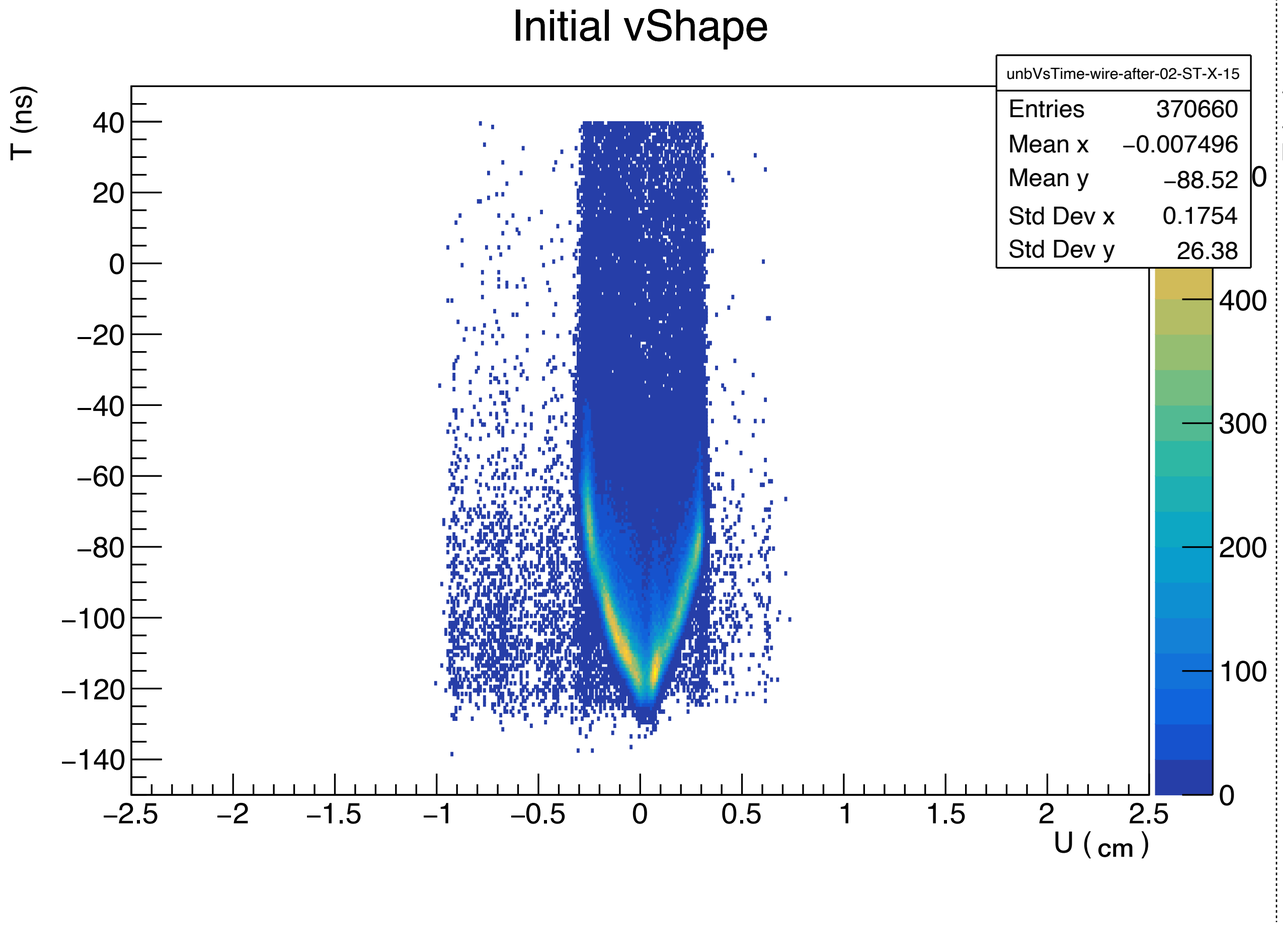
TB analysis

October (TIGER) + July (APV+VMM)

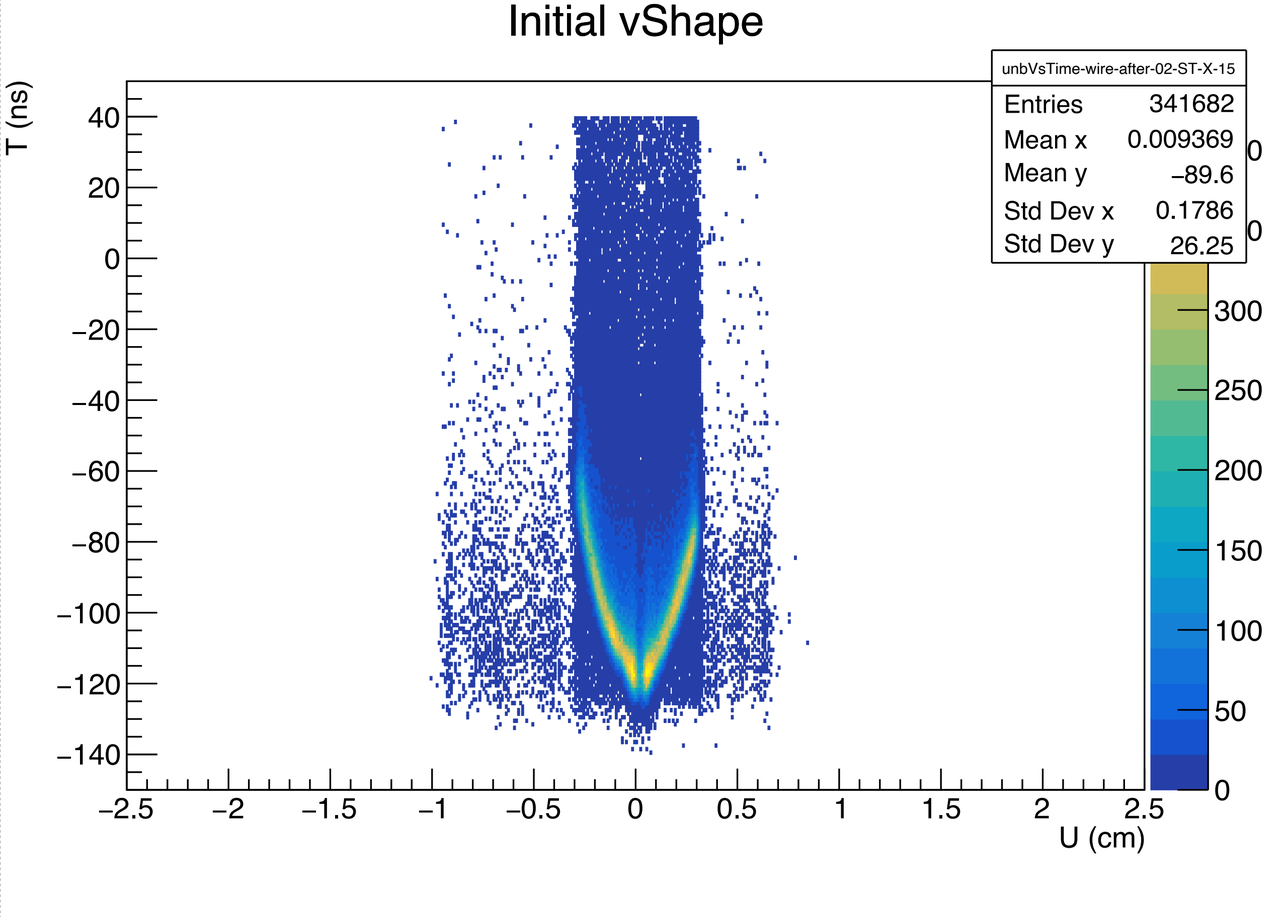
20/02/2023

October (TIGER)

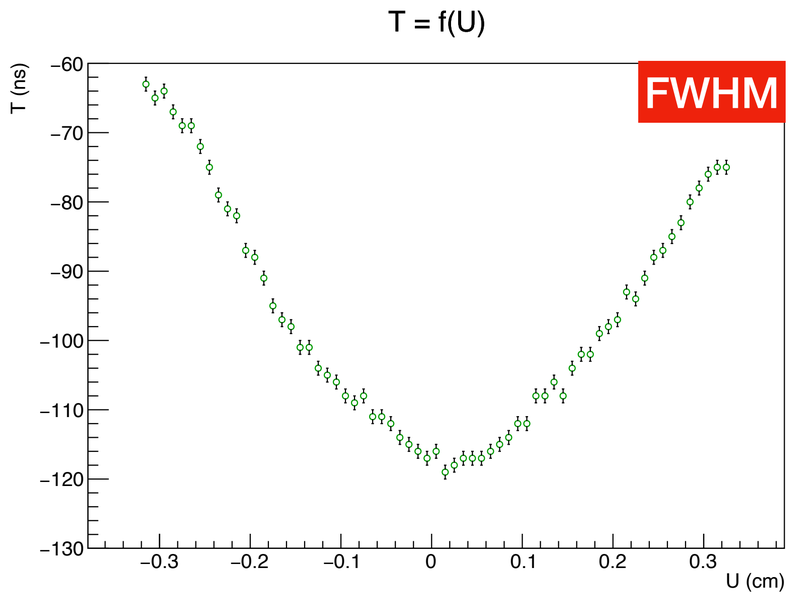
before rempping

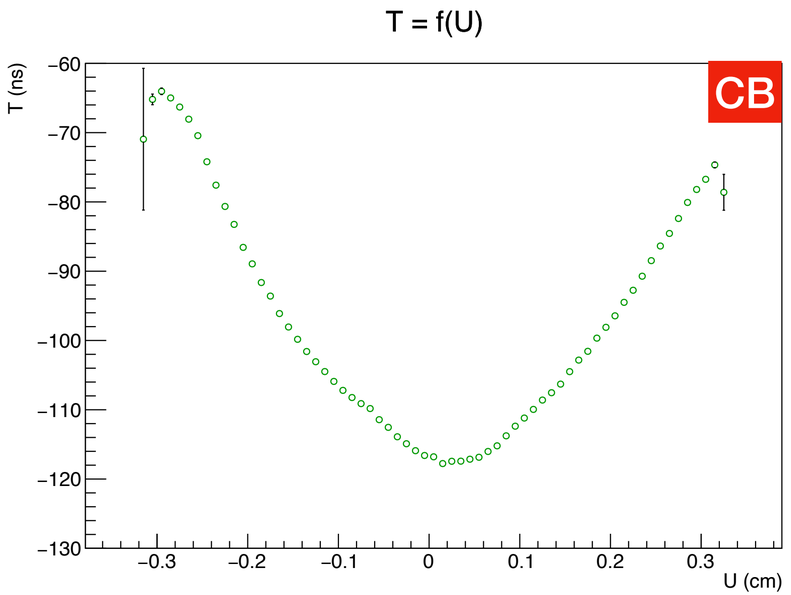


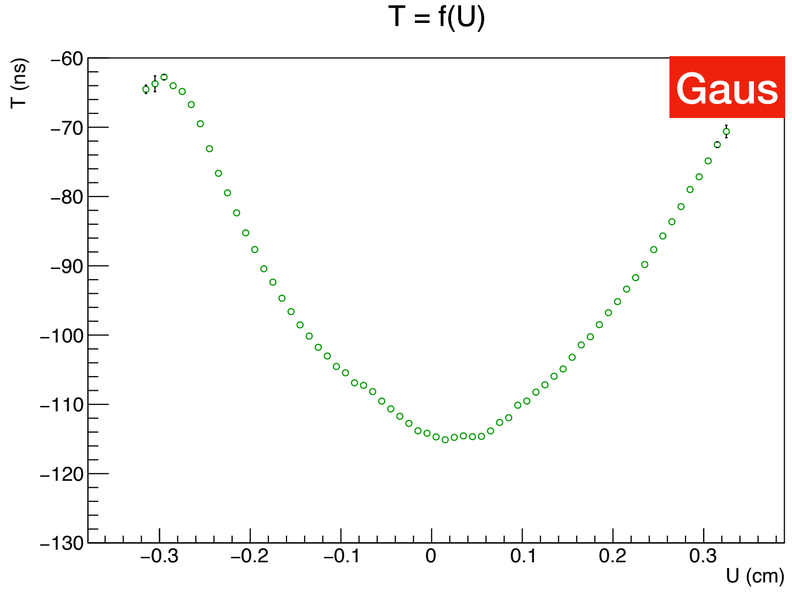
after remapping



MEAN







The Crystal Ball function is given by:

$$f(x;\alpha,n,\bar{x},\sigma) = N \cdot \begin{cases} \exp(-\frac{(x-\bar{x})^2}{2\sigma^2}), & \text{for } \frac{x-\bar{x}}{\sigma} > -\alpha \\ A \cdot (B - \frac{x-\bar{x}}{\sigma})^{-n}, & \text{for } \frac{x-\bar{x}}{\sigma} \leqslant -\alpha \end{cases}$$

where

$$A = \left(\frac{n}{|\alpha|}\right)^n \cdot \exp\left(-\frac{|\alpha|^2}{2}\right),$$

