

Fitting algorithm for Coincidence histograms in Offline

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Searching for the properly range to fit coincidence histograms

As a first approach, two criteria were considered:

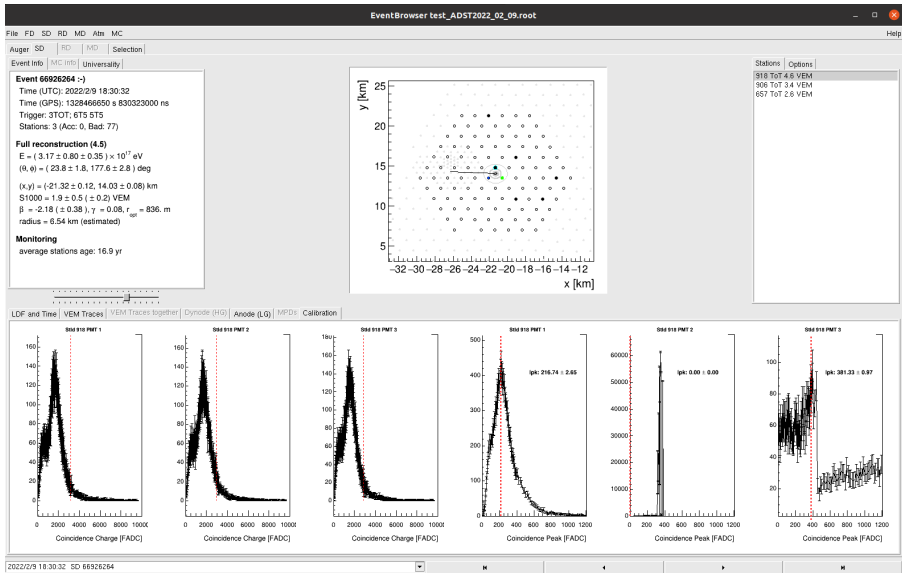
- ▶ The χ^2/Ndof
- ▶ The error of the peak obtained from the fit; named as Errlpk, for pulse height histograms and ErrQpk, for charge histograms.

The algorithm was temporally implemented in the SdHistogramFitterKGB.cc module:

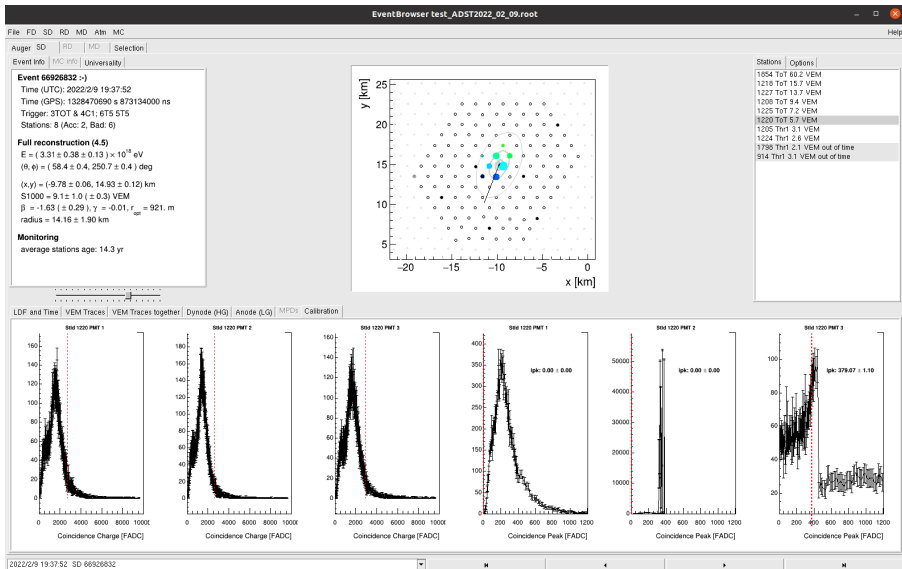
```
for ( int binLow = firstBinLow; binLow < lastBinHigh-5; binLow+=binWidth )  
    for ( int binHigh = binLow+(6*binWidth); binHigh < lastBinHigh; binHigh+=binWidth ) {  
        [...]  
    }
```

Where binWidth takes the value of 4, for height pulse histograms, and 8 for charge histograms. The number 6 corresponds to minimum number of data points, due to we are fitting a second order polynomial.

