



Istituto Nazionale di Fisica Nucleare



Quick look @ ΔE -TOF from CNAO2023

R. Zarrella



Check of time resolution

$$\Delta T_{FR} = T_{TW,rear} - T_{TW,front}$$

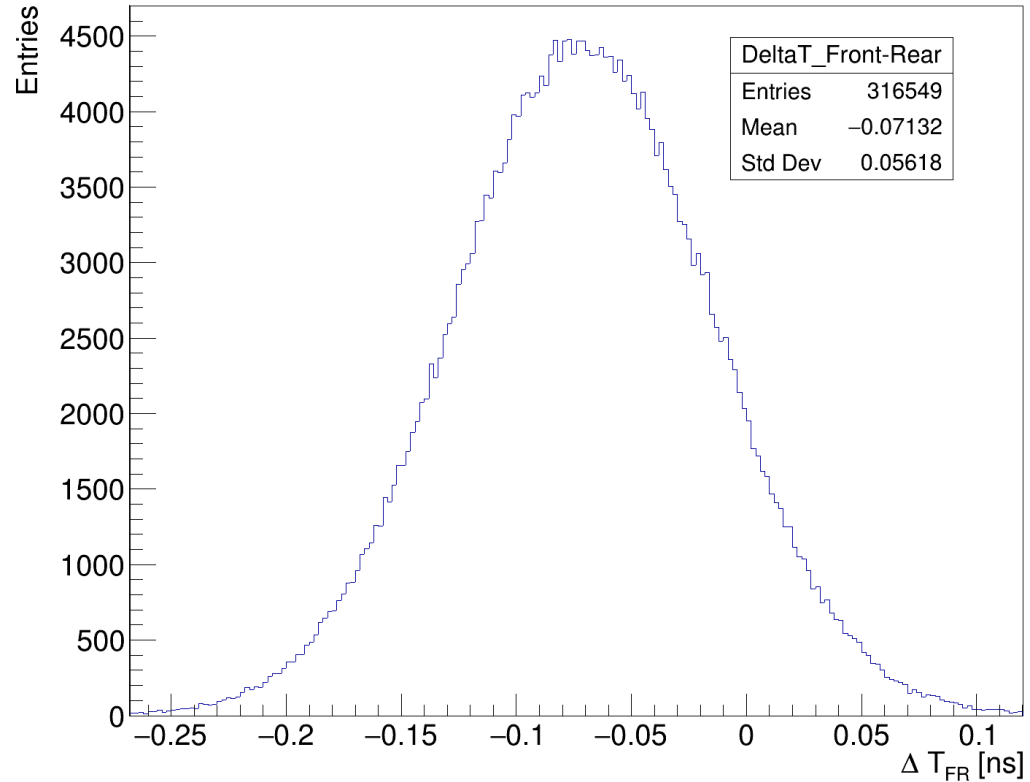
Run 6169 → 6178

MB trigger

C @ 200 MeV/u

C target

~640k events





Check of time resolution