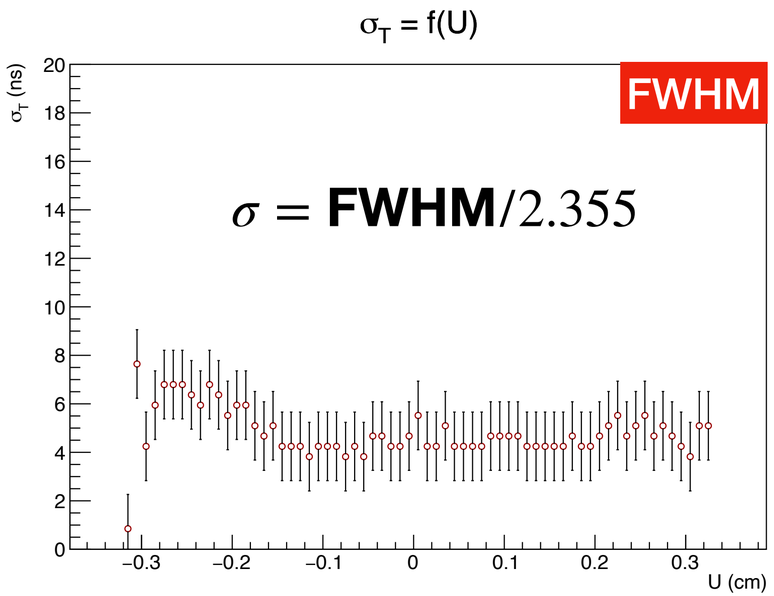
$$B = \frac{n}{|\alpha|} - |\alpha|,$$

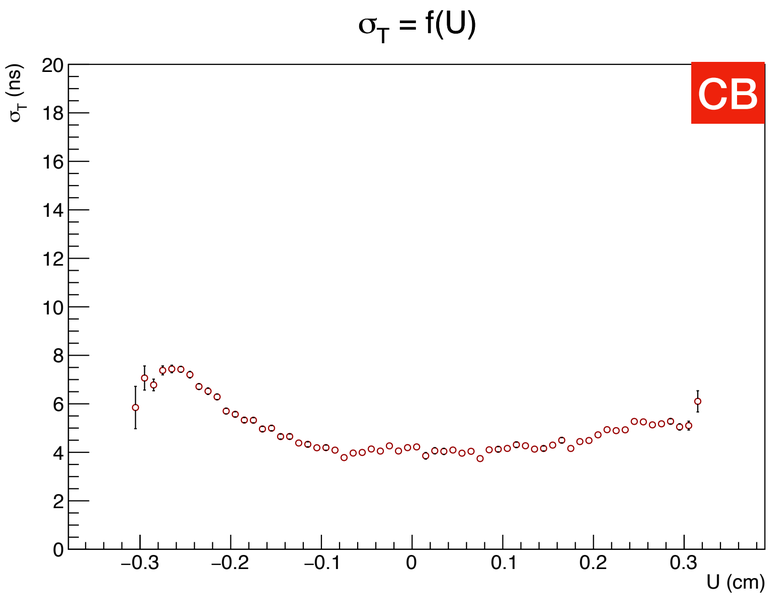
$$N = \frac{1}{\sigma(C+D)},$$

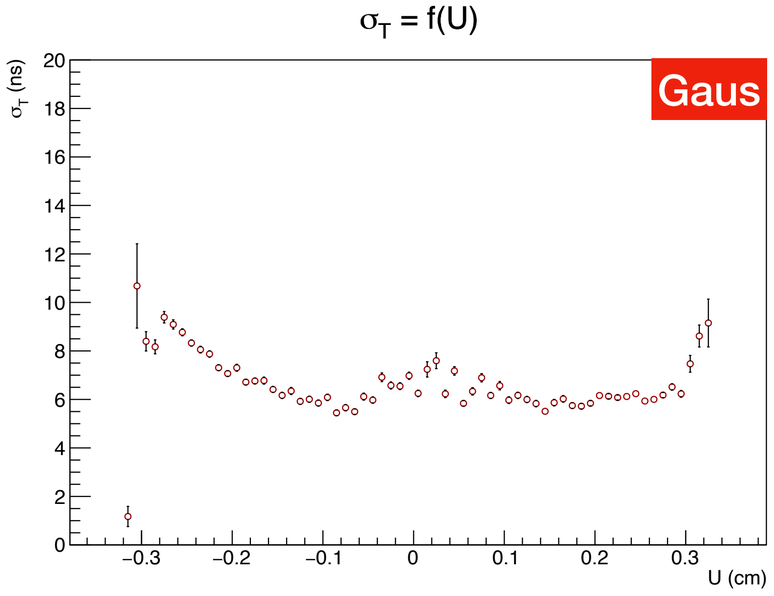
$$C = \frac{n}{|\alpha|} \cdot \frac{1}{n-1} \cdot \exp\left(-\frac{|\alpha|^2}{2}\right),$$

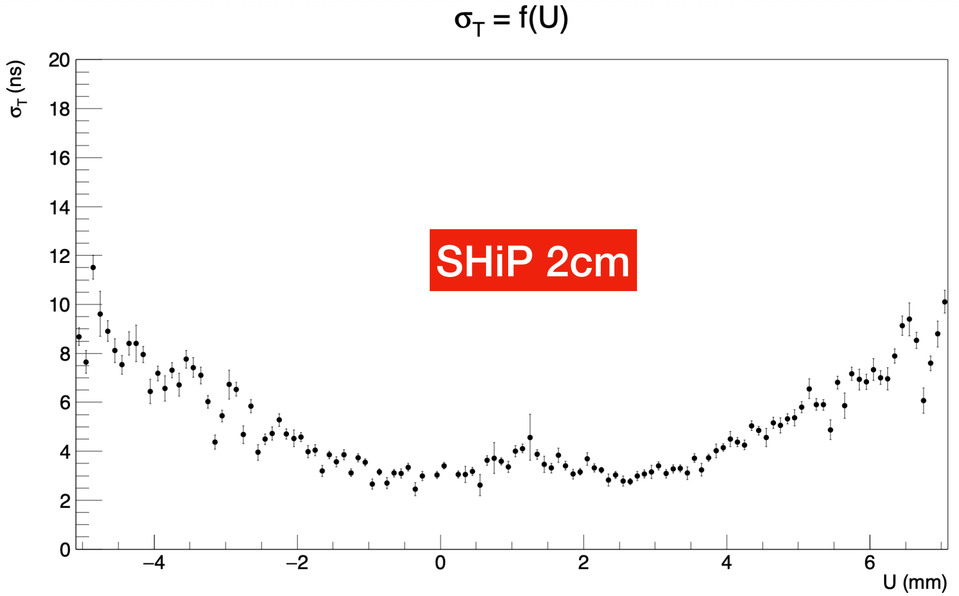
$$D = \sqrt{\frac{\pi}{2}}\left(1 + \operatorname{erf}\left(\frac{|\alpha|}{\sqrt{2}}\right)\right).$$

SIGMA

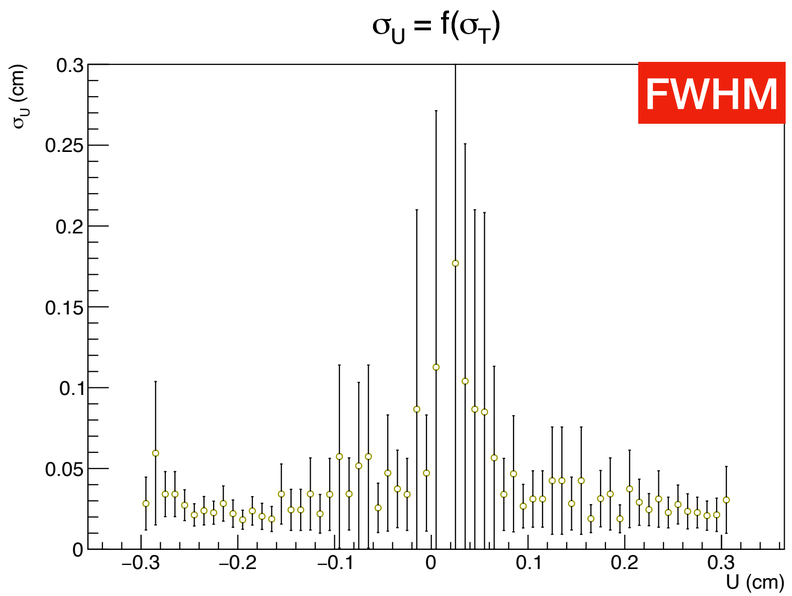

σ_T = f(U)
FWHM
$\sigma = \mathbf{FWHM}/2.355$
σ_T (ns)
U (cm)

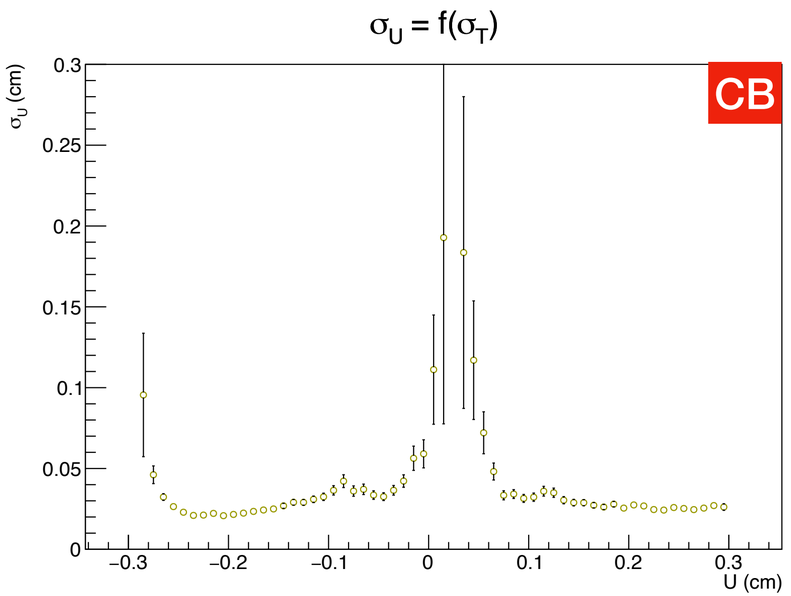

σ_T = f(U)
CB
σ_T (ns)
U (cm)

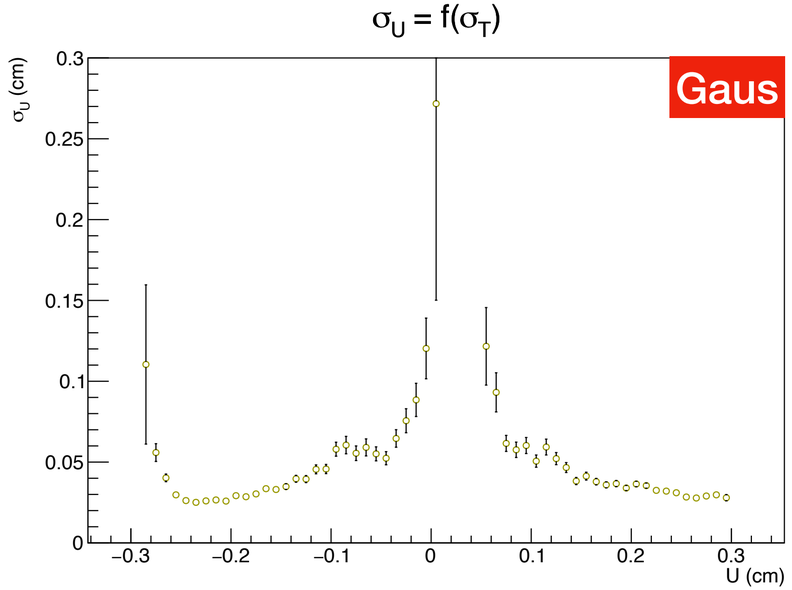

σ_T = f(U)
Gaus
σ_T (ns)
U (cm)


σ_T = f(U)
SHiP 2cm
σ_T (ns)
U (mm)

COORD RESOLUTION



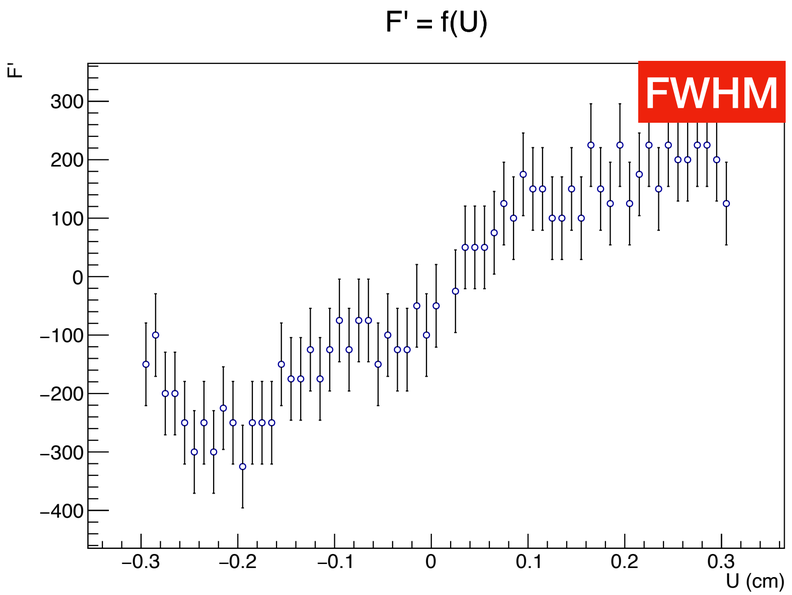


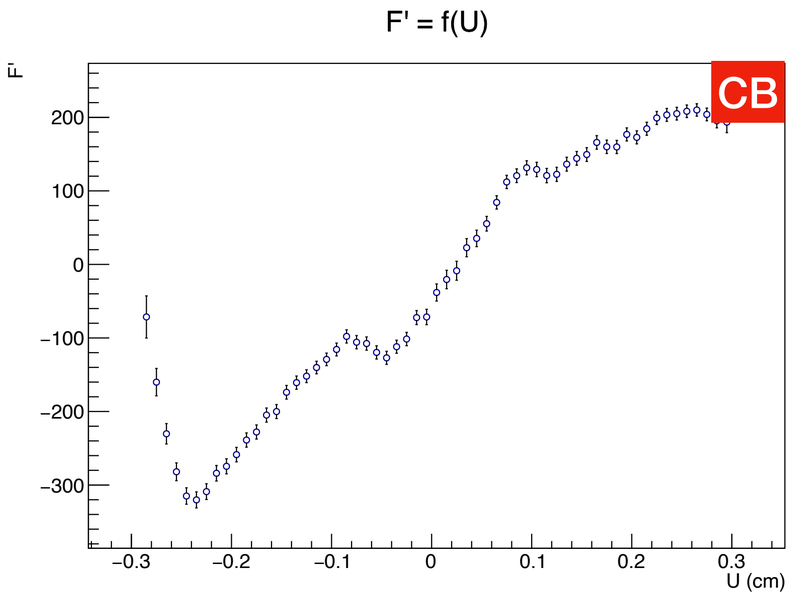


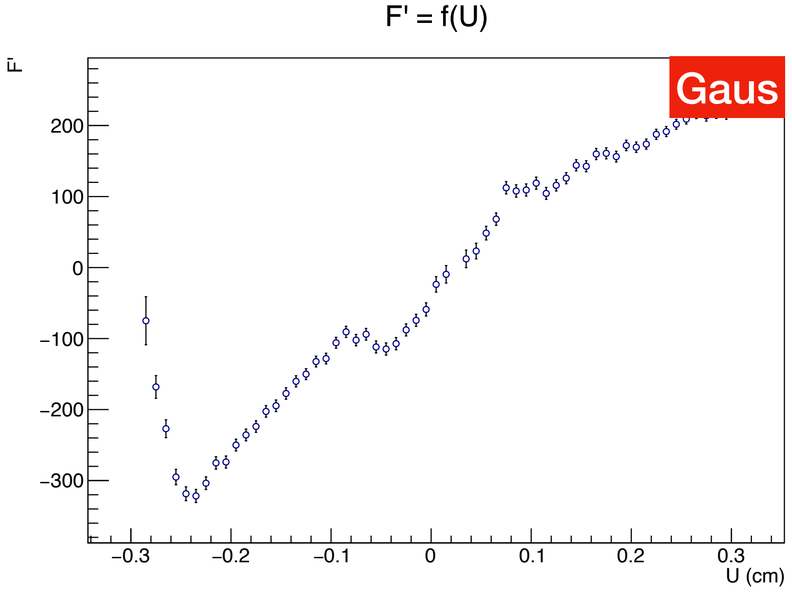
FWHM: (0.0243287 +/- 0.0016) cm
CB: (0.0252755 +/- 0.0002) cm
Gaus: (0.0310994 +/- 0.0002) cm