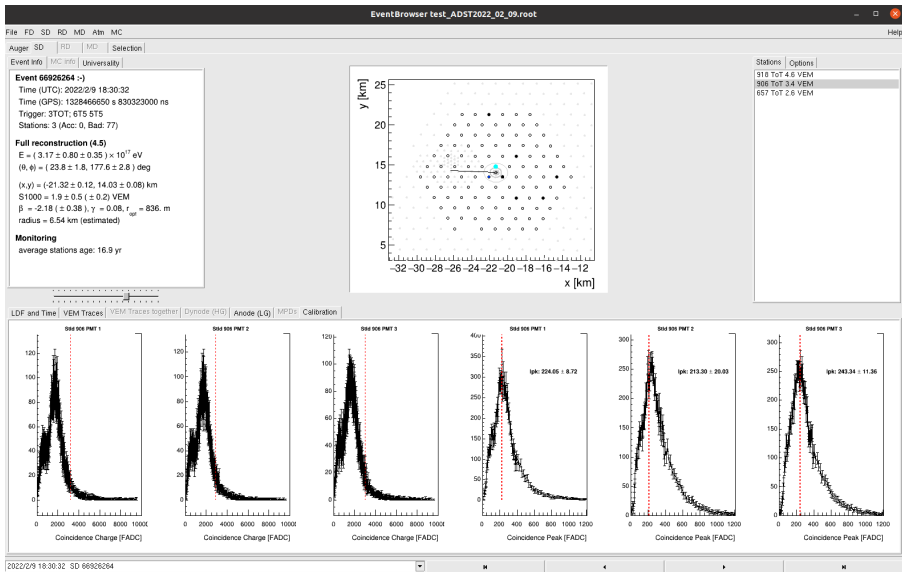
Results for height pulse histograms



Results for height pulse histograms

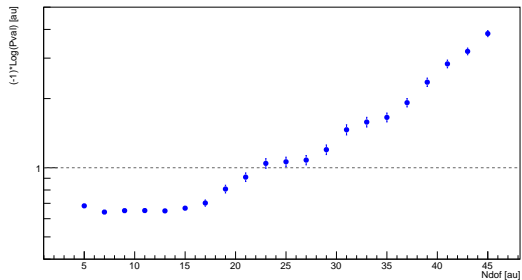
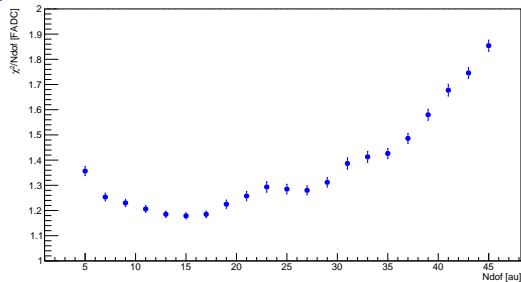
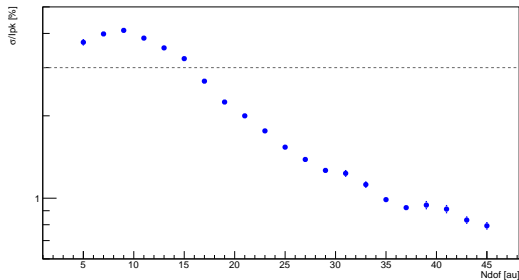


