Status Report(MIP)

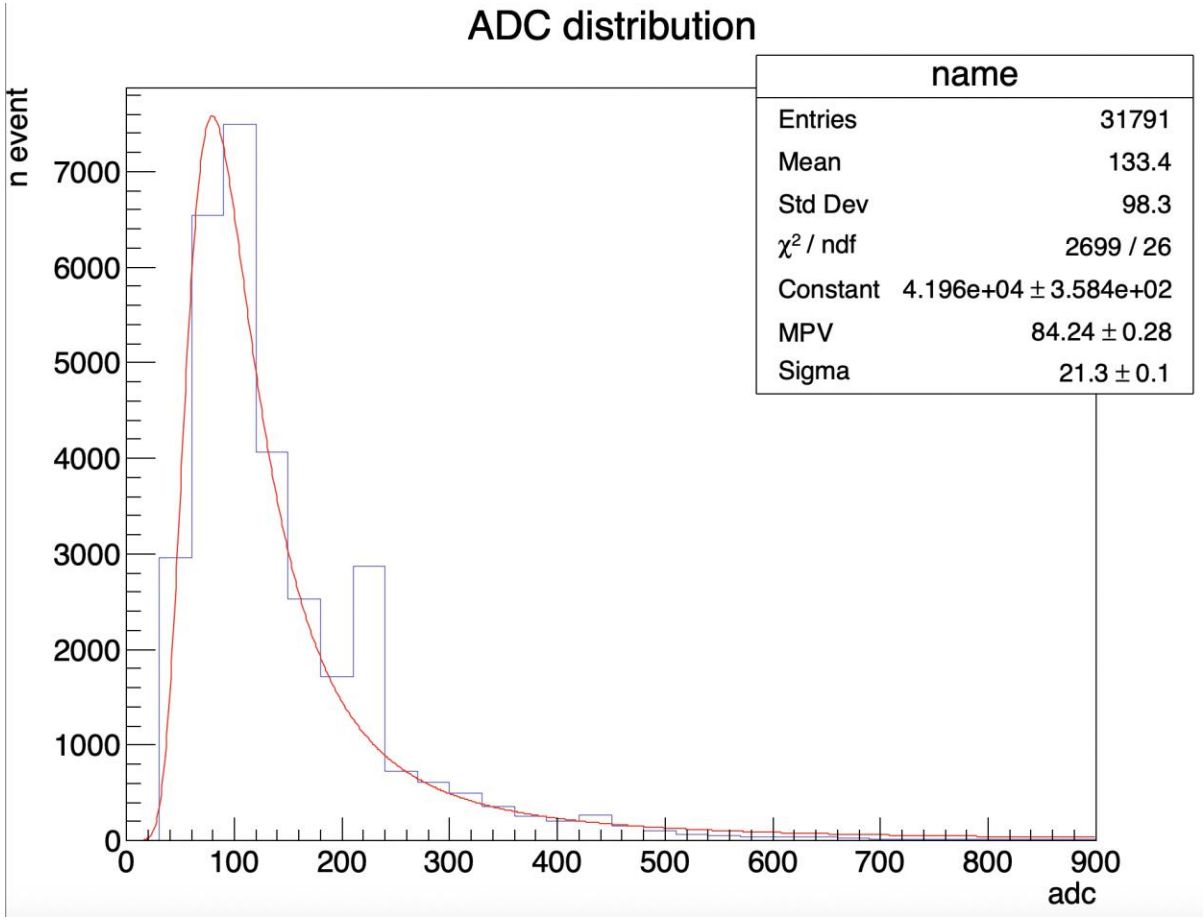
20241122 NWU M1 Yui Ishigaki

Analysis Plan during INTT workshop

Name : Yui Ishigaki
Institution : NWU

- Analysis topic (Write your topic)
  Chronological study of the MIP peak position using pp data
- Current knowledge (What you know)
  Radiation damage increases the bias voltage of Si sensors. As radiation damage larger, the position of the MIP peak should be lower due to changes in sensor performance.
- status of this topic (What you have)
- I reproduced Genki's analysis and I found the MIP peak by applying a cut of the tracking θ to the ADC distribution. Then I fitted it with using Landau function.
- Goal for the workshop (Your goal; Please write down with priority
  1. Updating the fitting method by using a convolution function of Landau and Gaussian
- 2. Determination of z_vtx with better precision
- Milestones to reach to your goal
  (Write down what you need to learn/study for reaching to your goal)
  1. Learn more about the fitting process and implement the new method
- 2. Learn about z vertex analysis and collaborating with Mahiro for the implementation