250µm

DERIVATIVE

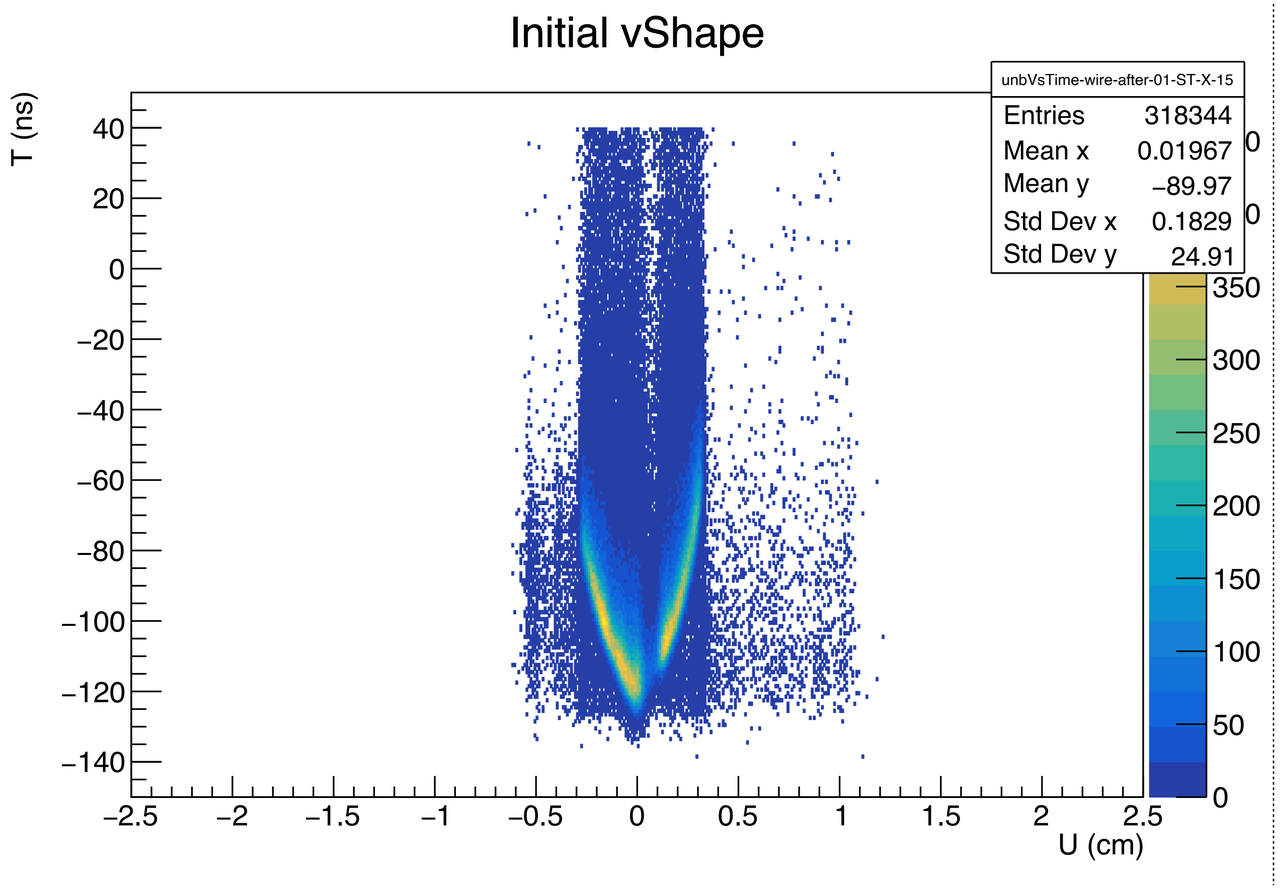


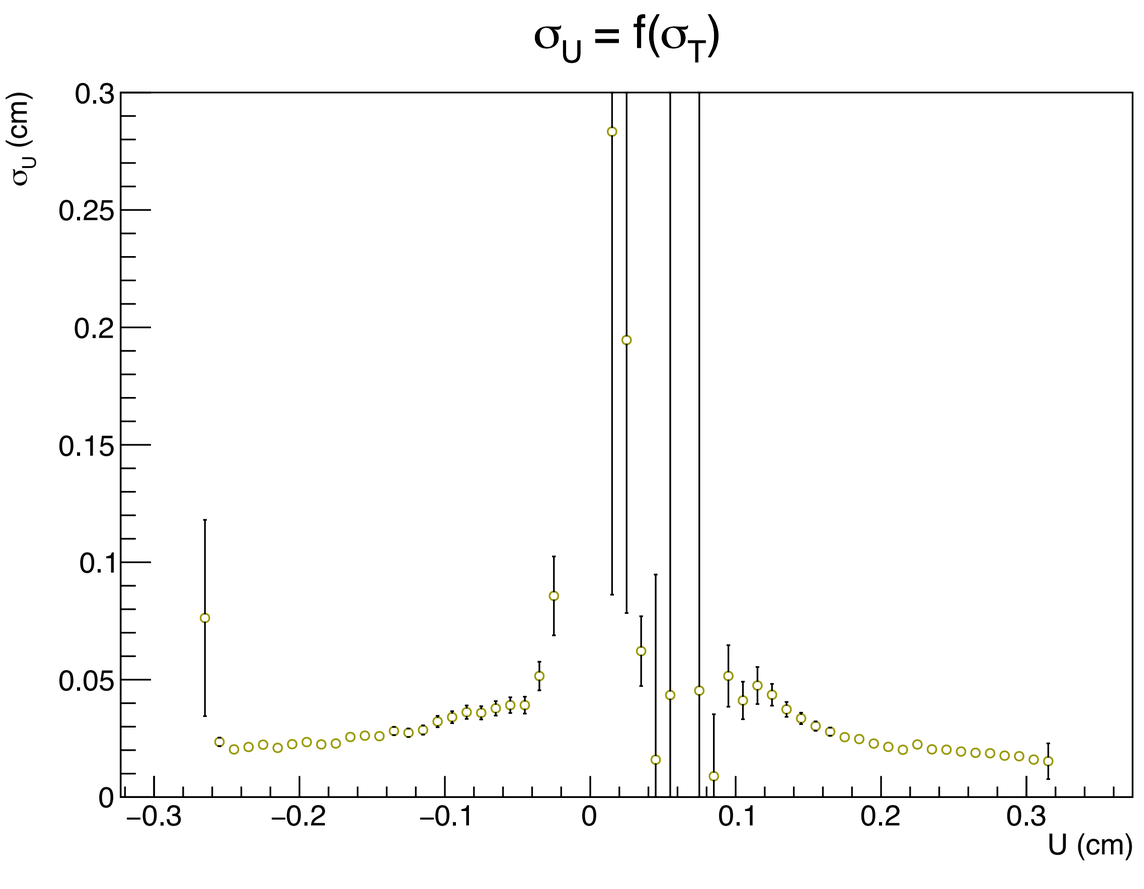




$$\sigma_U = \frac{\sigma_T}{|f'(U)|}$$

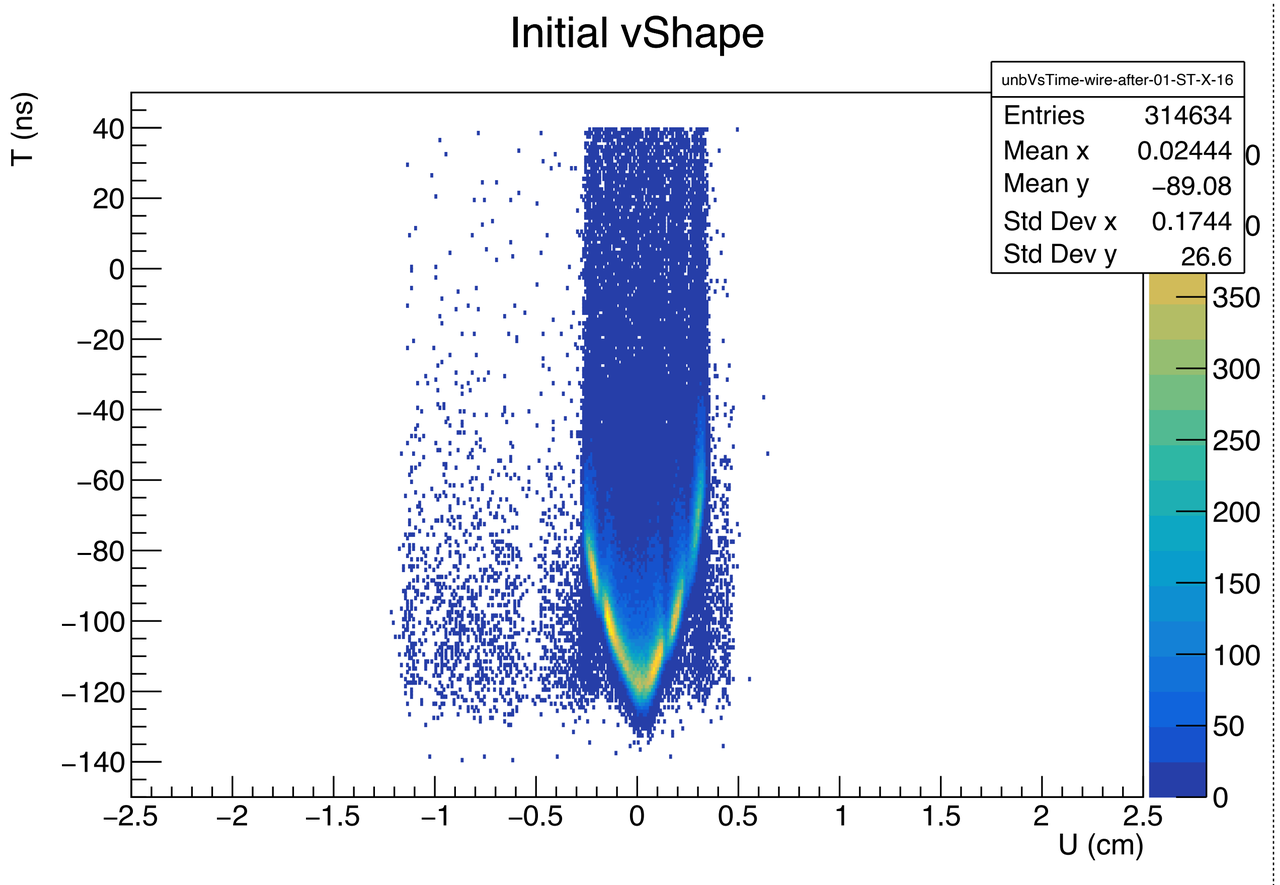
ST 01: straw 15

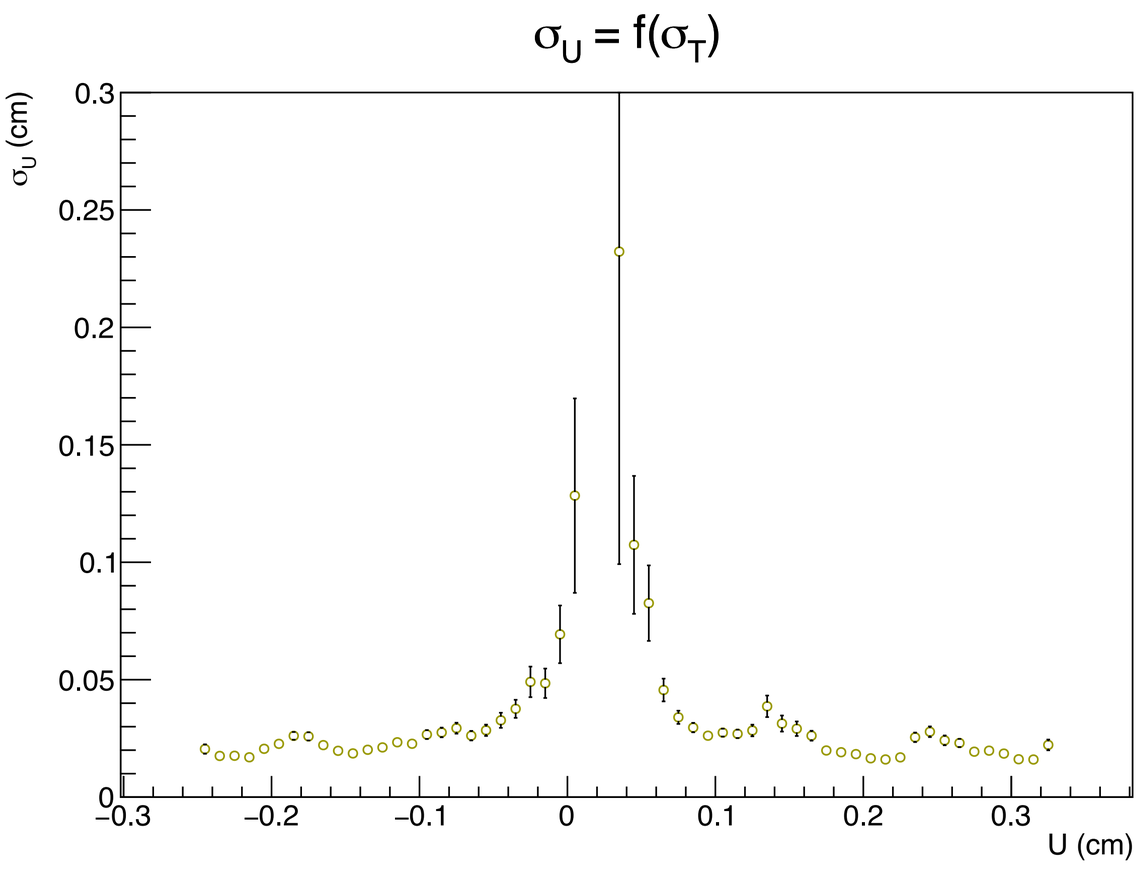




Resolution (0.0216934 +/- 0.000182741) cm

