

UUB Charge and Peak histograms

Mauricio Suárez Durán and Ioana C. Mariş

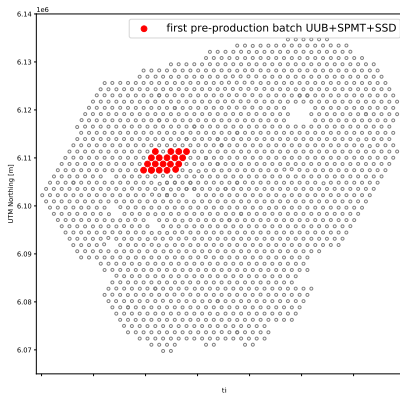
IIHE-ULB

June 28, 2021

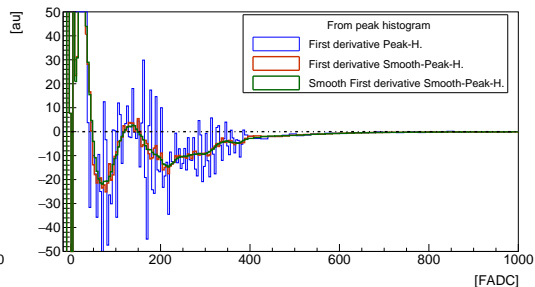
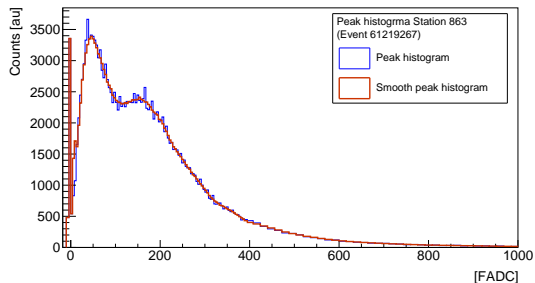


UUB Charge and Peak histograms

- ▶ Station studied: 863 1222 1219 1211 1740 1743 1221 1223 1217 1747 1741 1745 1818 1851 1729 1735 1746 1819 1791
- ▶ Data from CDAS.
- ▶ Software CDAS, pre-production version.



UUB Peak: Derivating histogram

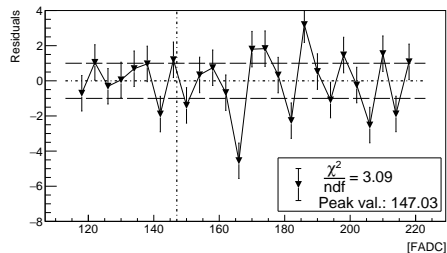
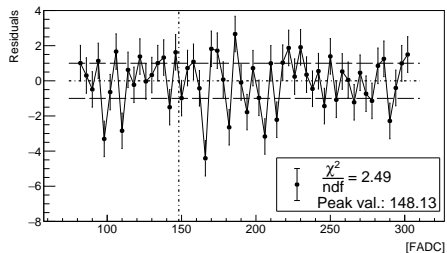
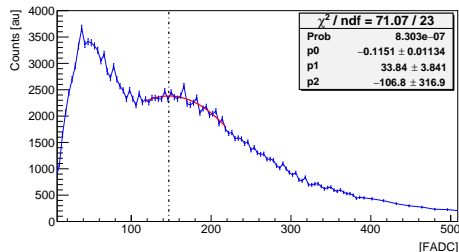
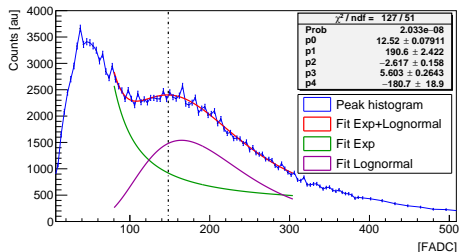


- The algorithm:
1. Smooth Histogram
 2. Derivating of smooth Histogram
 3. Identifying Fit range (Slope changes)
 4. Fitting

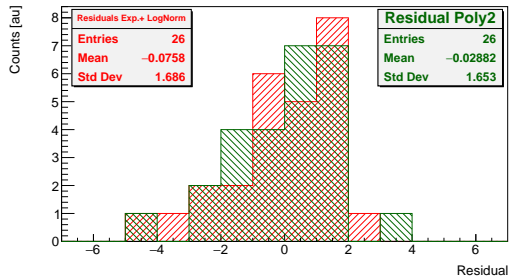
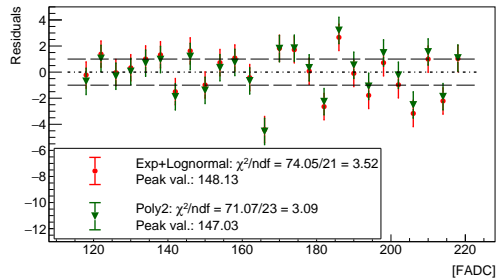
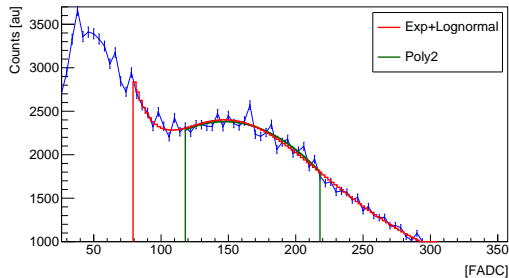
Two function checked:

