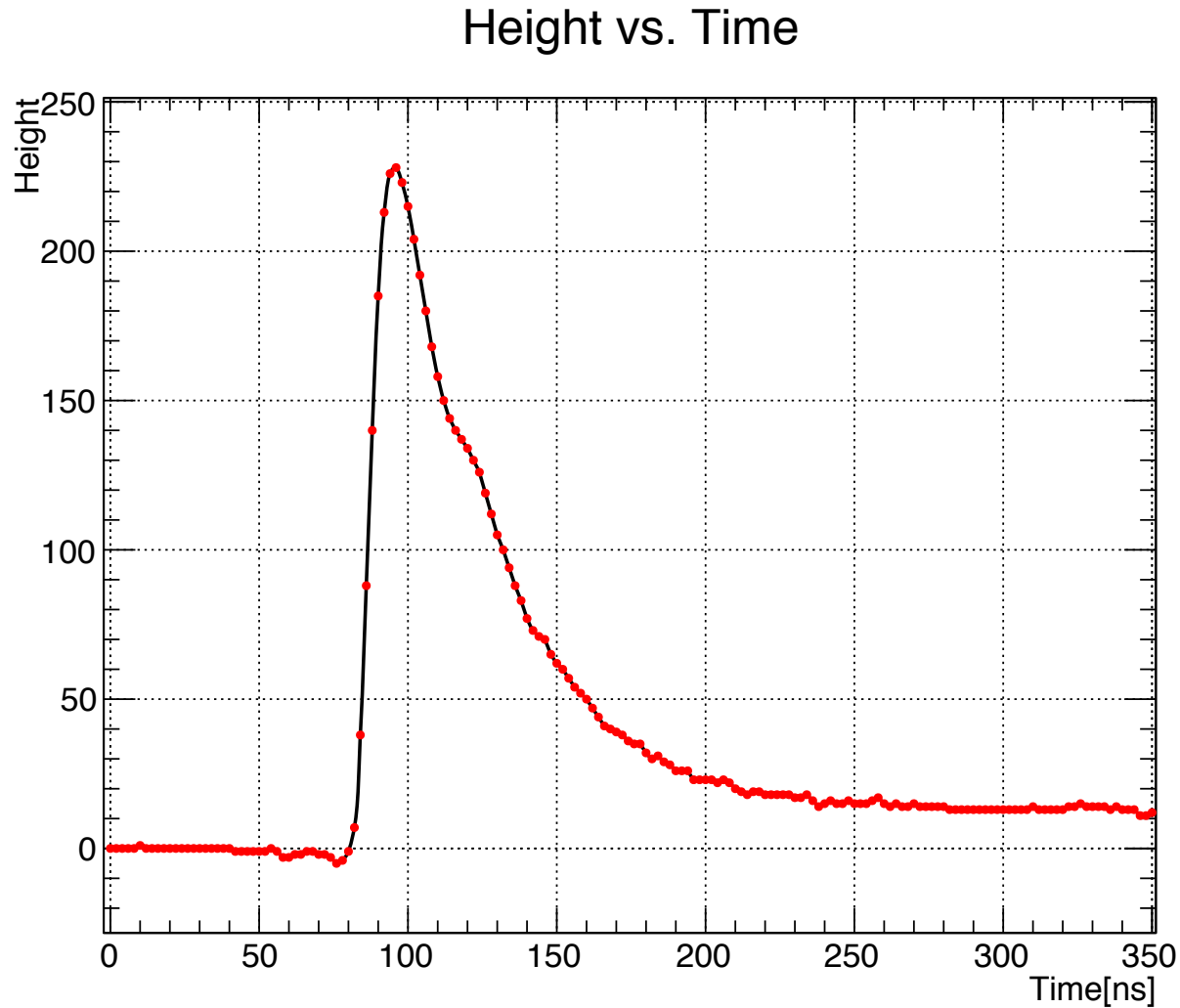


Fig.2.0: Event (25) single waveform for Channel 6 of a 2m-long scintillator bar

Waveform Data Analysis⁴

