

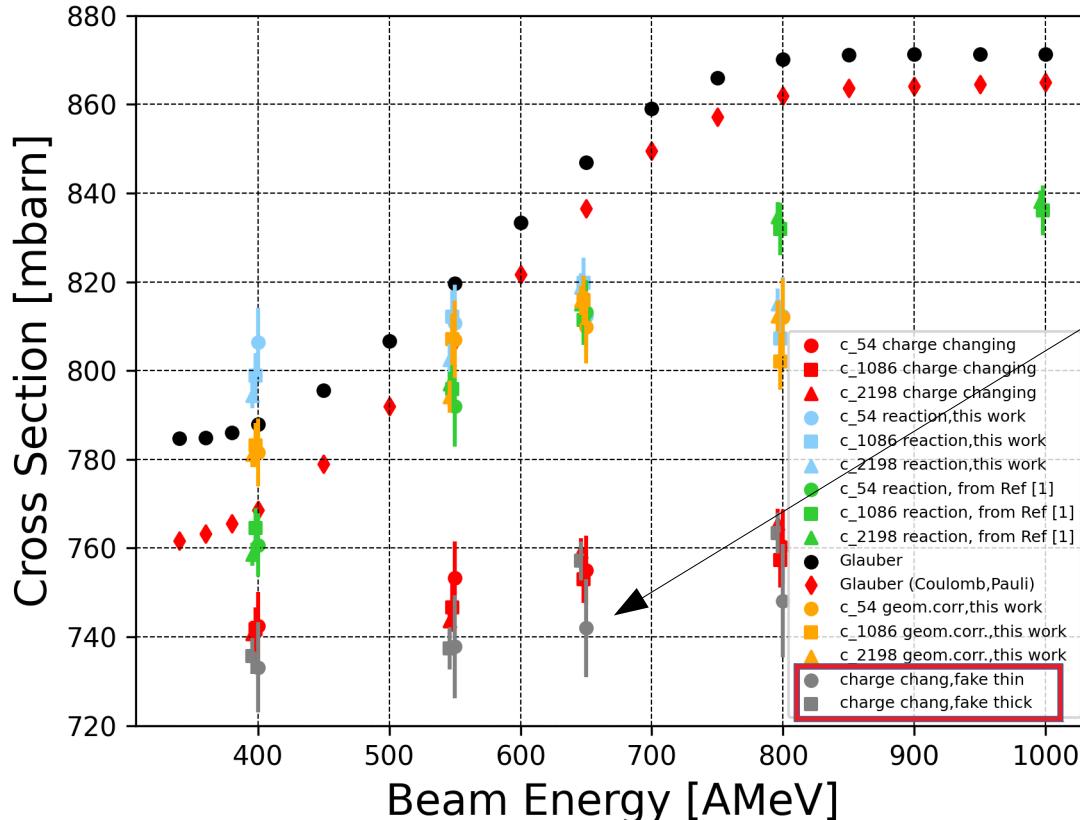
## **S444 Reaction cross section – Discussion during R3BWeek**