- Exp. + Log-normal
- 2nd order polinomium

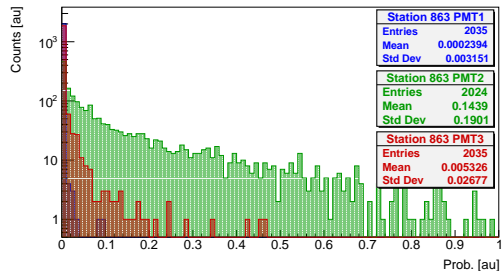
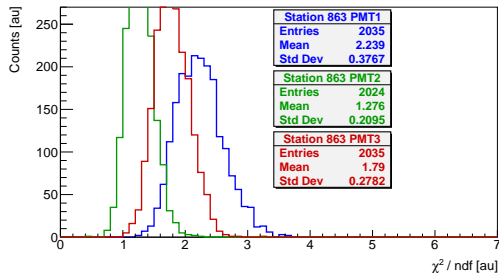
UUB Peak: Fit and Residuals



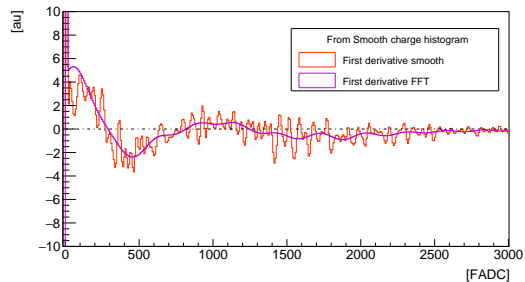
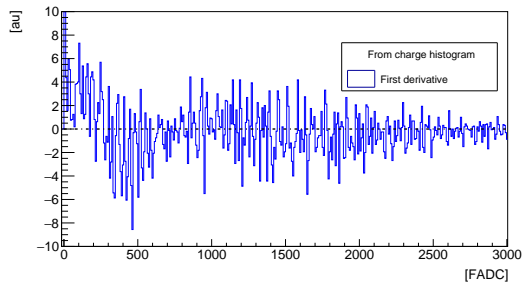
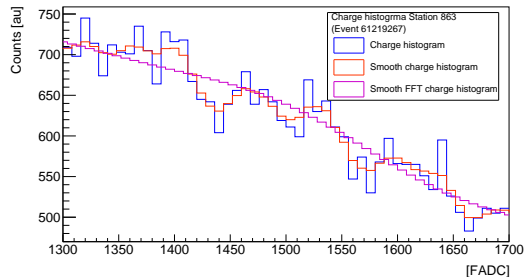
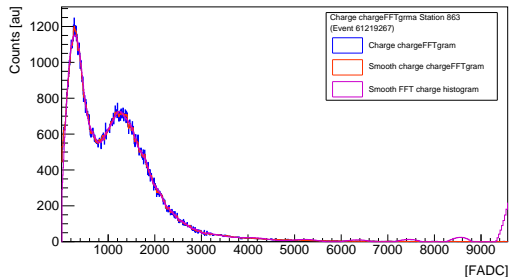
UUB Peak: Comparison Fit and Residuals



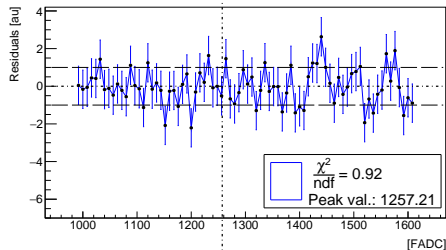
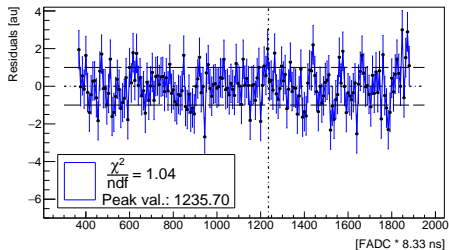
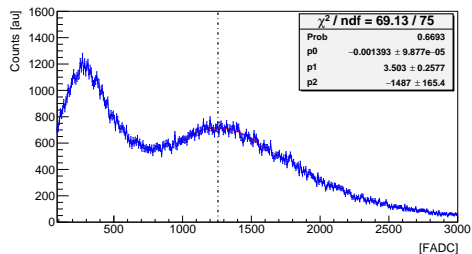
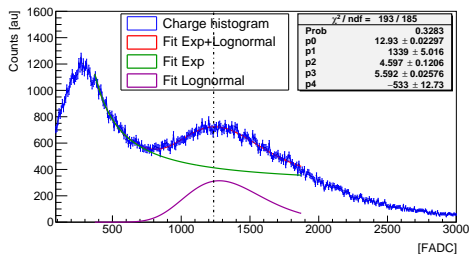
UUB Peak: applying all histograms St. 863, Chi and Prob. distributions