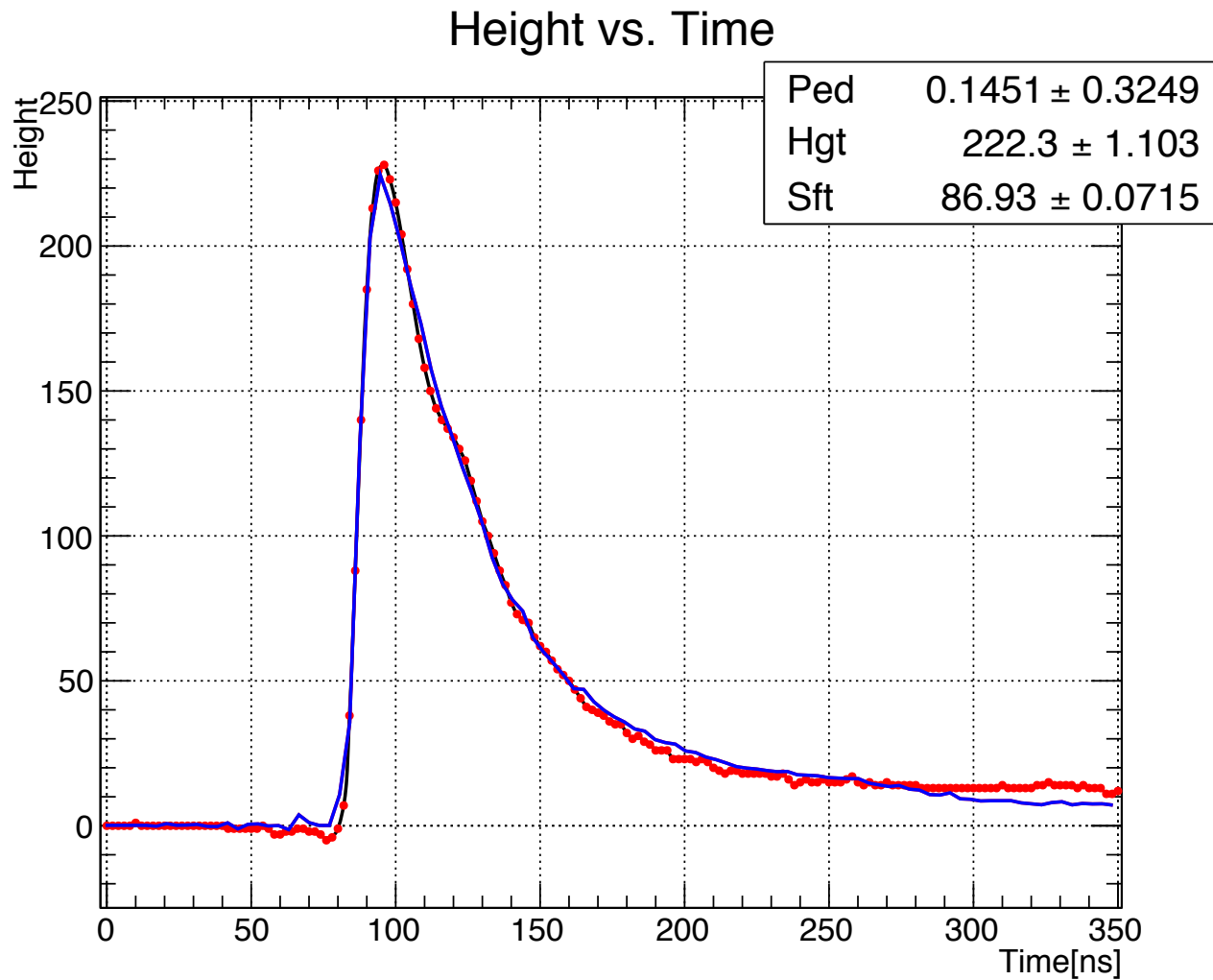


Fig.2.1: Event (25) single waveform for Ch. 6 fitted with a mean waveform function