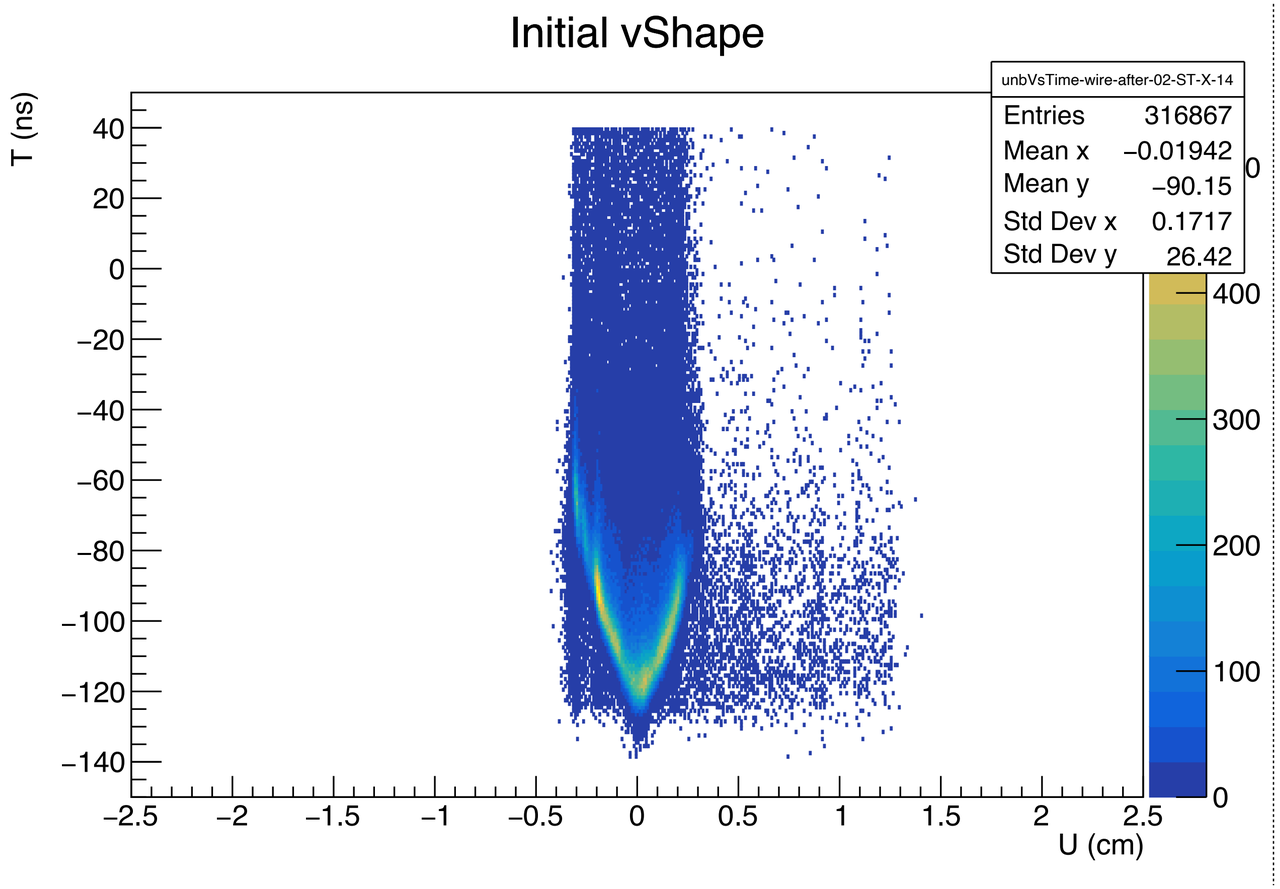
ST 01: straw 16

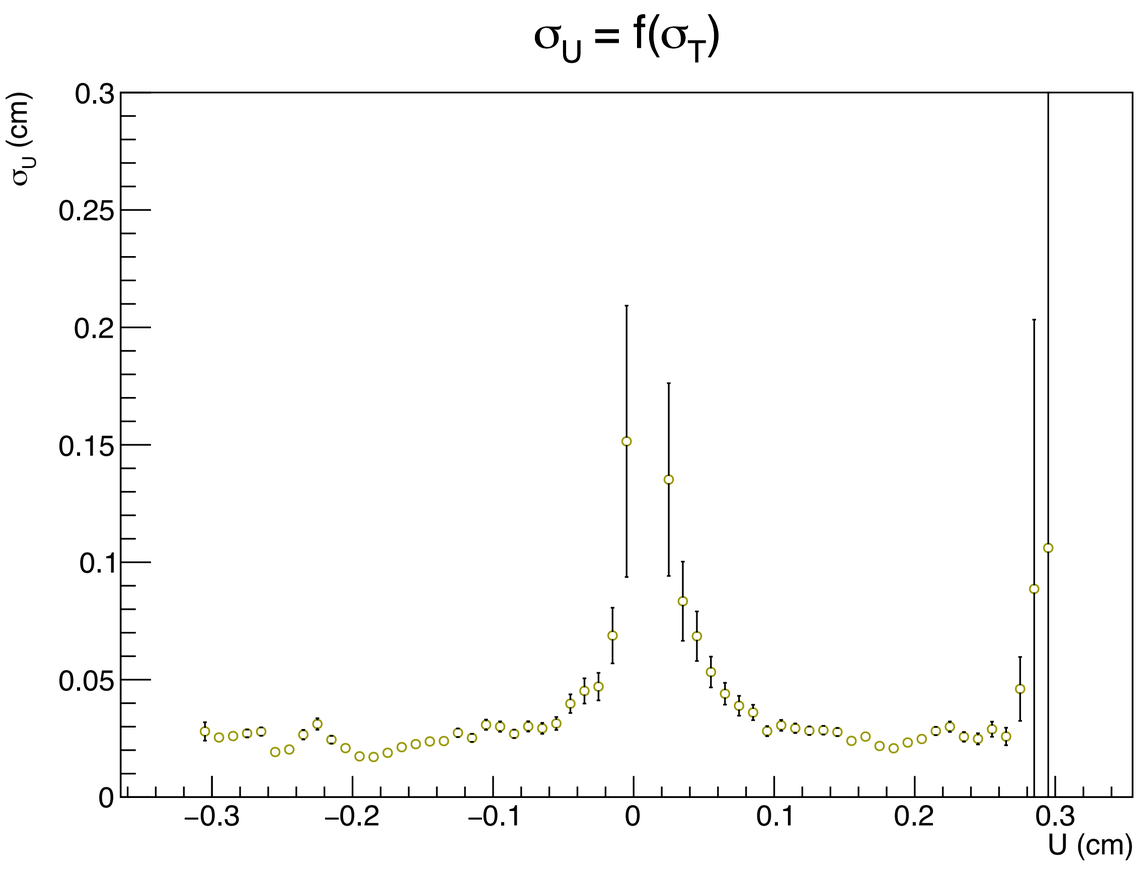




Resolution (0.019795 +/- 0.000170823) cm

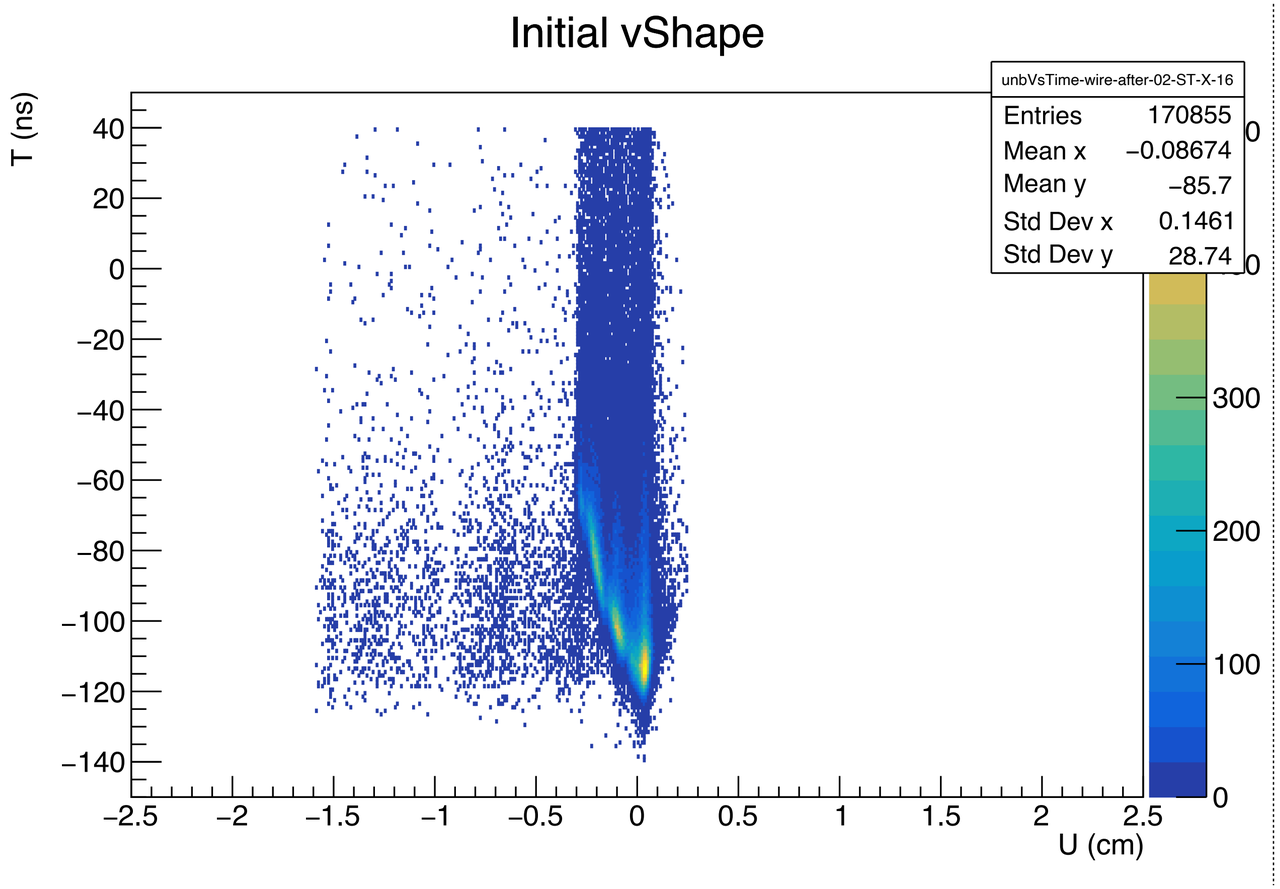
ST 02: straw 14

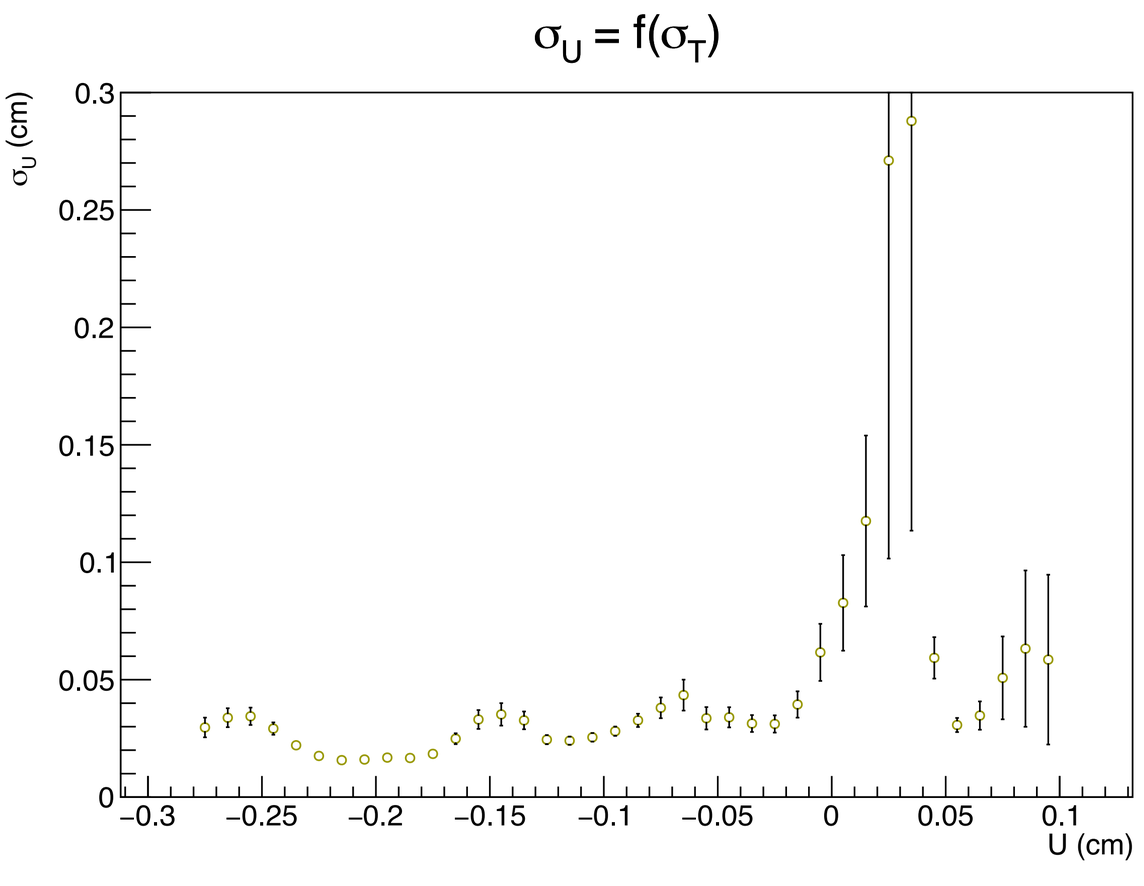




Resolution (0.0229815 +/- 0.000209321) cm

ST 02: straw 16