UUB Charge: Derivating histogram

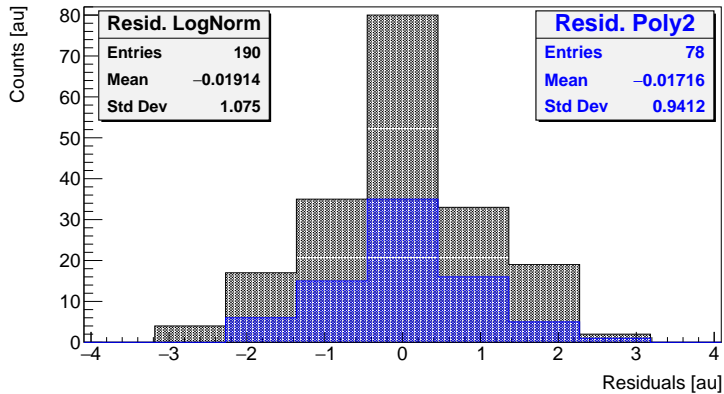


UUB Charge: Fit and Residuals

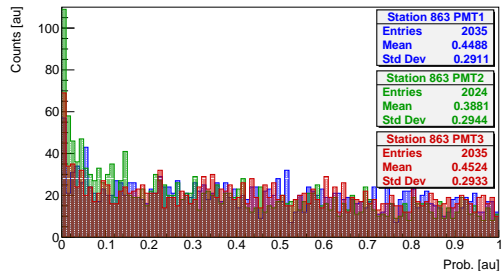
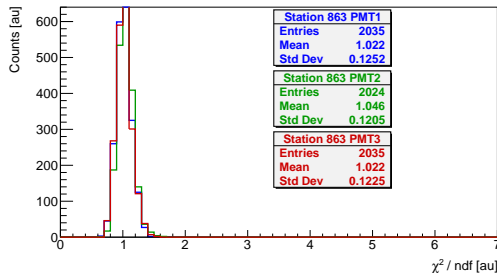


The Exp.+Log-normal fit better than second order polinomial.

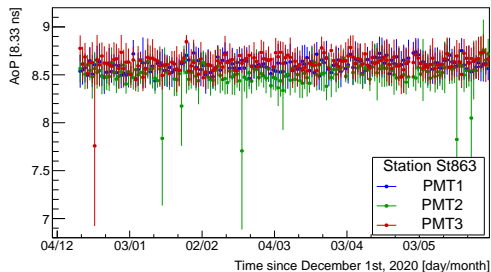
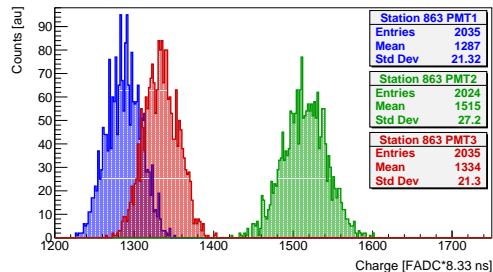
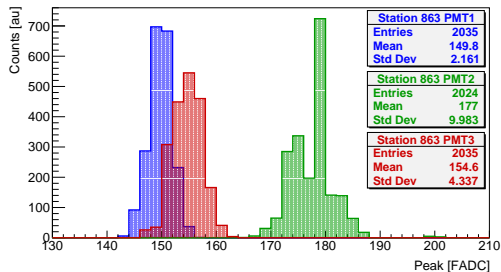
UUB Charge: Residuals distribution



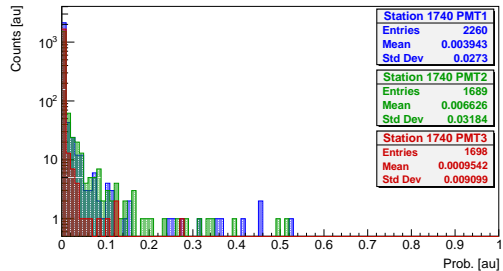
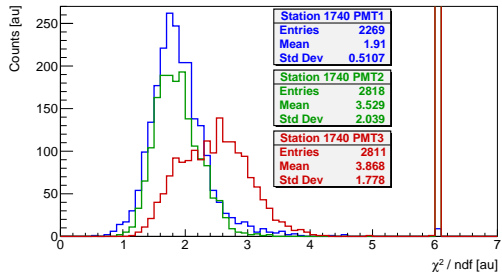
UUB Charge: applying all histograms St. 863, Chi and Prob. distributions