Waveform Data Analysis⁵

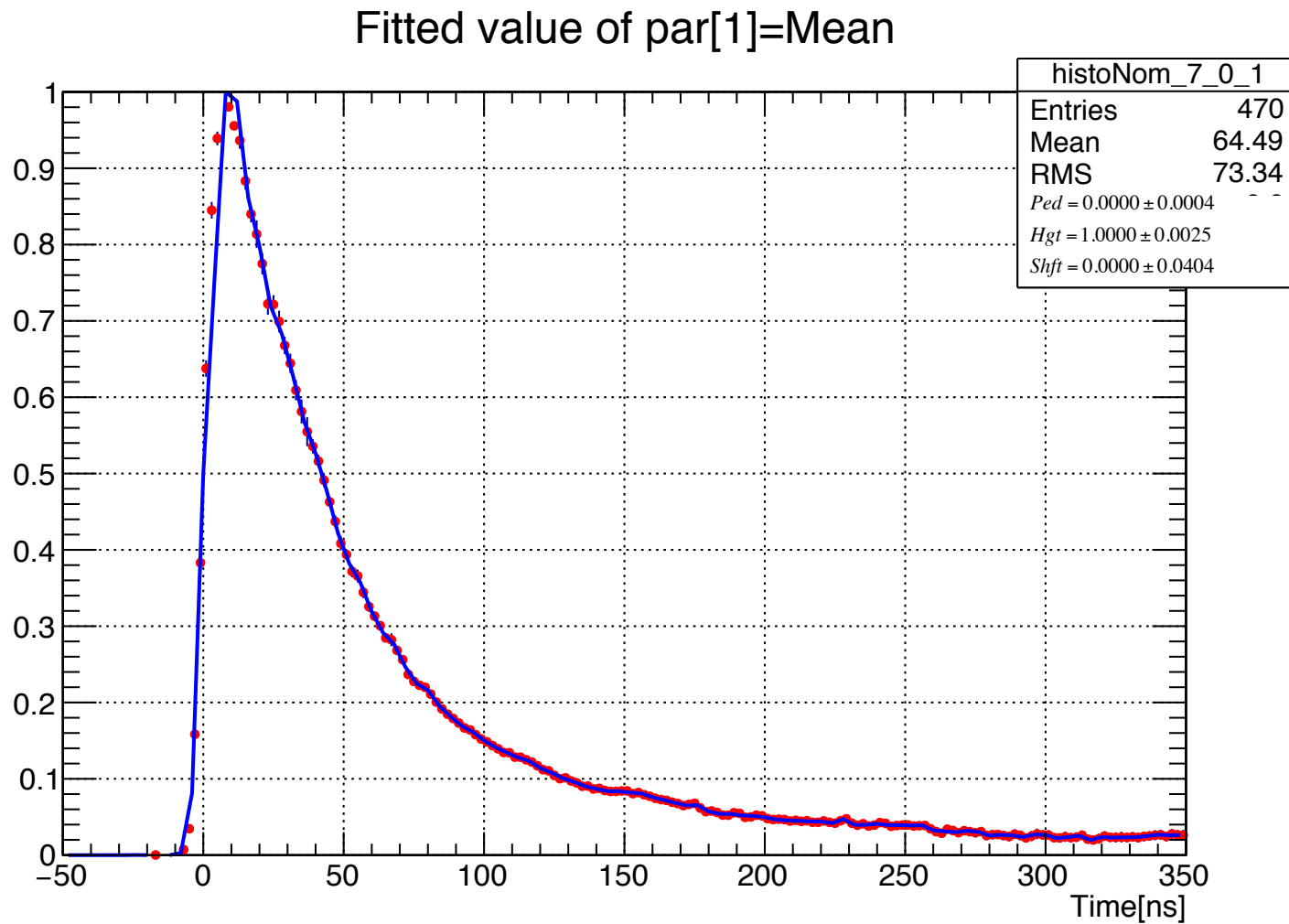


Fig.3.0: Ch7 mean waveform fitted with a user defined function obtained from a spline3.