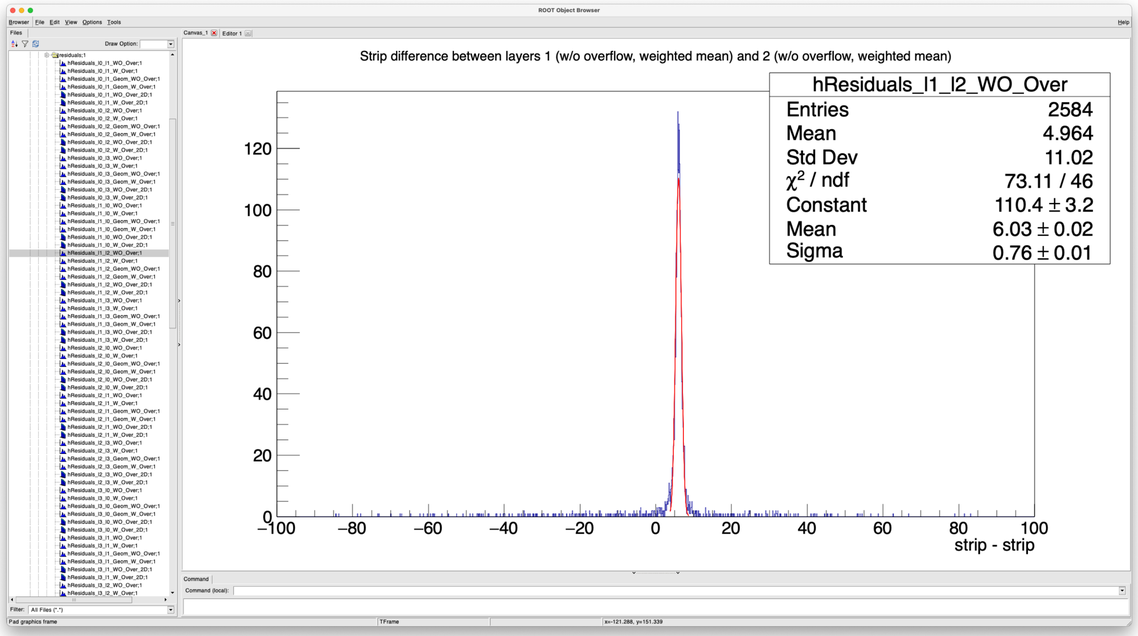


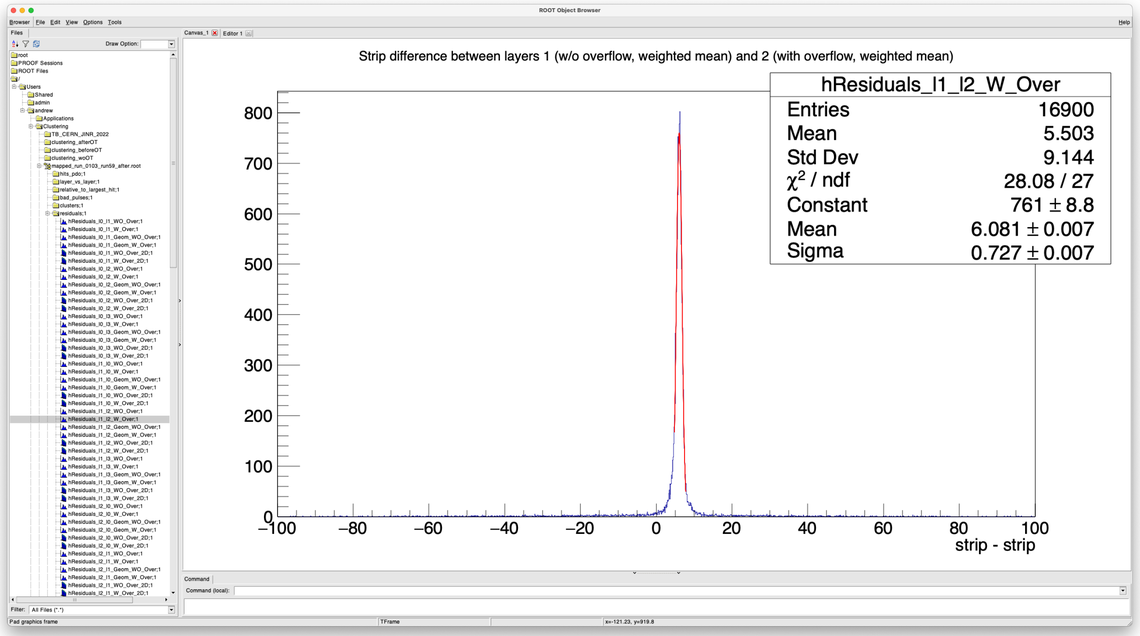


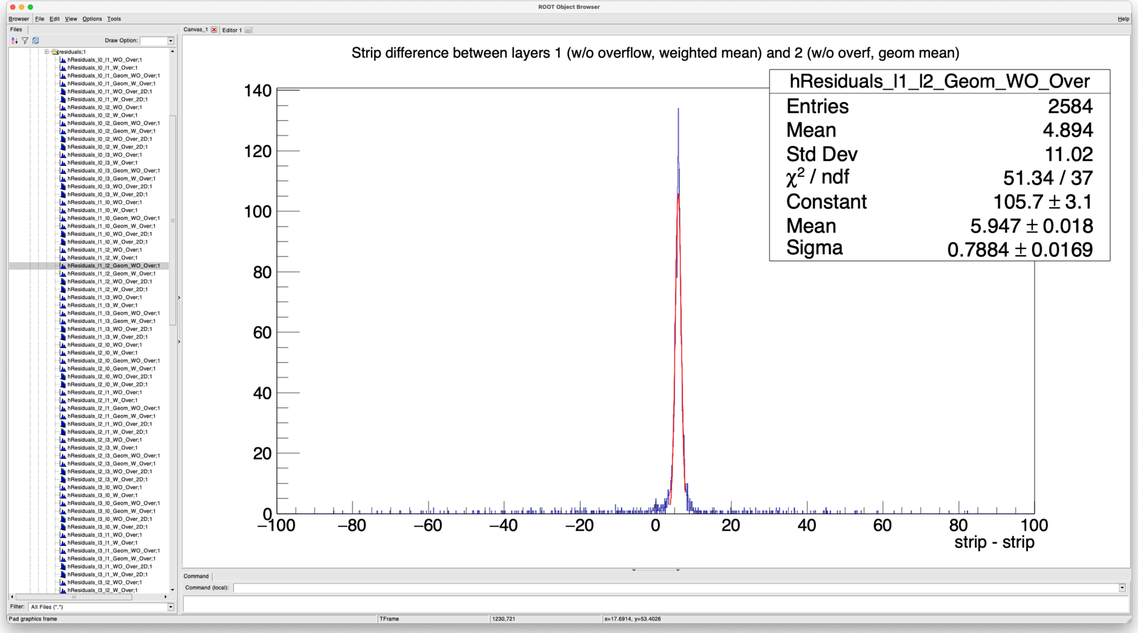
Resolution (0.0192012 +/- 0.000275716) cm

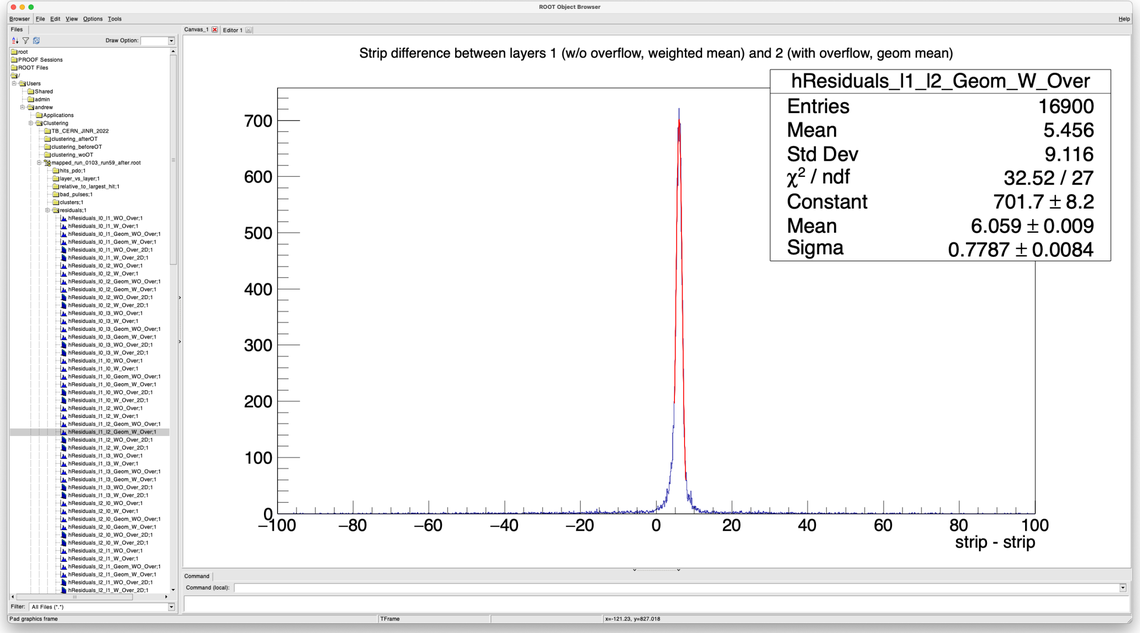
July (APV+VMM)
clustering with strips (maxQ > 1600)

‘AFTER’ (first TimeBin after Tmax with no overflow Q)