UUB AoP Station 863: Peak, Charge and AoP

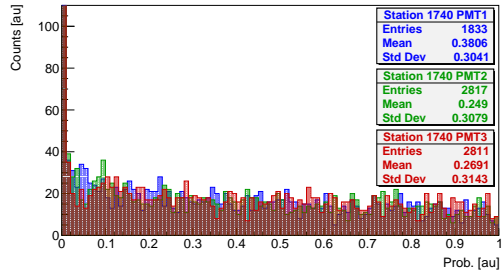
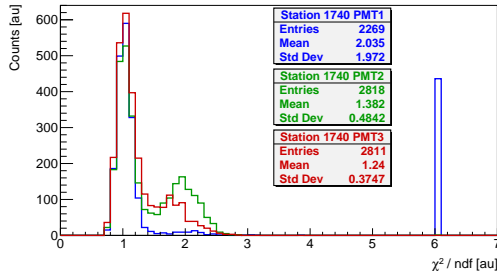


UUB Peak Station 1740: Chi and Prob. distributions all histograms



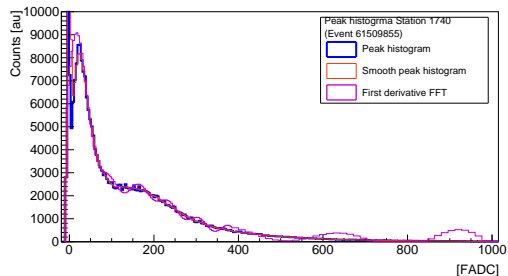
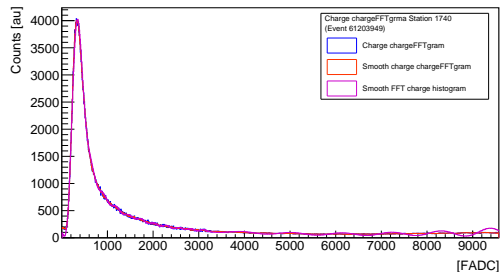
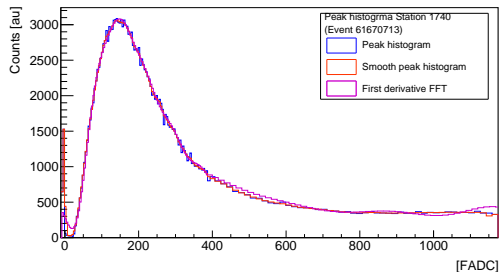
For χ^2 / ndf plot, all histograms with χ^2 / ndf bigger than 6 are counted as 6.

UUB Charge Station 1740: Chi and Prob. distributions all histograms

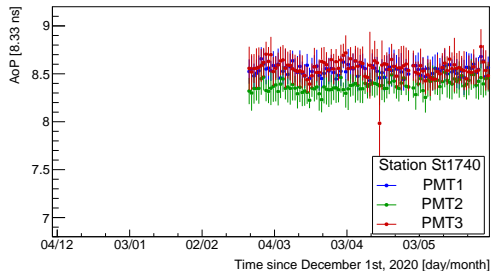
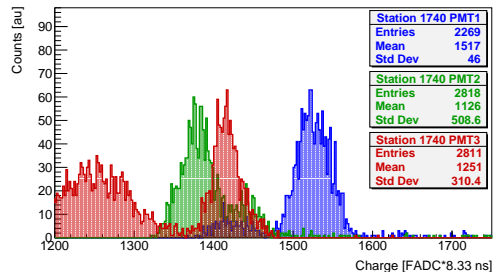
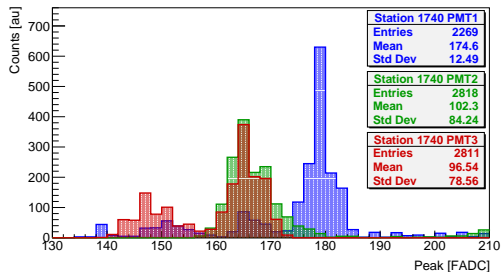


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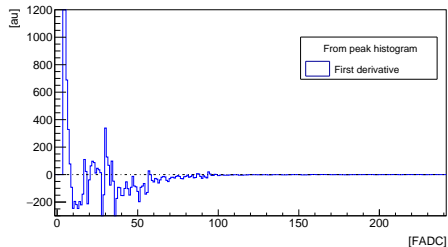
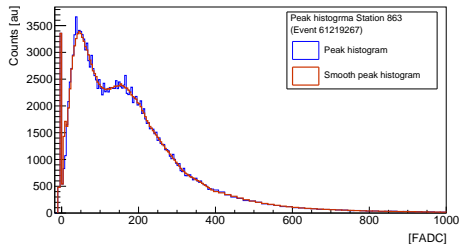
UUB Station 1740: Failed fit