# Q1: In S467 empty runs were problematic. How about subtracting different target runs?

New “empty” runs = runs with 5.4mm carbon target

New “thin” target = 0.534 cm

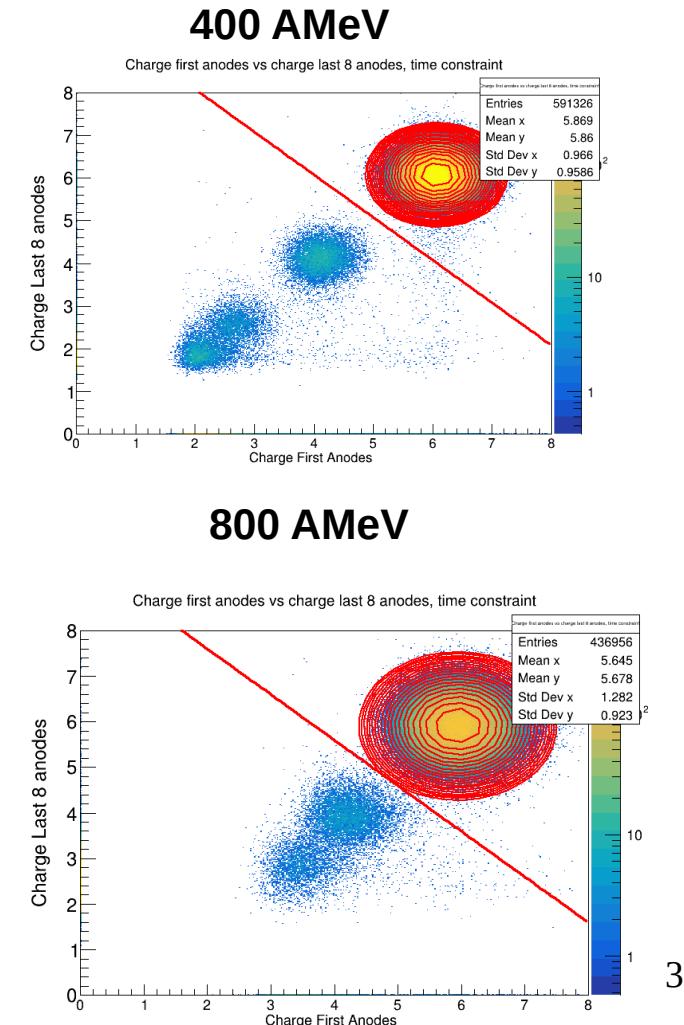
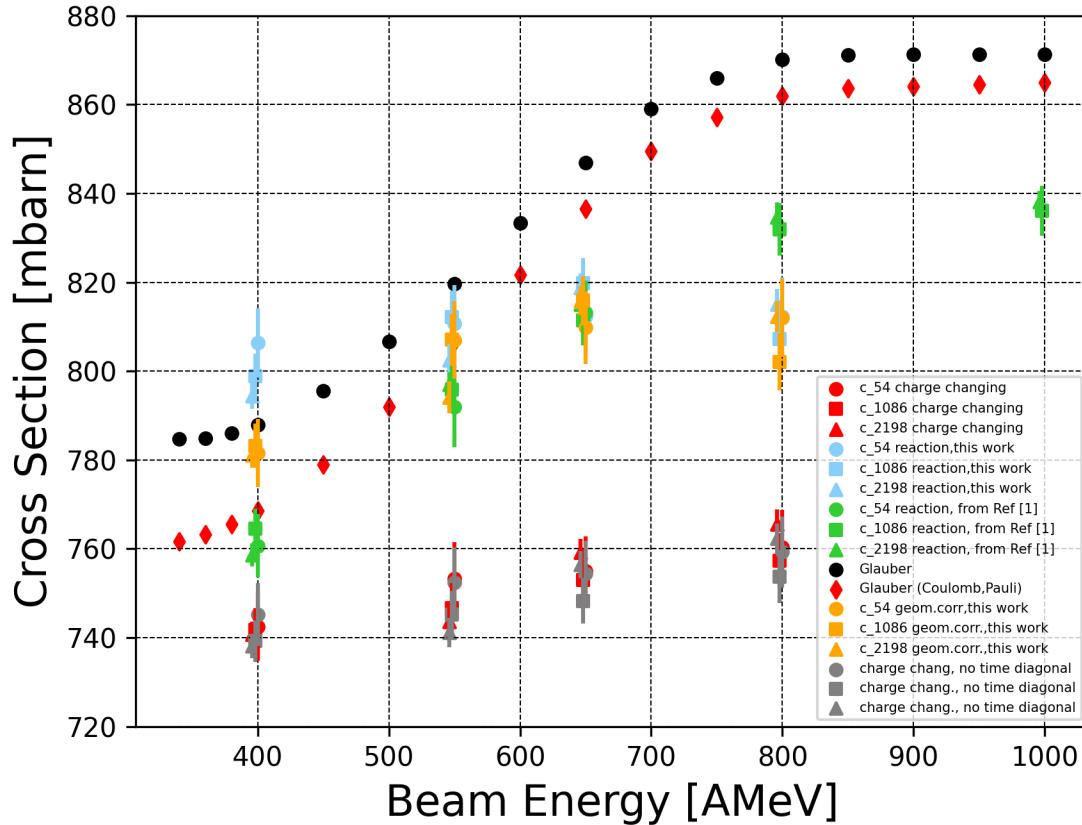
New “thick” target = 1.6477 cm



Consistent with the measurements when using “true” empty runs, slightly lower values.  
Larger error bars. This may be because of higher statistics in the “true” empty runs

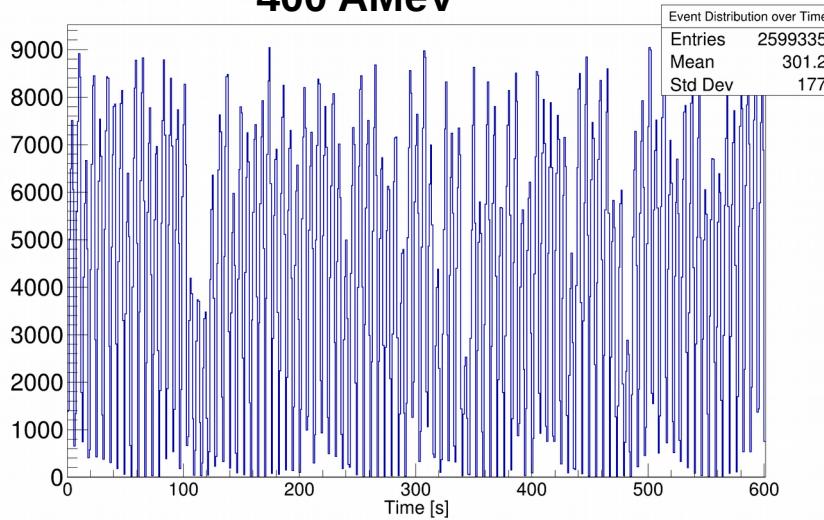
## Q2: You use the same sigma cut (3.5) sigma for all beam energies. What if you use a dynamic cut?