Results for height pulse histograms

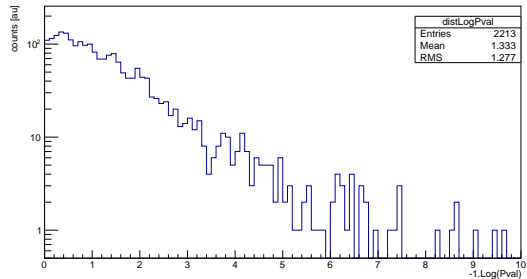
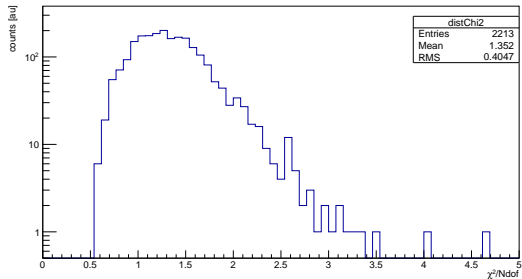
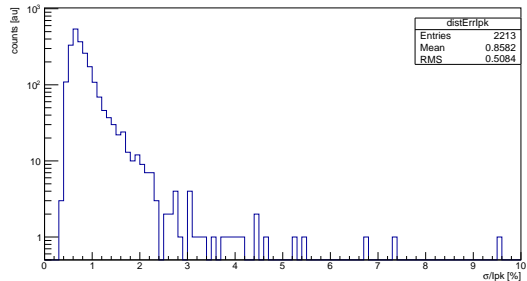
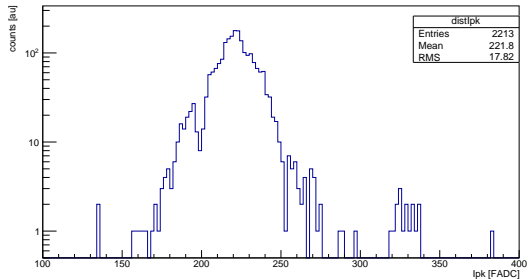


A new algorithm: using the coincidence histogram symmetry

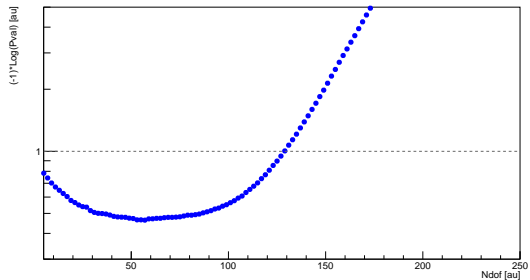
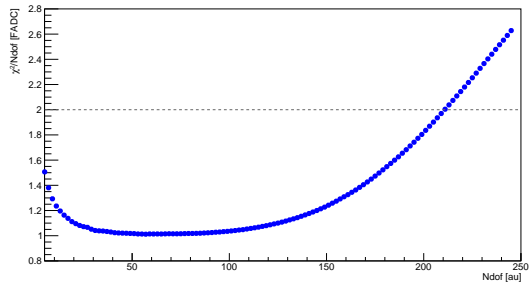
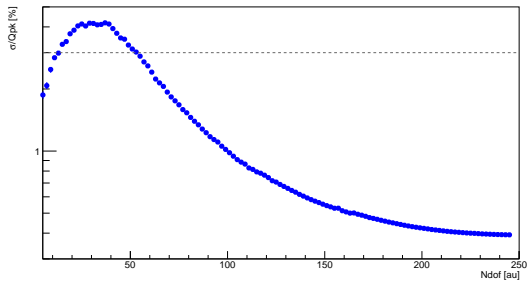
Setting the range for height pulse histograms



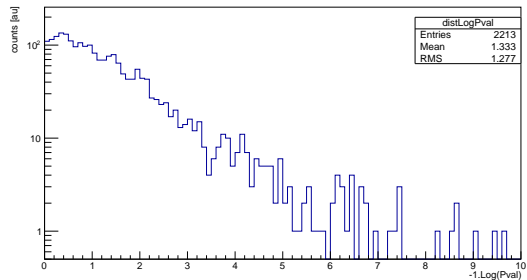
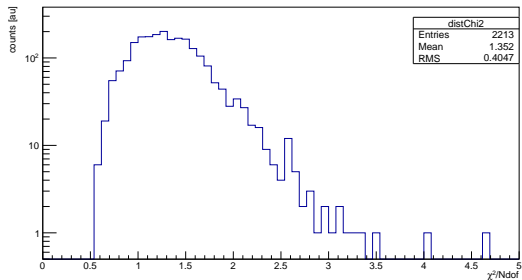
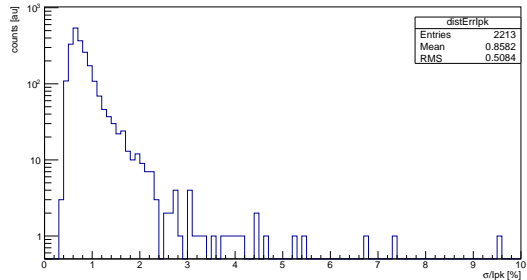
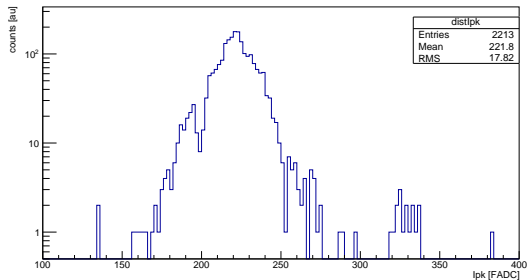
After set 20 N dof leftward/rightward