UUB AoP Station 1740: Peak, Charge and AoP



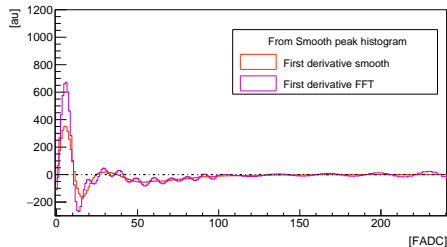
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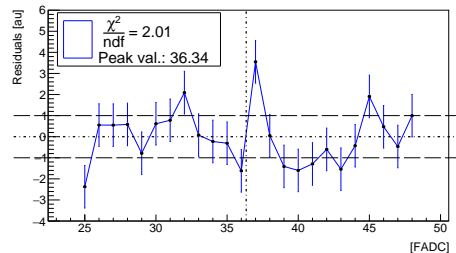
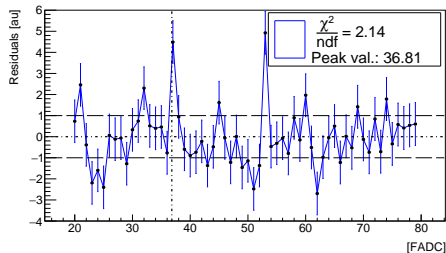
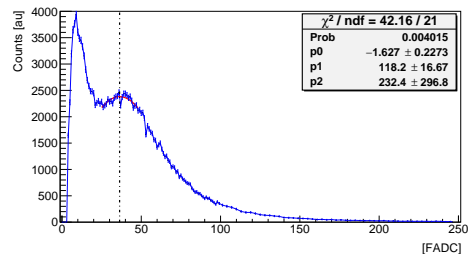
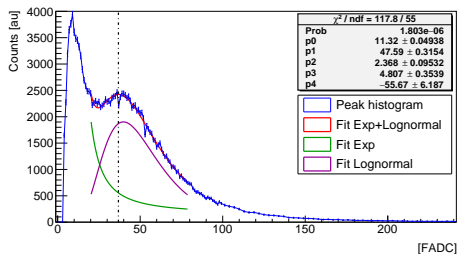
- The algorithm:
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Two function checked:

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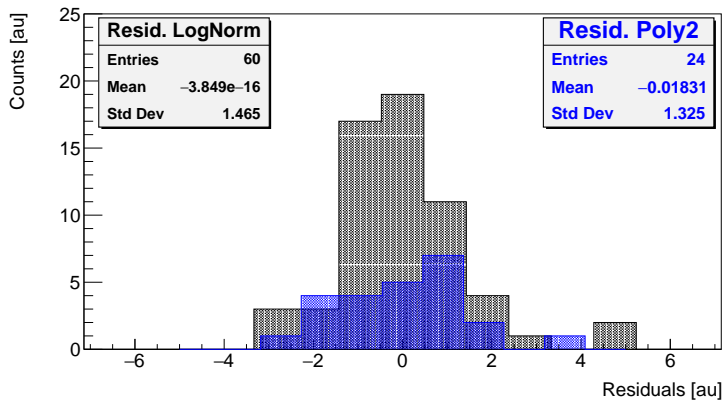


UB Peak: Fit and Residuals

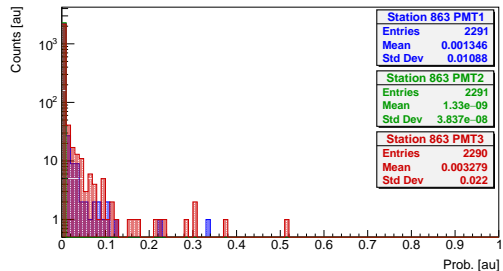
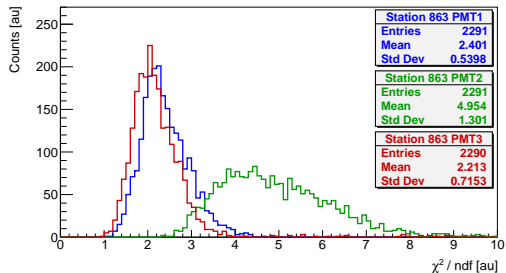