Waveform Data Analysis⁶

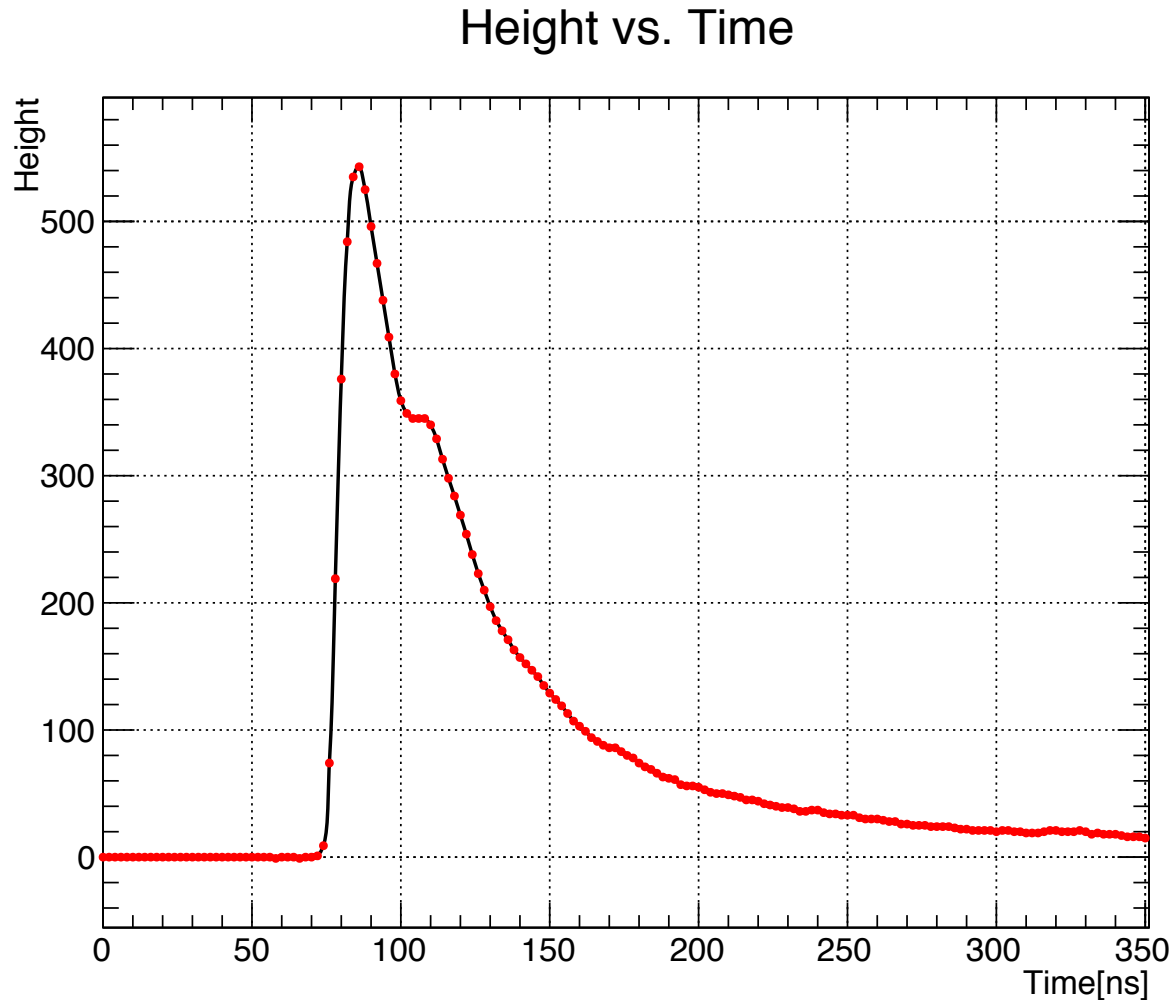


Fig.4.0: Single waveform for Event (0) in Channel 7 of a 2m-long scintillator bar