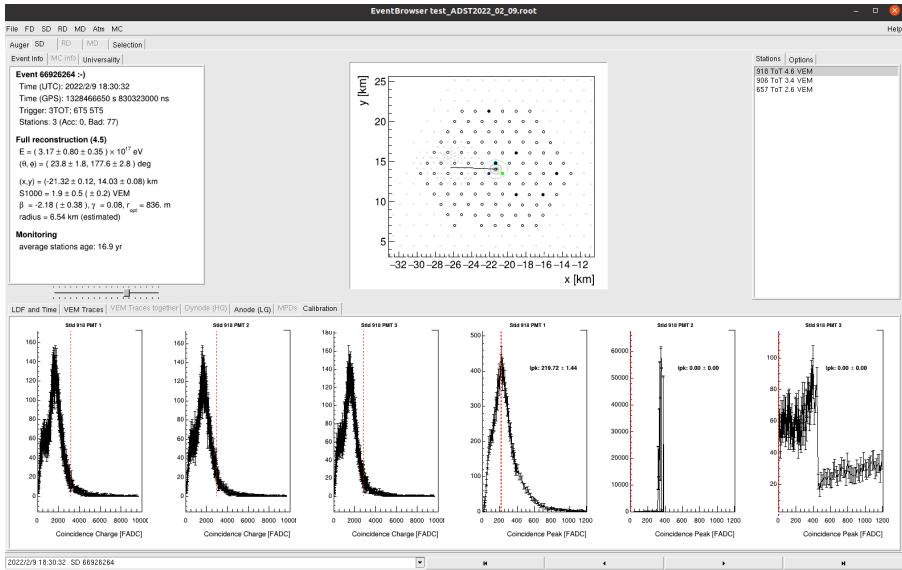
Setting the range for charge histograms



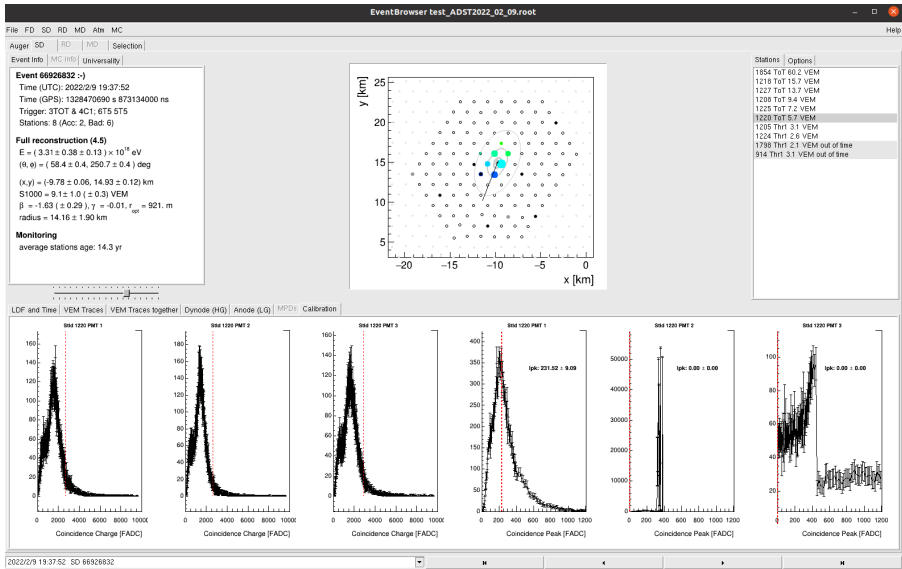
After set 20 N dof leftward/rightward



Results for height pulse histograms



Results for height pulse histograms



Results for height pulse histograms