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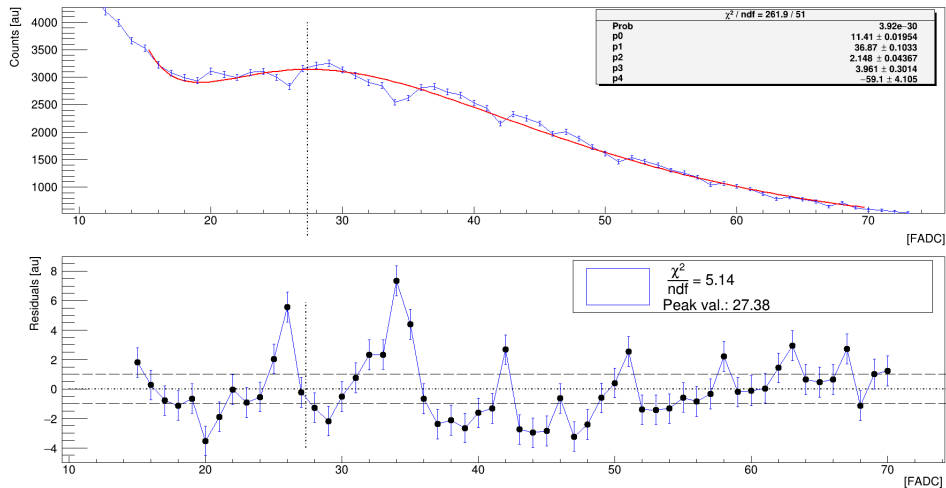
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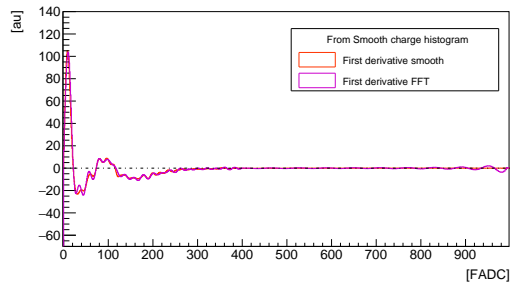
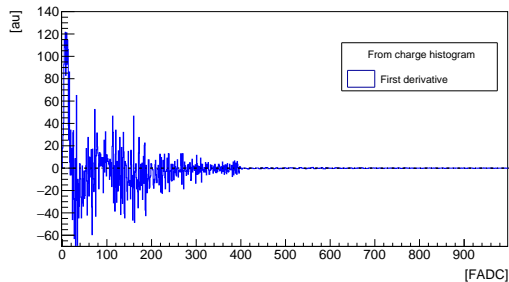
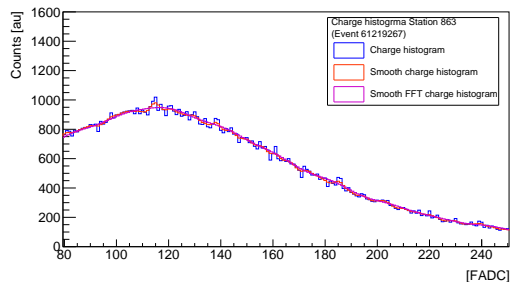
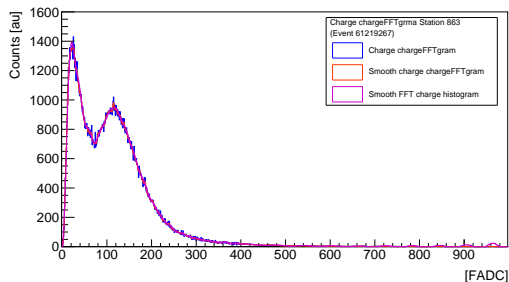
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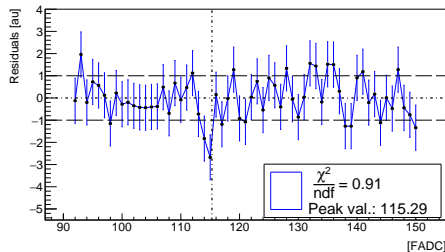
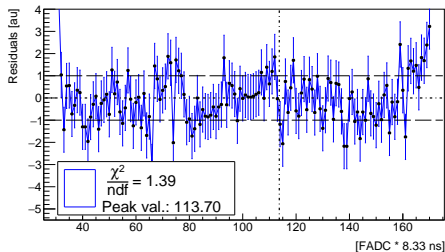
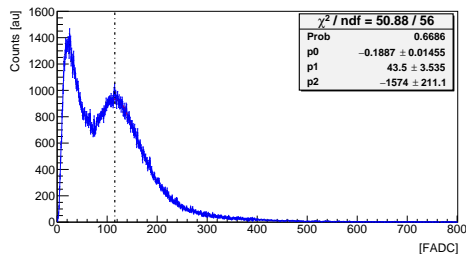
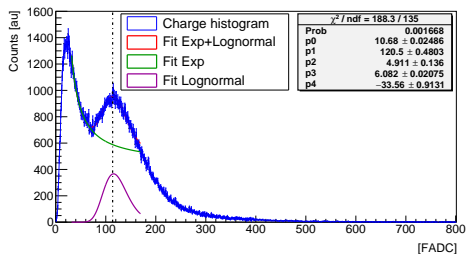
UB Peak Station 863: Failed fit for PMT2