Waveform Data Analysis⁷

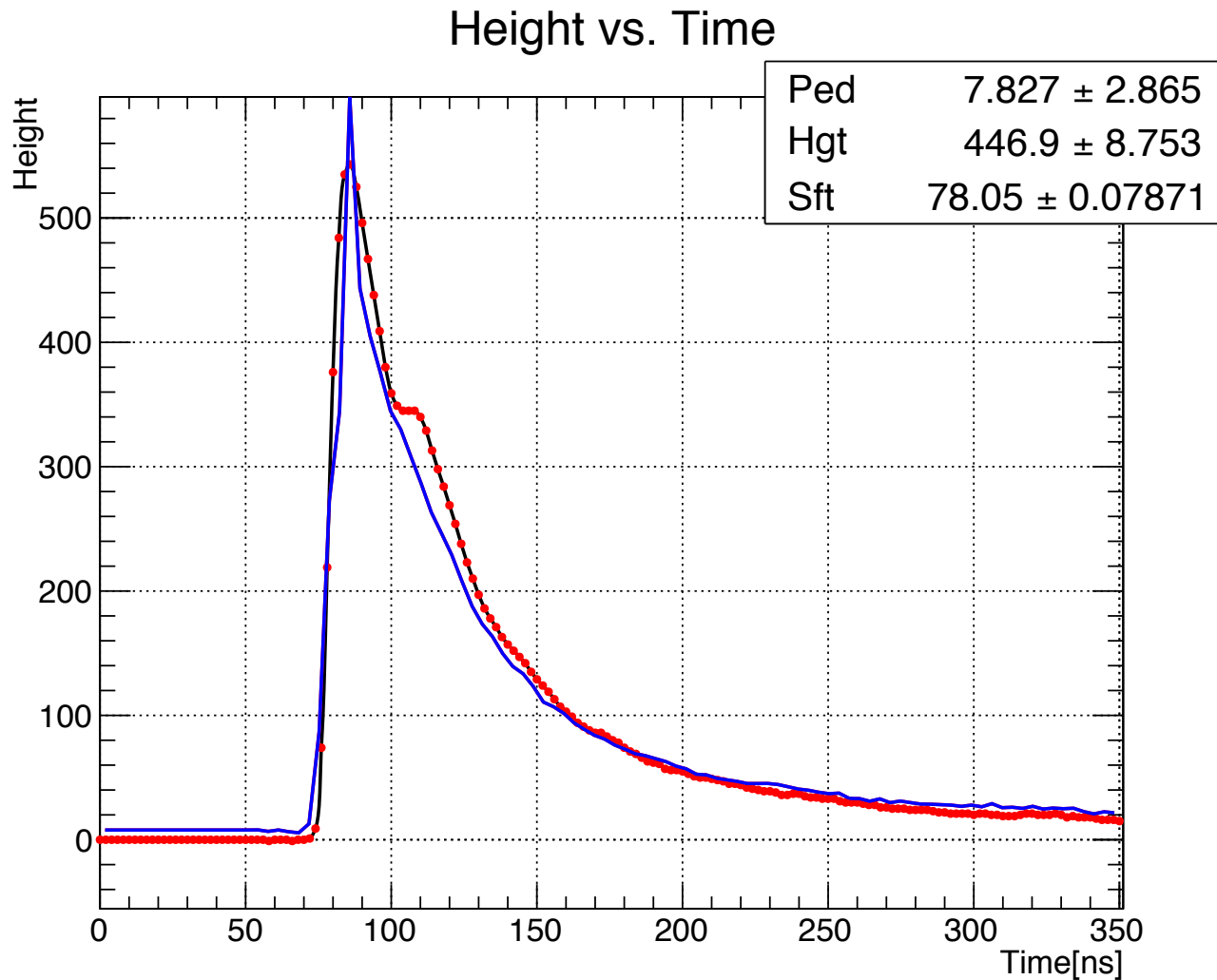


Fig.4.1: Single waveform for Event (0) in Ch. 7 fitted with a mean waveform function