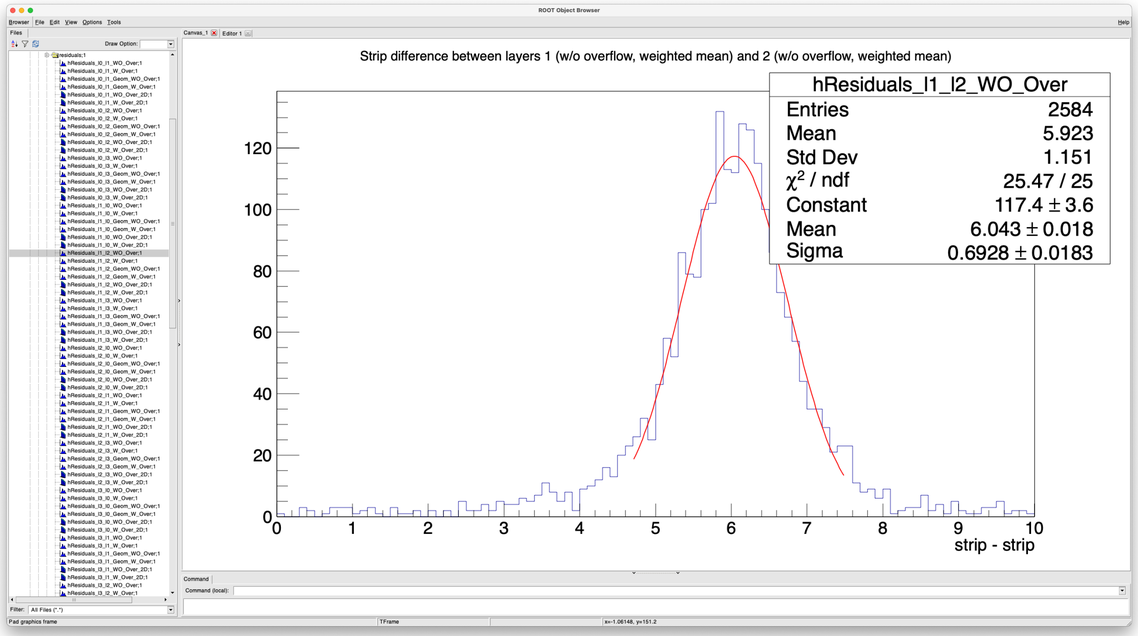


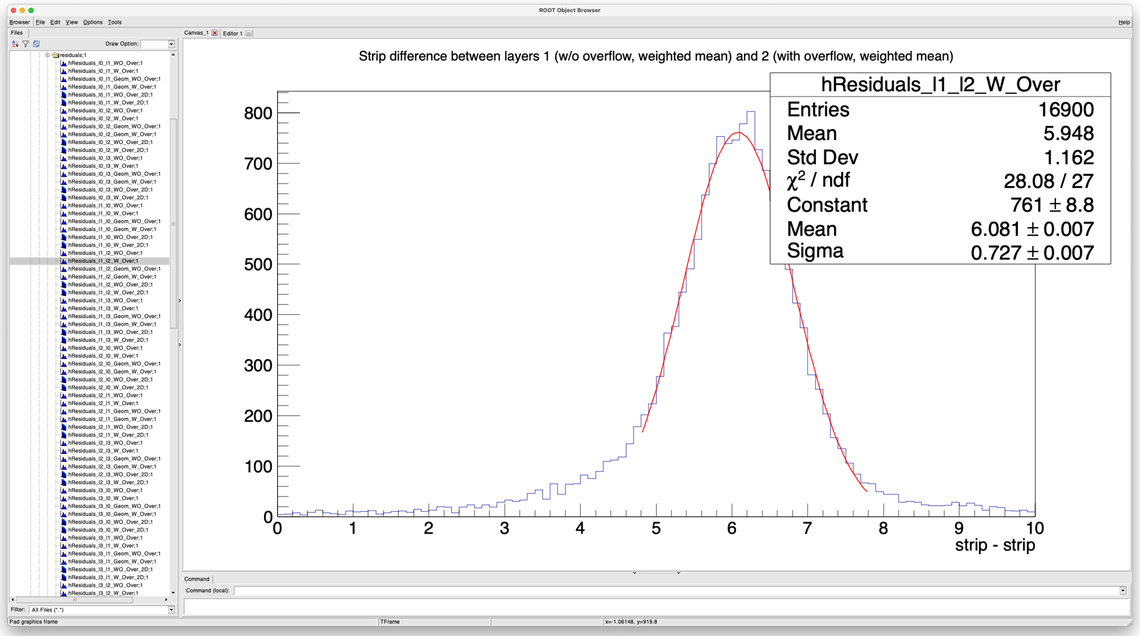


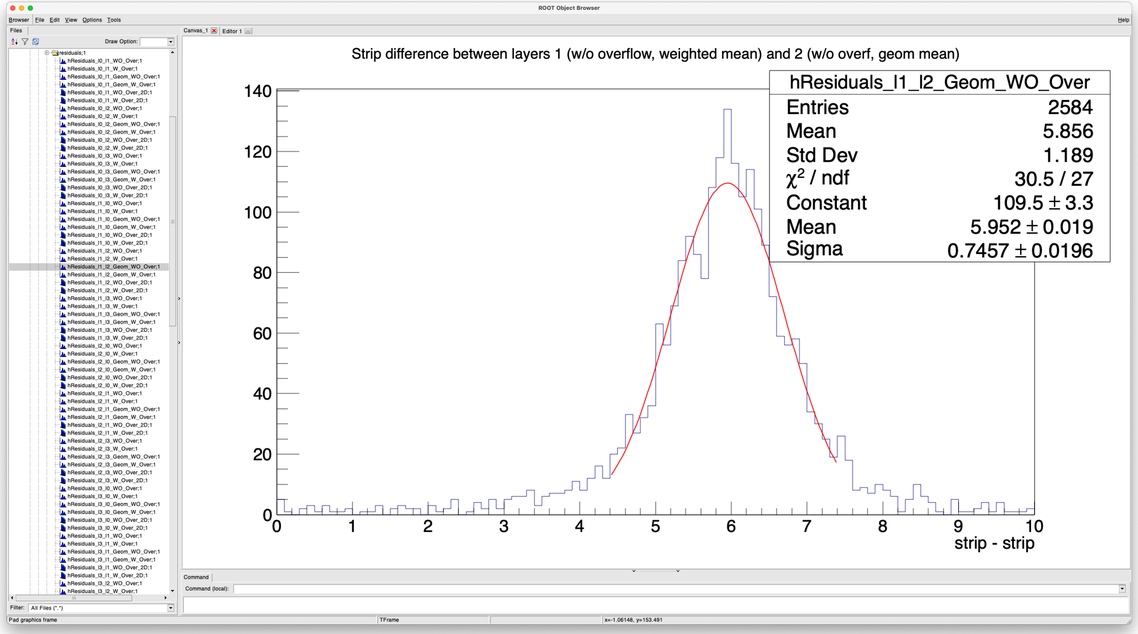


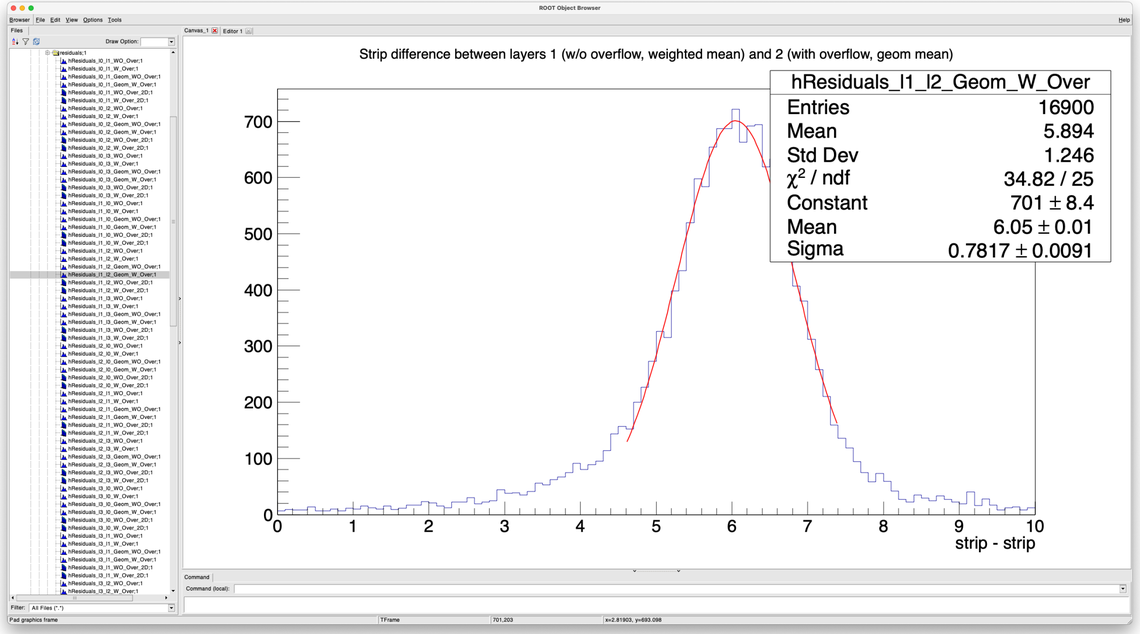


‘AFTER’ (first TimeBin after Tmax with no overflow Q)

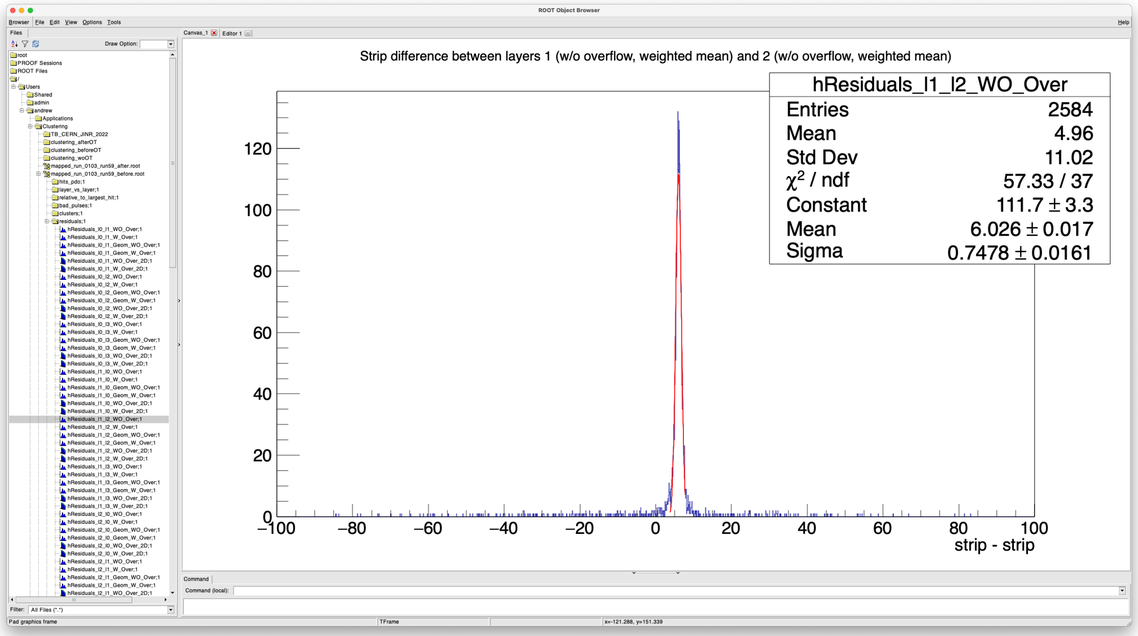


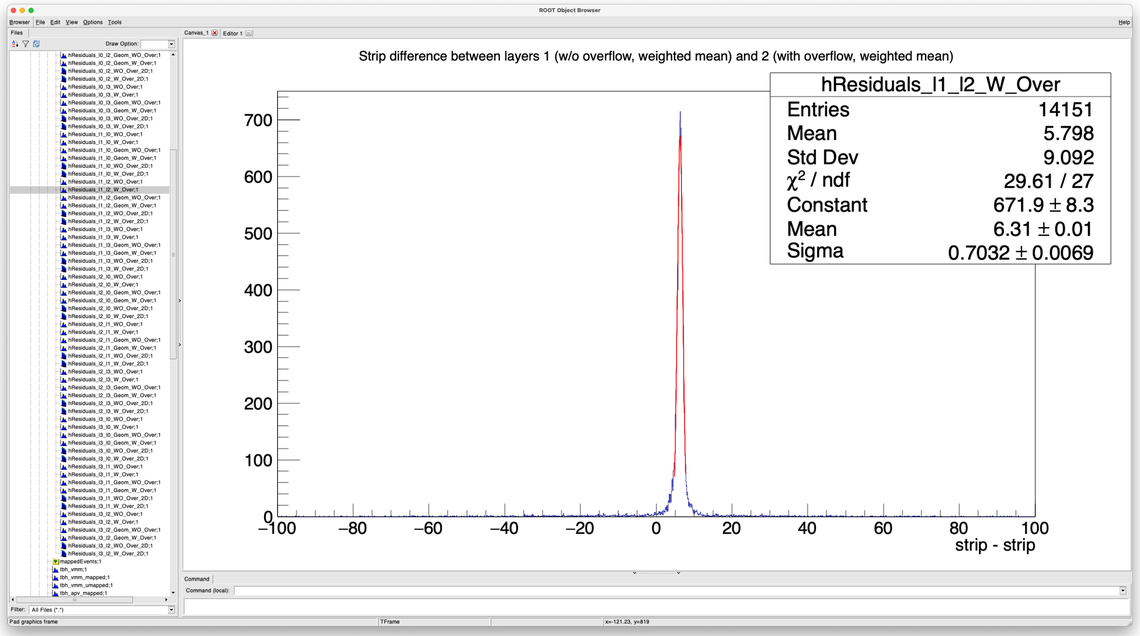


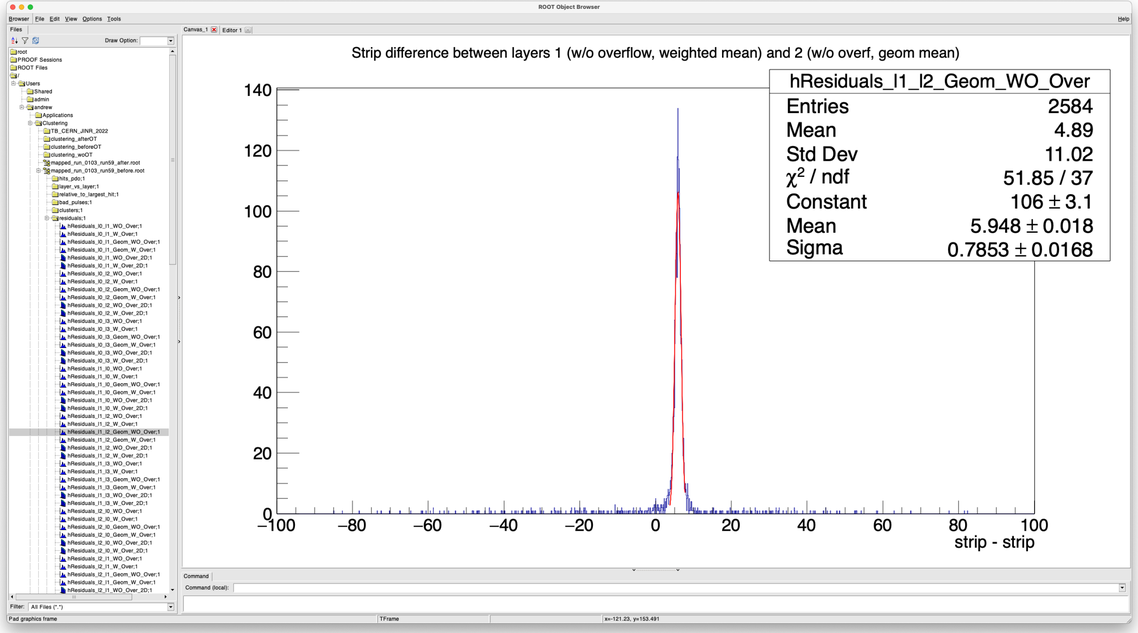


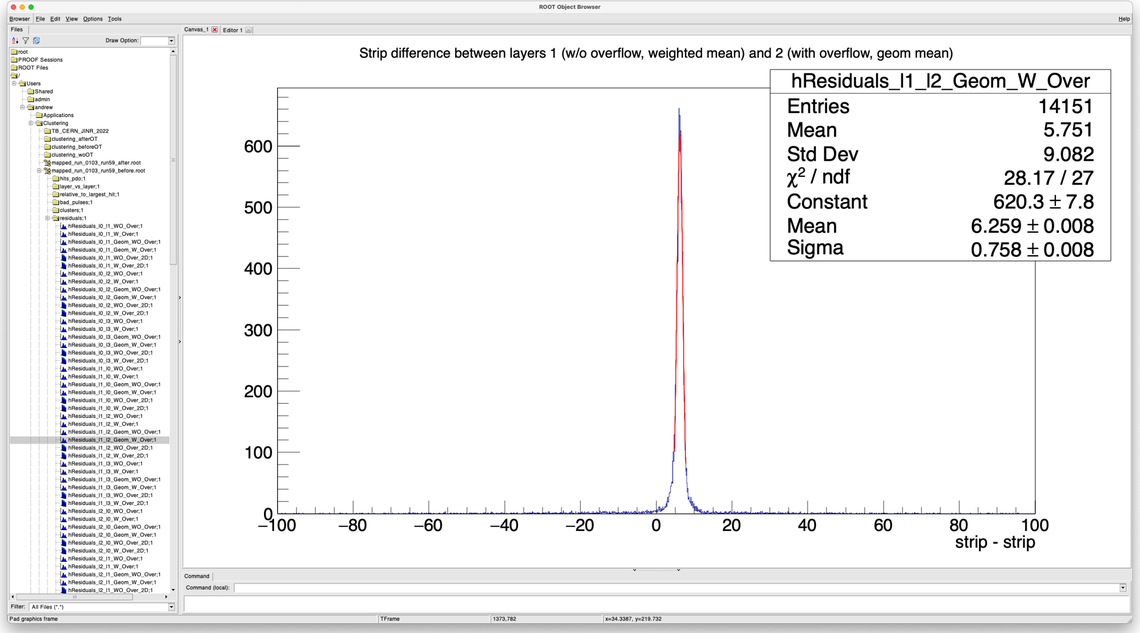


‘BEFORE’ (last TimeBin before Tmax with no overflow Q)