UB Charge: Derivating histogram

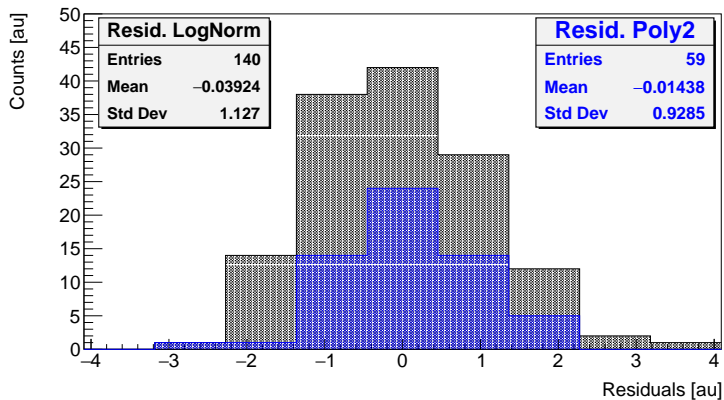


UB Charge: Fit and Residuals

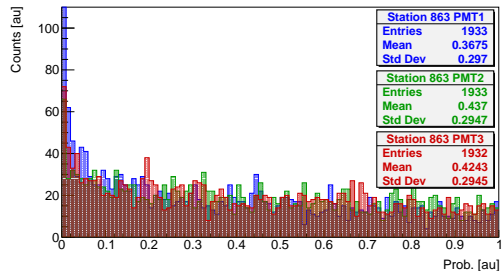
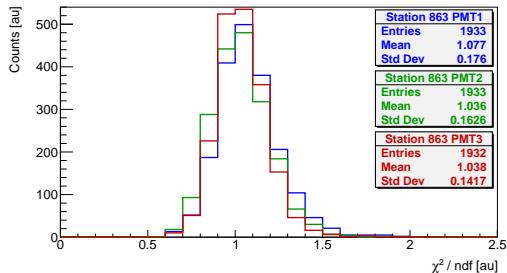


The Exp.+Log-normal fit better than second order polinomial.

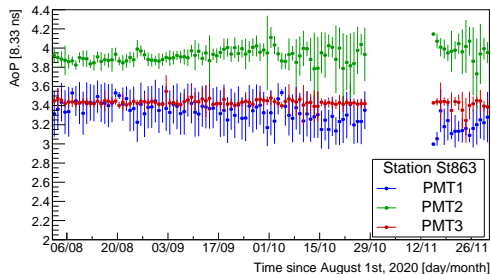
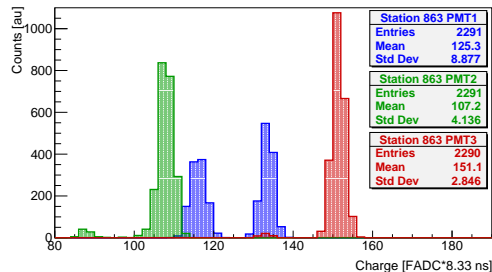
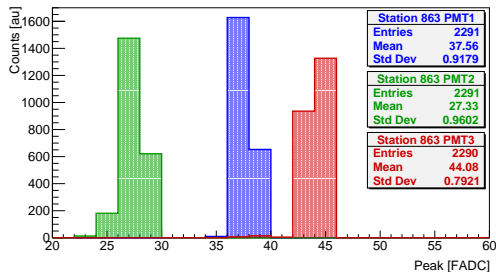
UB Charge: Residuals distribution



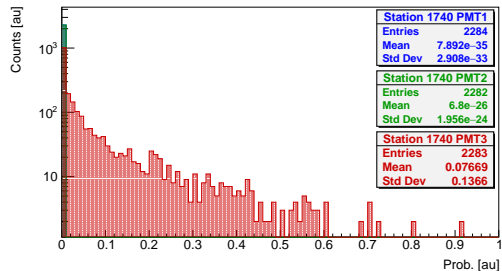
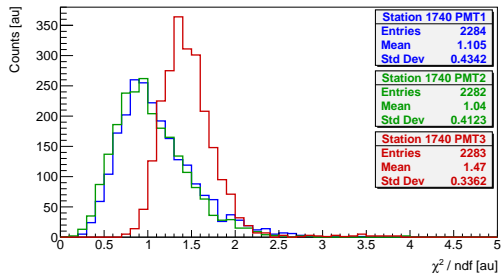
UB Charge: applying all histograms St. 863, Chi and Prob. distributions



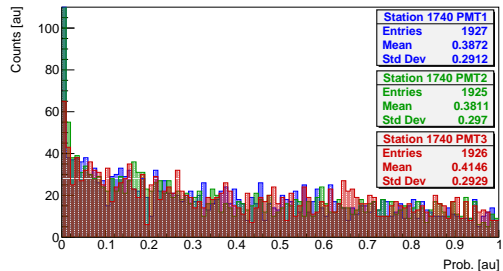
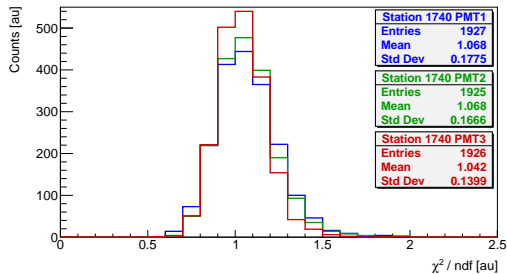
UB AoP Station 863: Peak, Charge and AoP