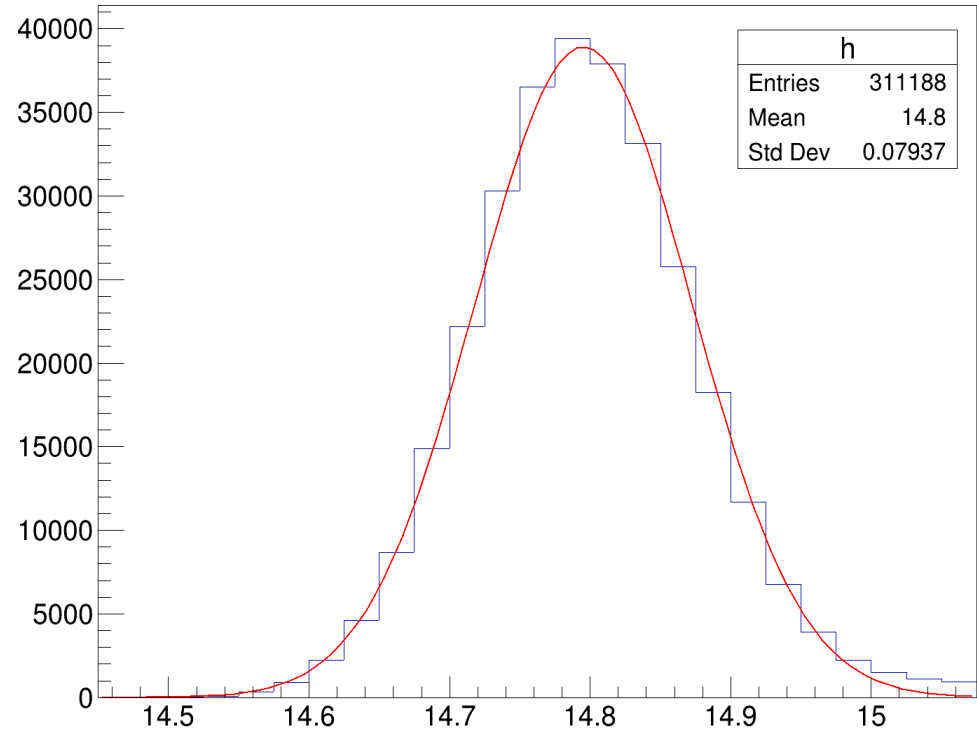
$$T_{TW} = \frac{T_{TW,front} + T_{TW,rear}}{2}$$

$$\sigma(\Delta T_{FR}) = 2\sigma(T_{TW})$$

$$\sigma(TOF) = \sqrt{\sigma(T_{TW})^2 + \sigma(T_{SC})^2}$$

$\sigma(\Delta T_{FR})$	56 ps
$\sigma(T_{TW})$	28 ps
$\sigma(T_{SC})$	72 ps
$\sigma(TOF)$	77 ps