Waveform Data Analysis⁸

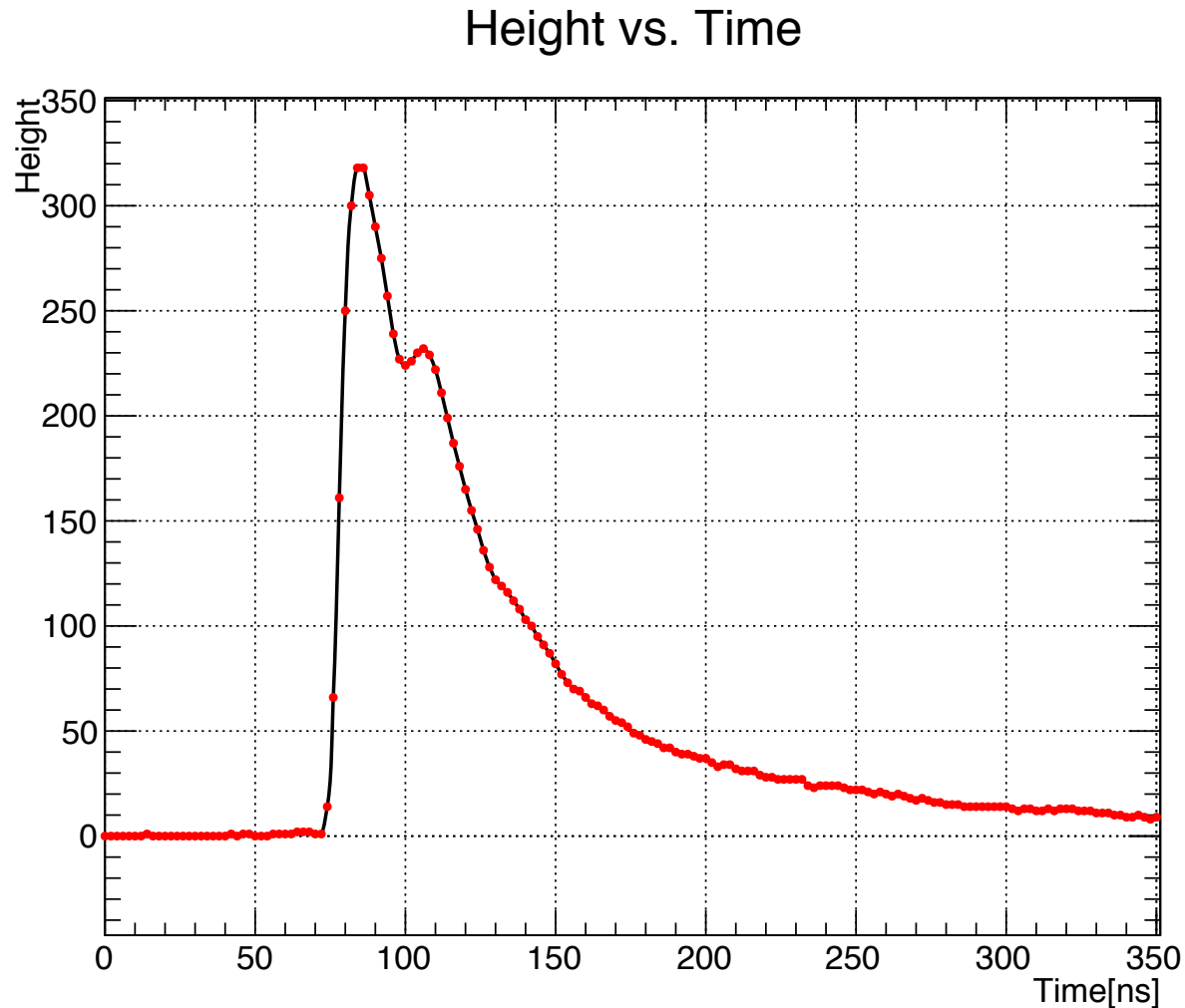


Fig.5.0: Single waveform for Event (25) in Channel 7 of a 2m-long scintillator bar