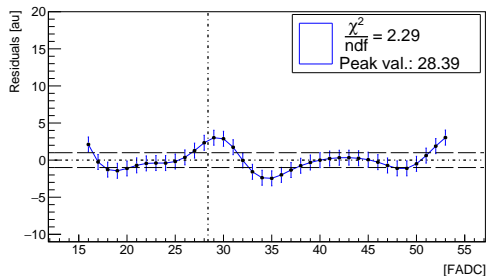
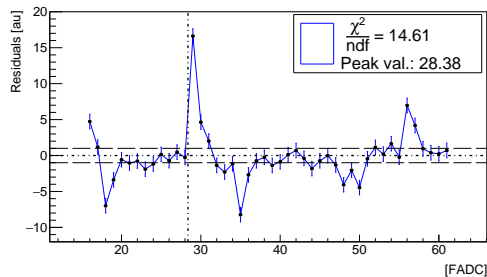
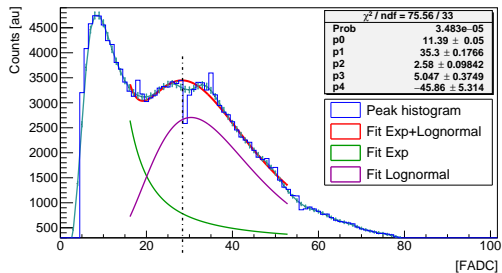
UB Peak Station 1740: Chi and Prob. distributions all histograms



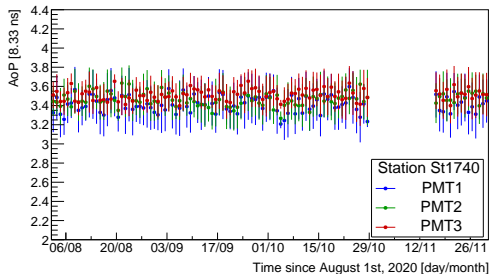
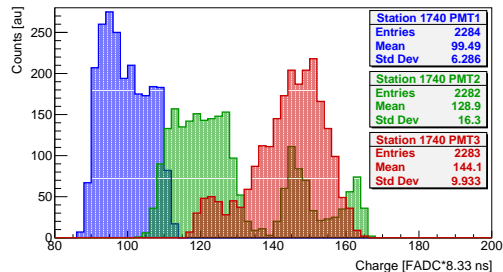
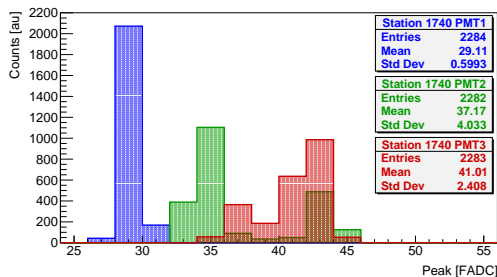
UB Charge Station 1740: Chi and Prob. distributions all histograms



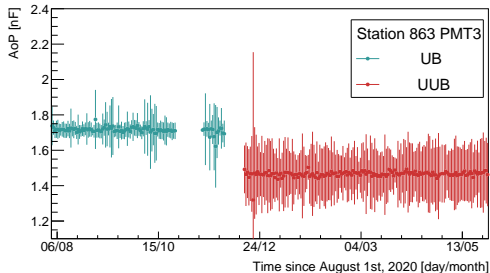
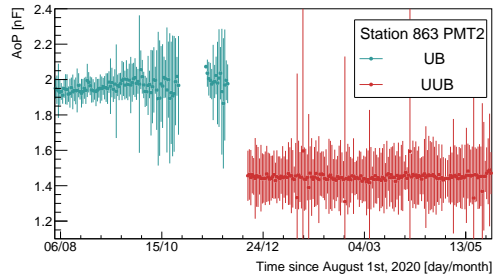
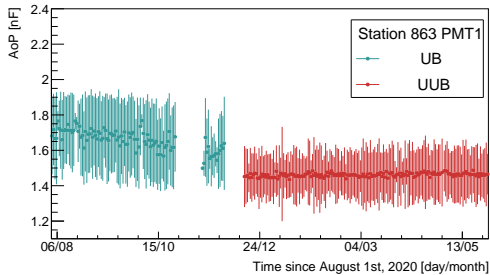
UB Station 1740: Failed fit



UB AoP Station 1740: Peak, Charge and AoP



AoP UB and UUB: Station 863



AoP UB and UUB: Station 1740