$$TOF_{raw} = T_{TW} - T_{SC}$$



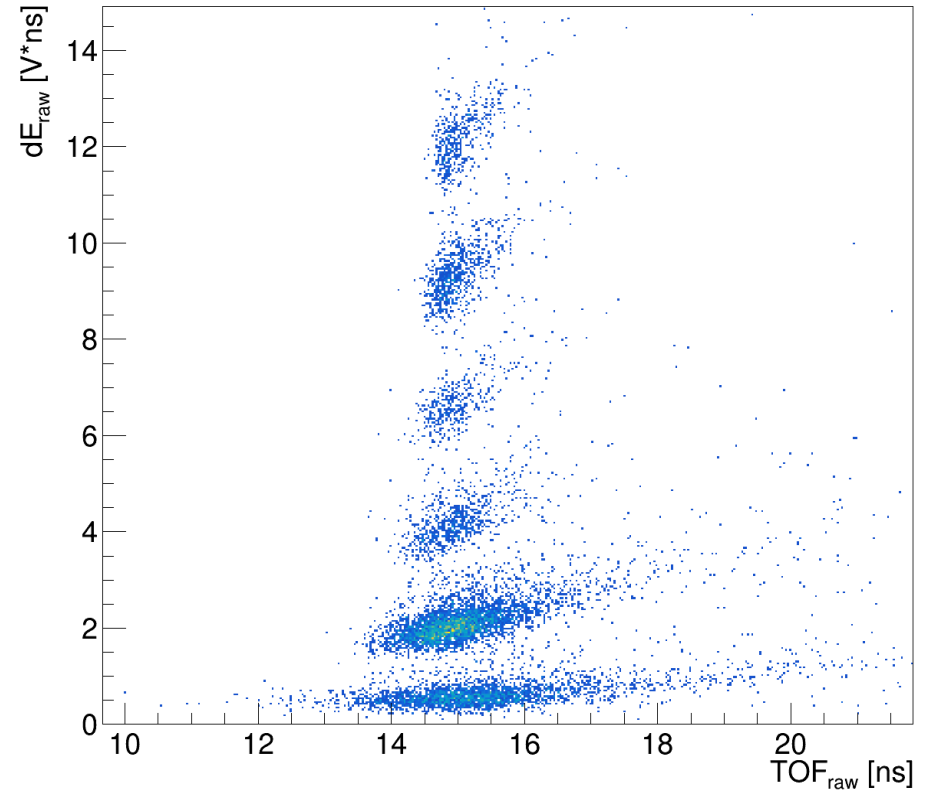
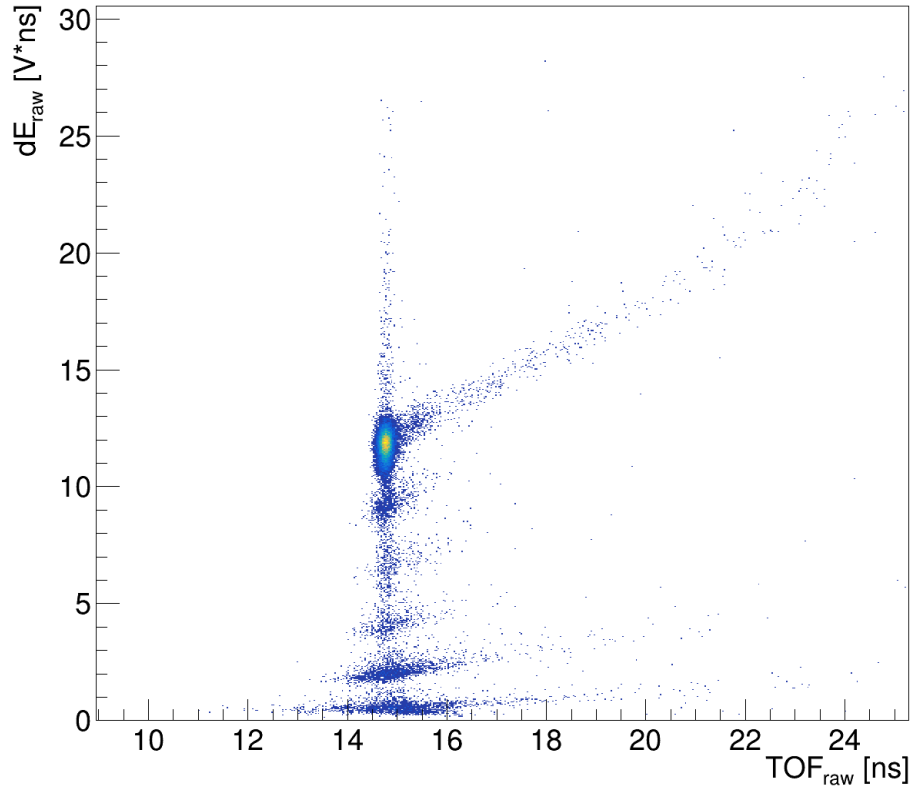
Time resolution seems slightly worsened → TO BE CHECKED!