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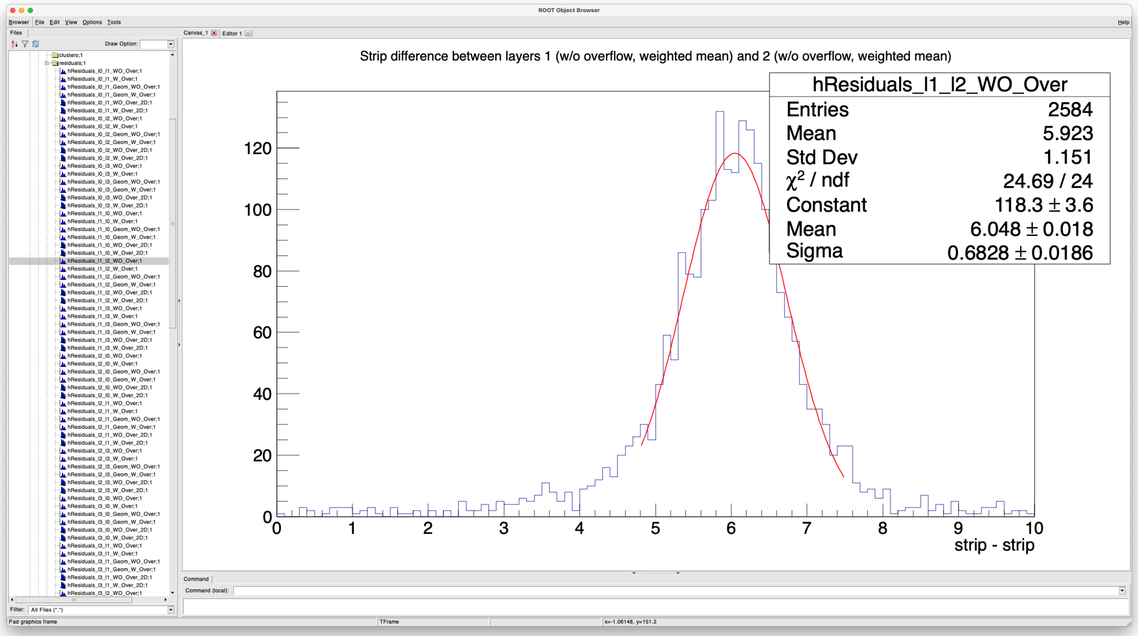
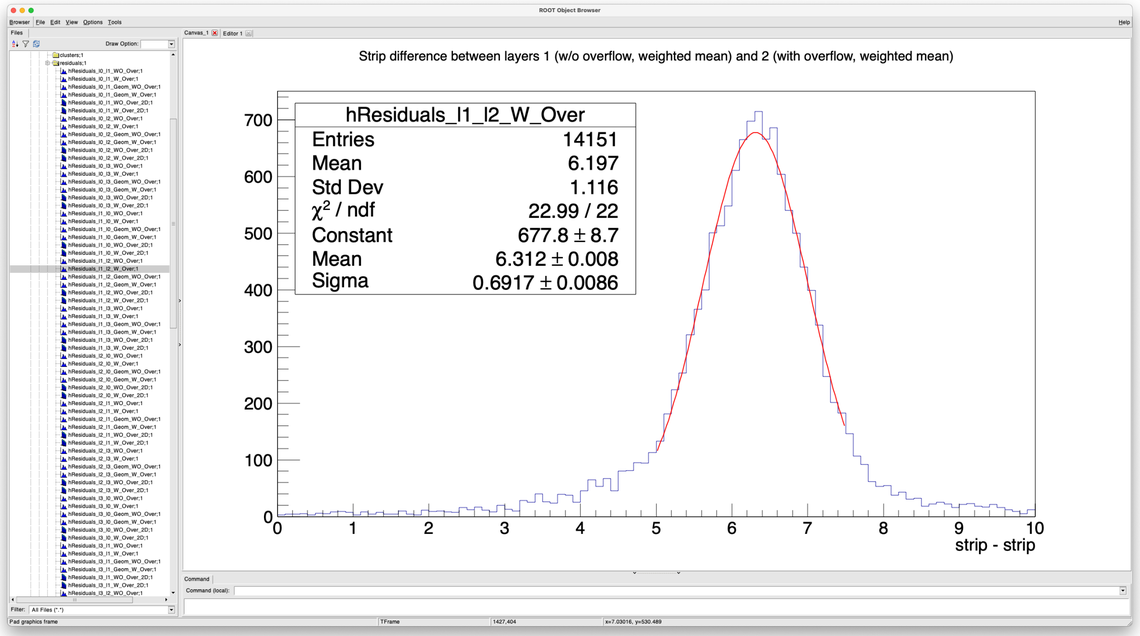
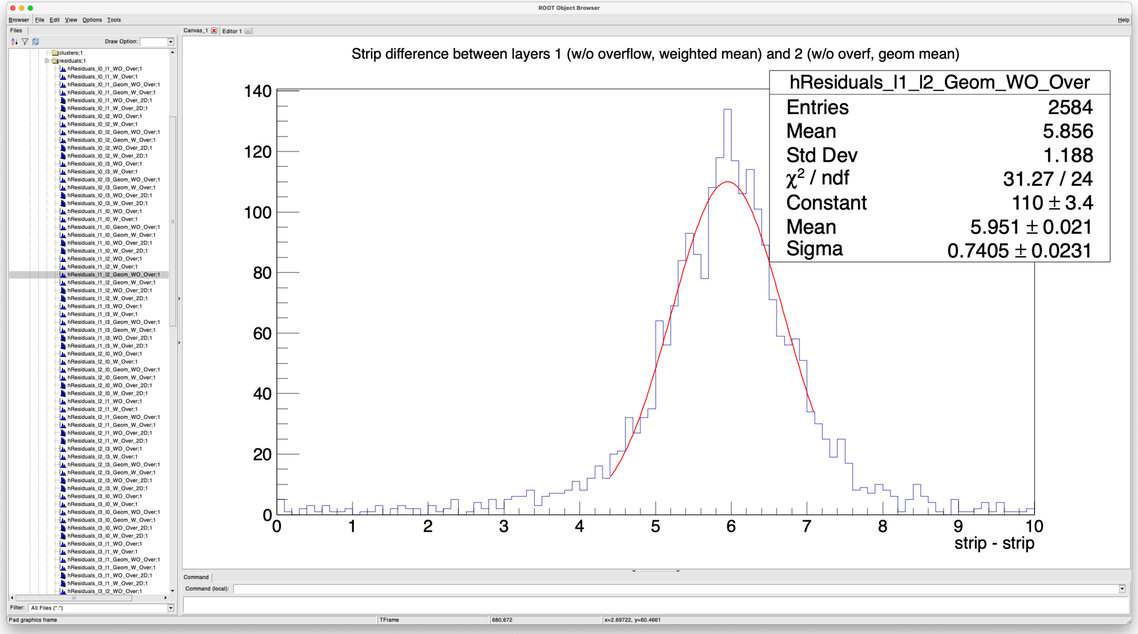
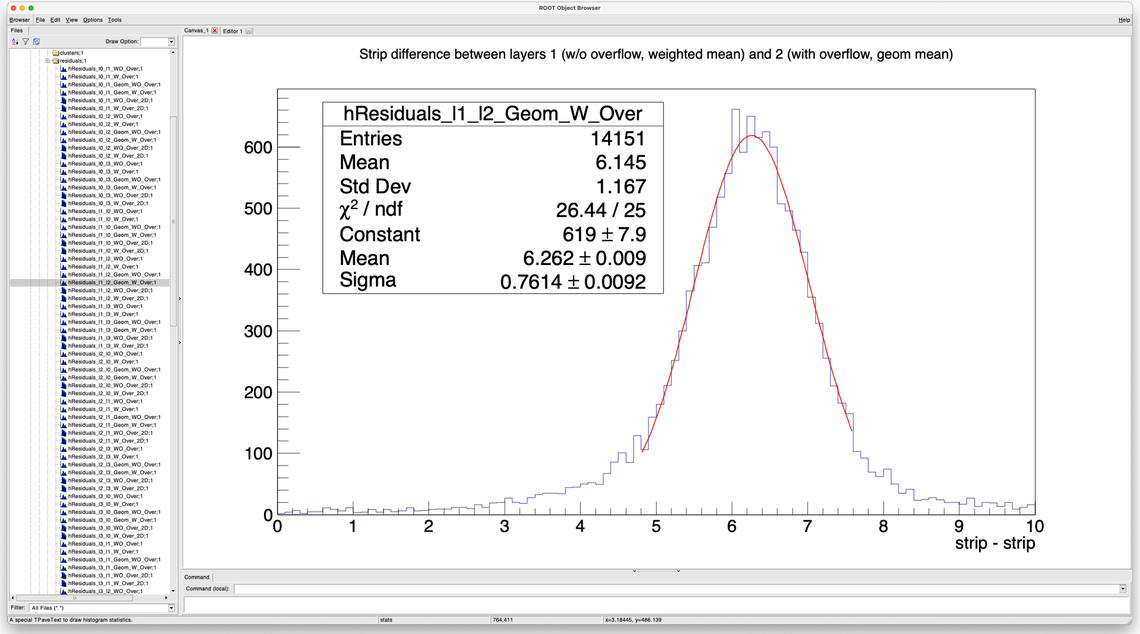
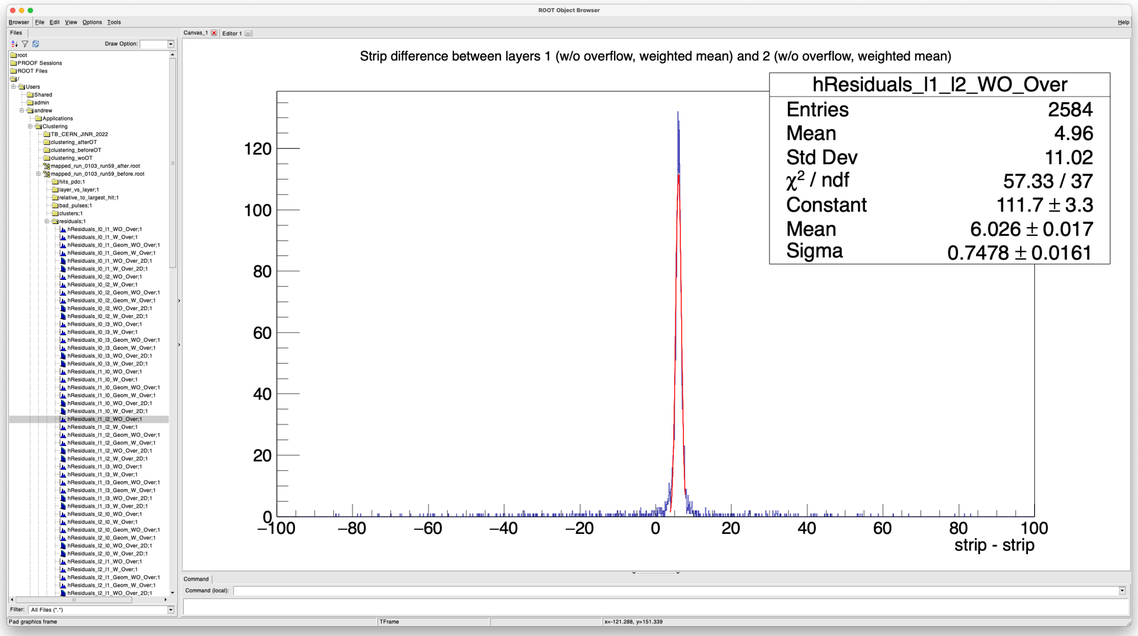