Waveform Data Analysis⁹

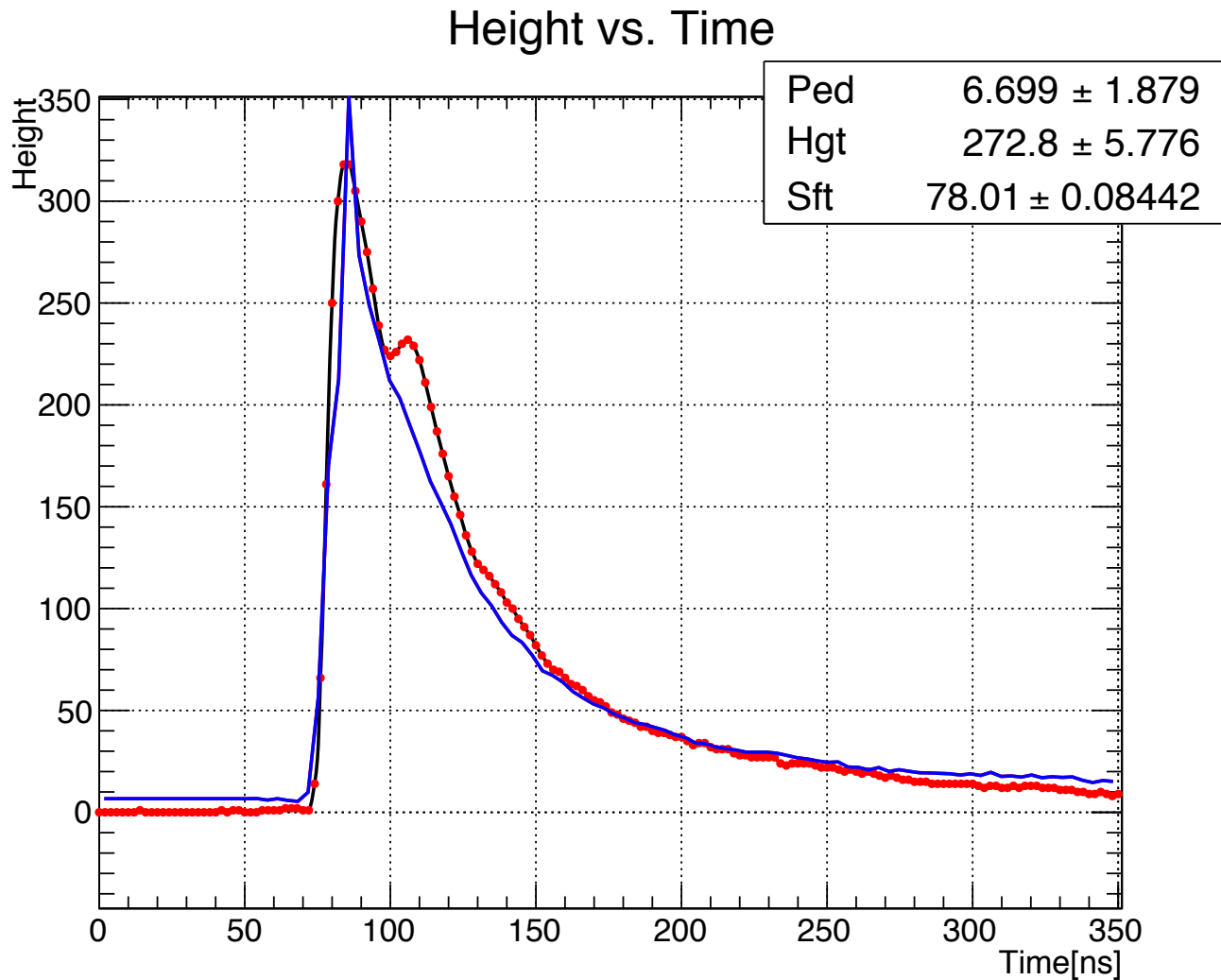


Fig.5.1: Single waveform for Event (25) in Ch. 7 fitted with a mean waveform function

Waveform Data Analysis¹⁰

3. Next Task

1. Examine waveforms at different hit positions in the scintillator

BACK UP¹¹ [Last lab meeting]

3. Tasks

1. Construct event by event waveforms; apply the derived waveform function and compare the quality of the fit parameters.
2. Examine waveforms at different positions in the scintillator to check dependence on position

BACK UP¹²[Last lab meeting]

2. Applying TSpline3 Method

TSpline3 was then used to produce a fitting function by loading each value of time (x-axis) of the mean waveform obtained previously from FitSlicesY method and outputting a corresponding value of height (y-axis) according to:

$$h(t) = par[0] + par[1] * (sp3 \rightarrow Eval(t[0] - par[2]))$$

where the 3 parameters used were:

1. Par[0] = Pedestal
2. Par[1] = Height
3. Par[2] = Shift, $t = 0$

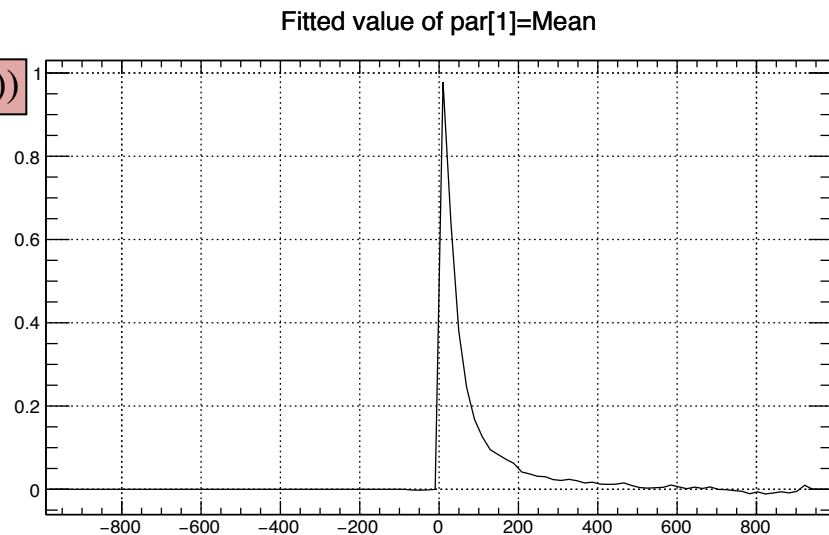


Fig.3: A cubic spline