Energy loss vs TOF

But... seems good enough for Z identification

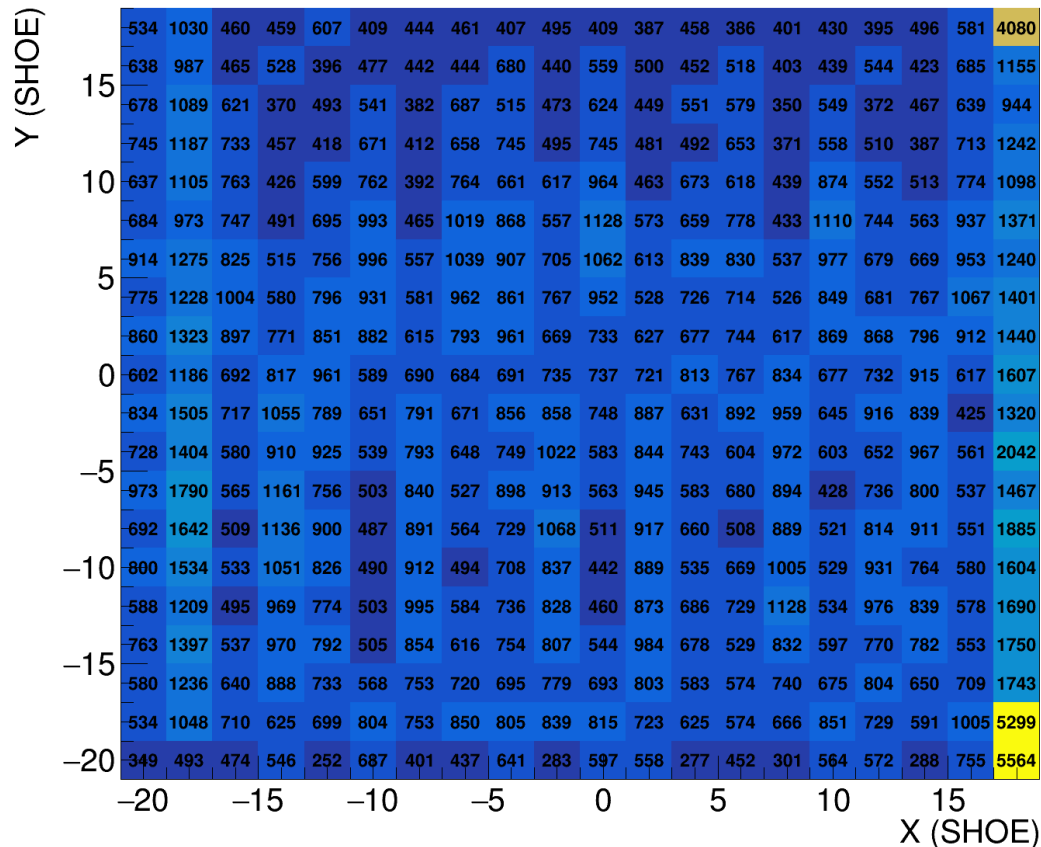
Run 6144 → 6148





TW position calibration

TW hitmap for scan (run6306) → position reconstruction w/ channel time difference