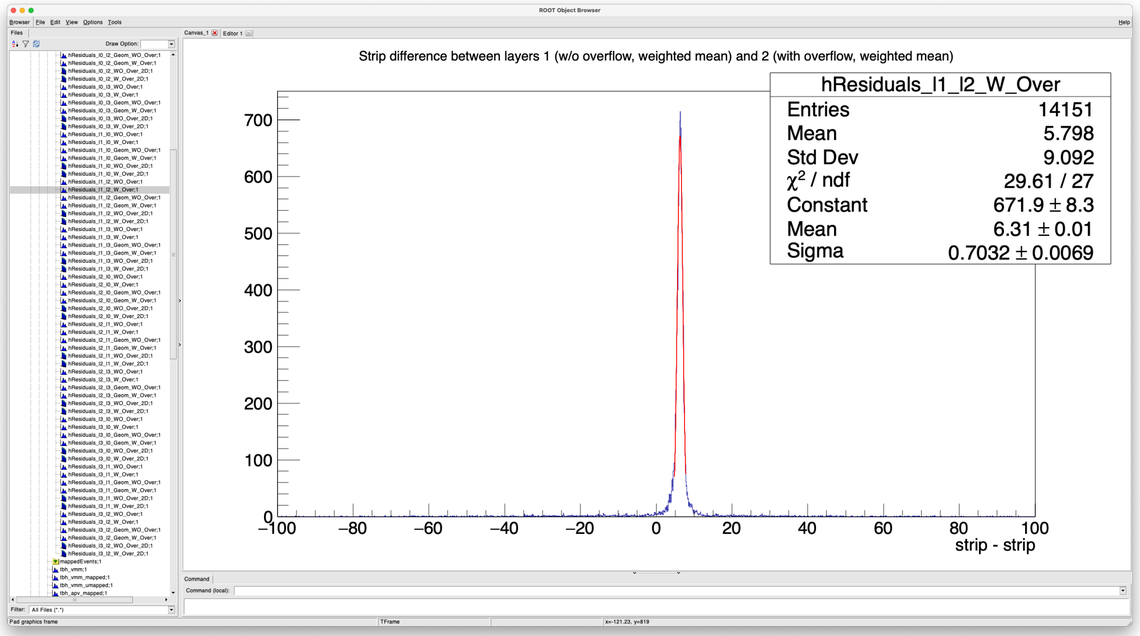


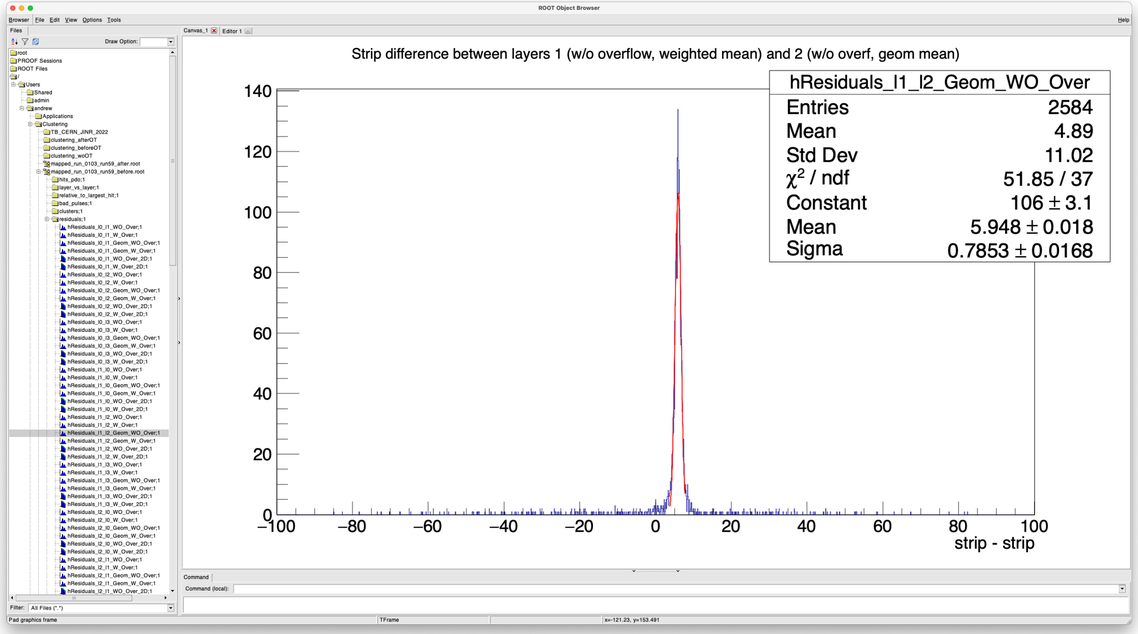


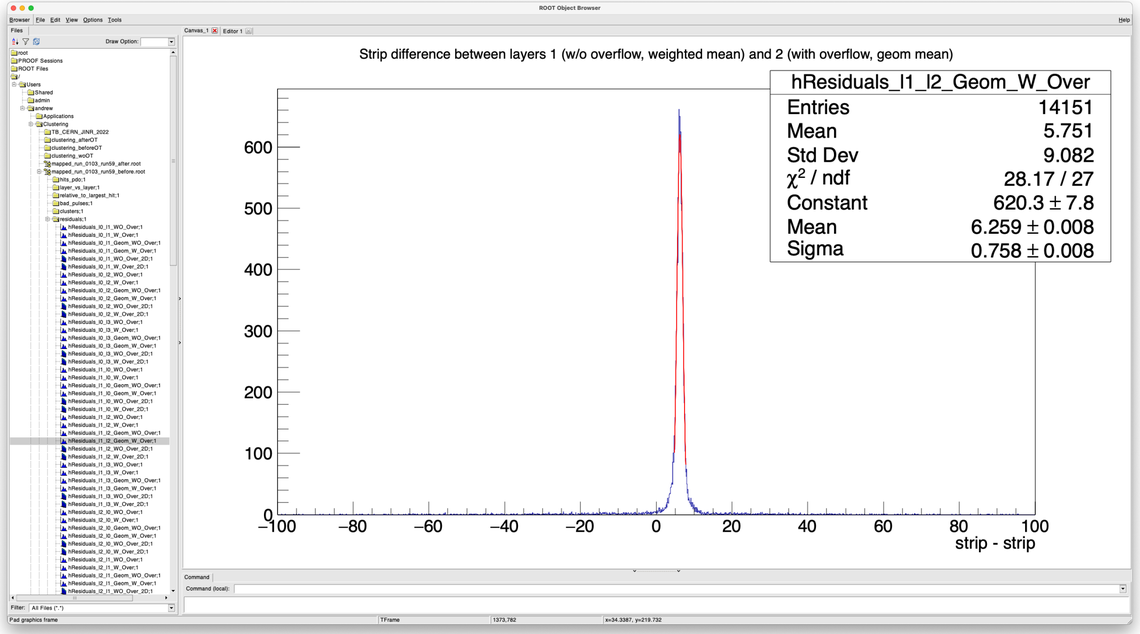
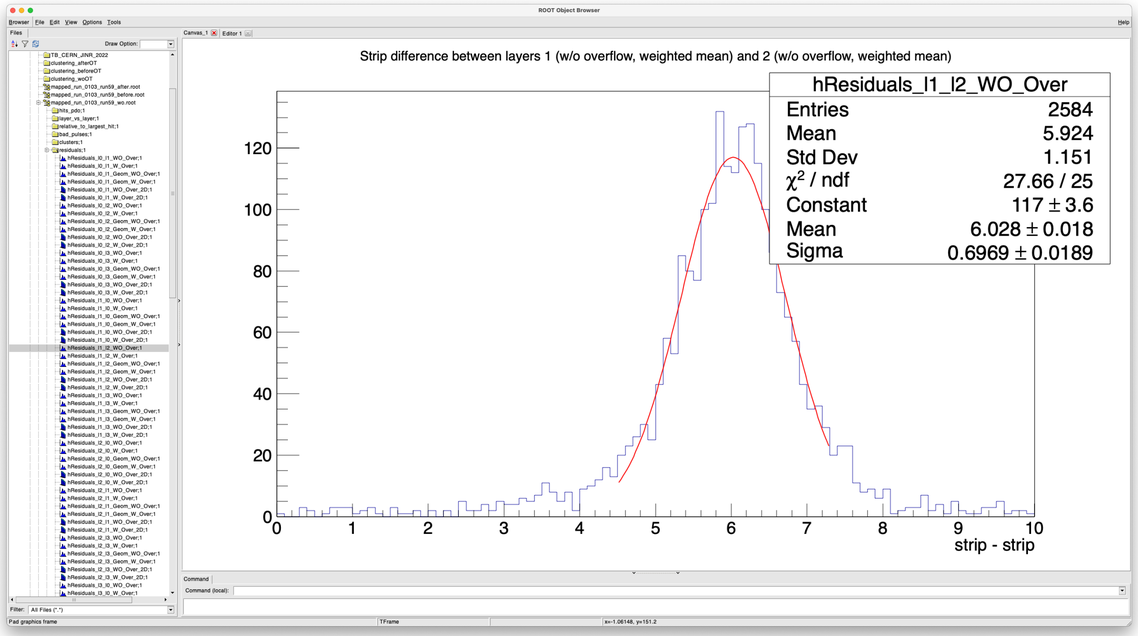
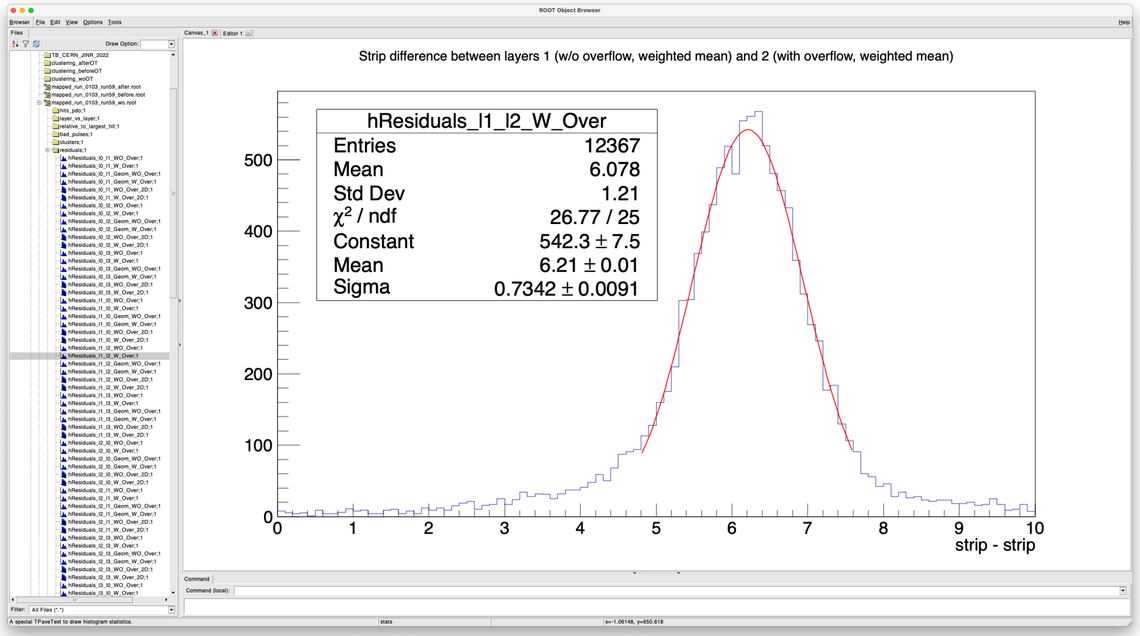
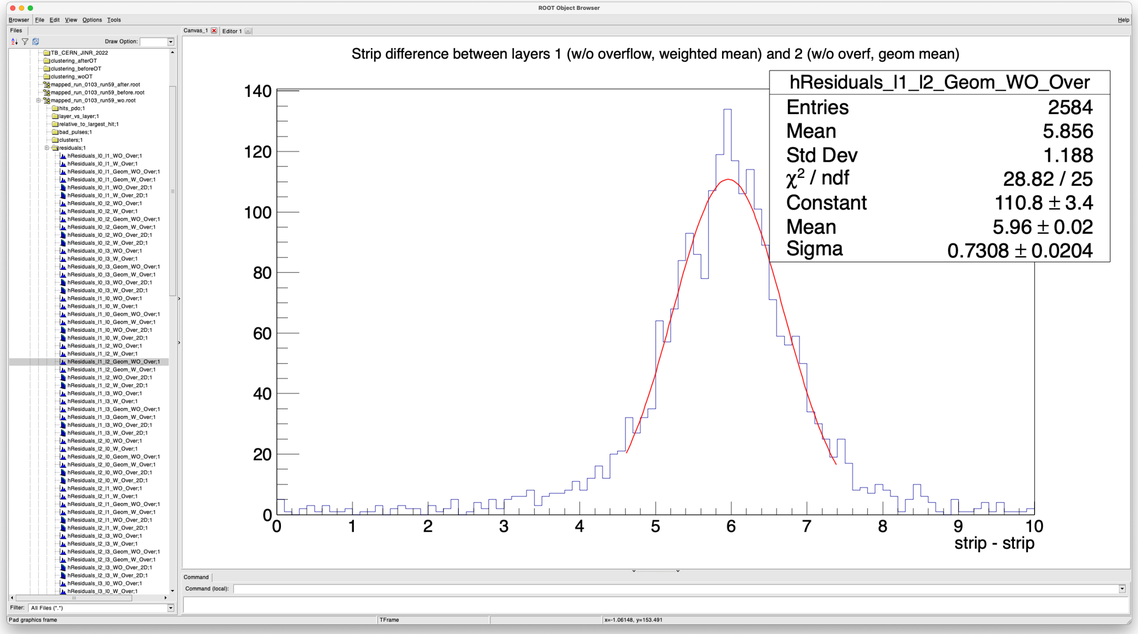
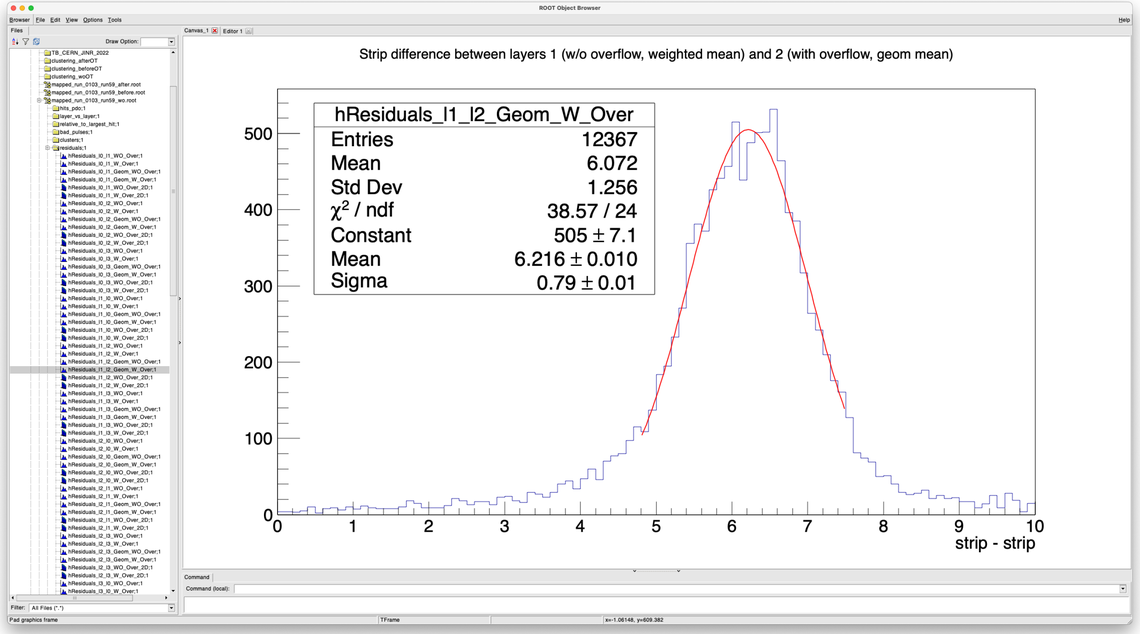


‘WO’ (Just drop out the strip with overflow)









‘WO’ (Just drop out the strip with overflow)