Fitting with Landau function

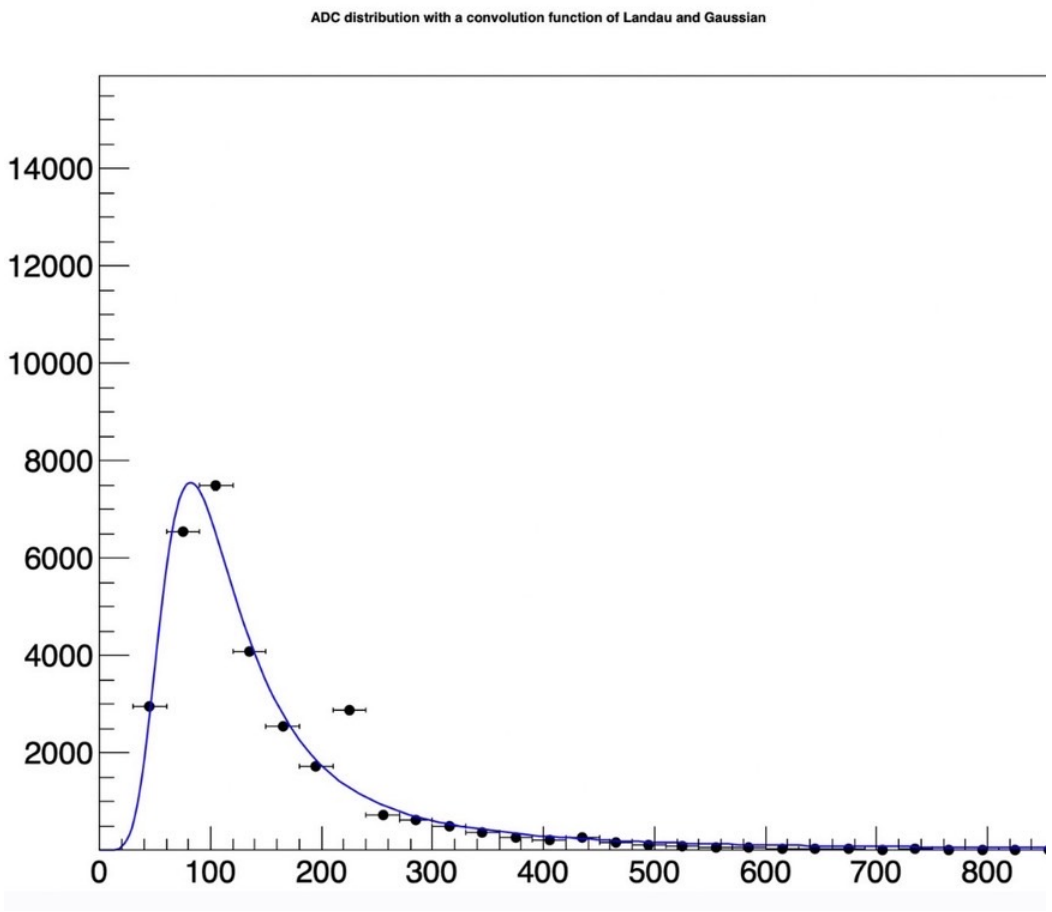


The plot on the left is the MIP peak by applying a cut of the tracking θ to the ADC distribution.

I fitted with Landau functions, but because of the noise of sensors, we would like to use Gaussian and Landau collaboration functions and Updating the fitting .

Fitting with a convolution function of Landau and Gaussian
(In the process of making)

N event



I learned the fitting method by using a convolution function of Landau and Gaussian, and I could run the program.

But I am now examining whether this is a decent result. I plan to rewrite the code.

To do list for next week

- 1. Updating the fitting method by using a convolution function of Landau and Gaussian. I learn about the fitting process.

- 2. Determination of z_vtx with better precision. Mahiro gave me the zvtx code yesterday. Next week I would like to incorporate it.