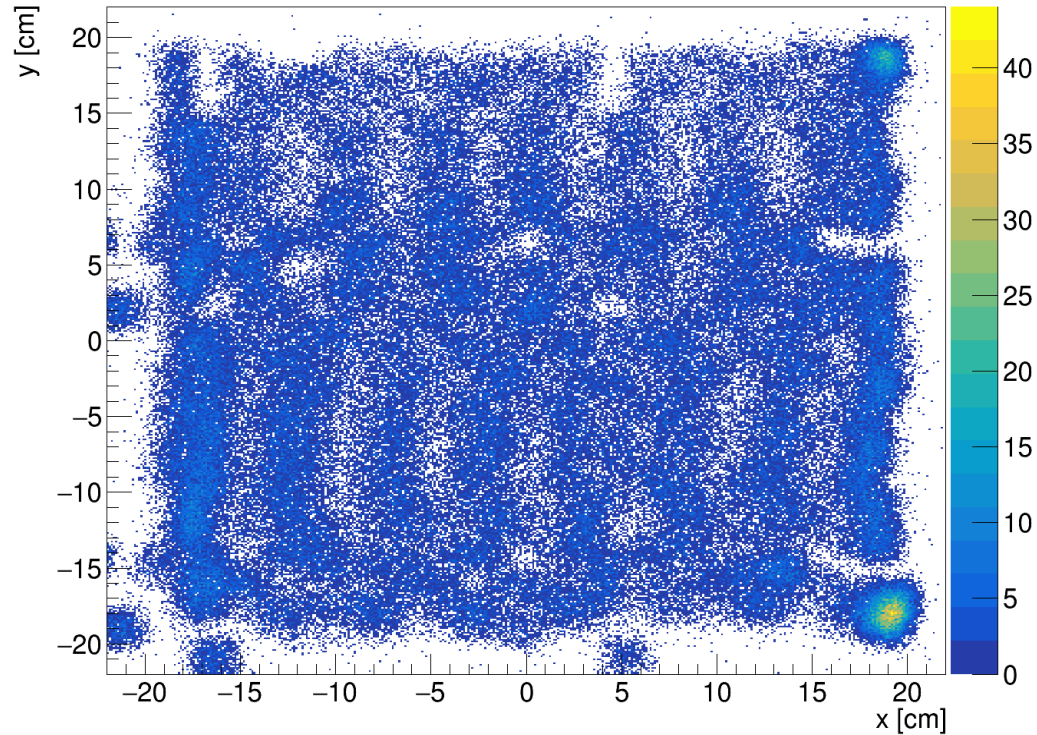




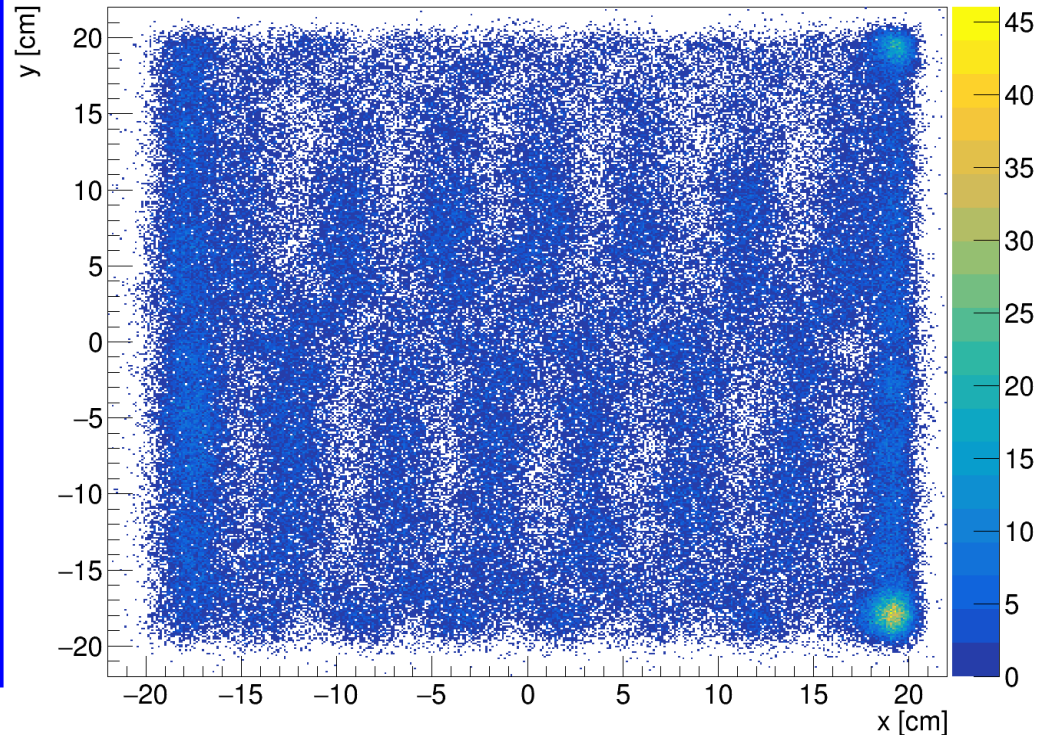
TW position calibration

TW hitmap for scan (run6306) → position reconstruction w/ channel time difference

HitMapUncal



HitMap



Calibration map already in SHOE