With diagonal cut in gray: no difference to the fixed sigma cut



### Q3: Did you check the beam rate? Maybe this explains the minor values at 800 AMeV

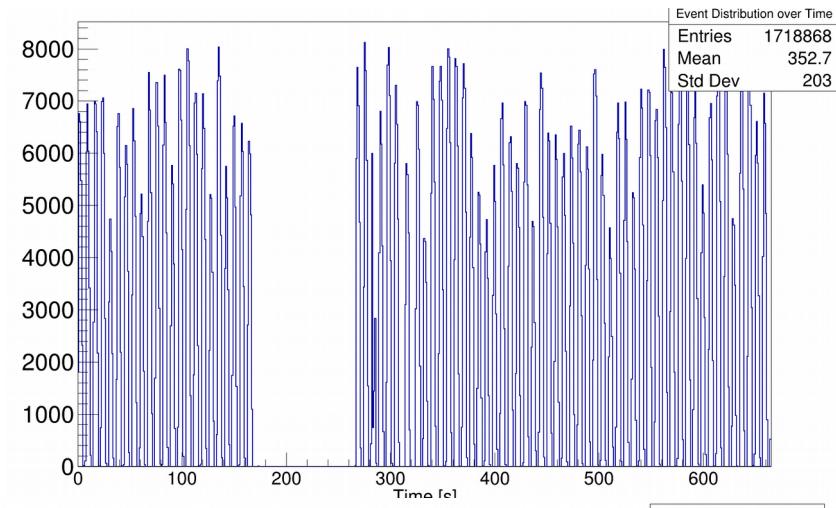
400 AMeV



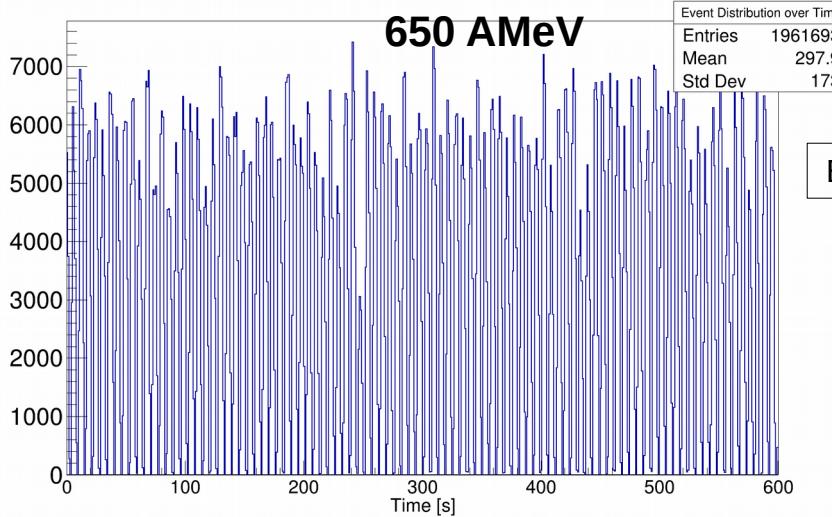
Target runs:

Selected events:  
→ tpat != 0  
→ hitnr start = 1

550 AMeV

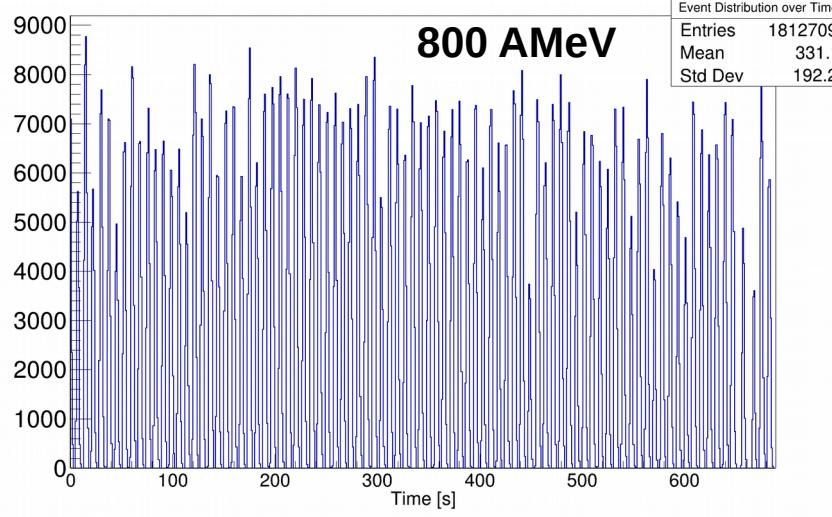


650 AMeV



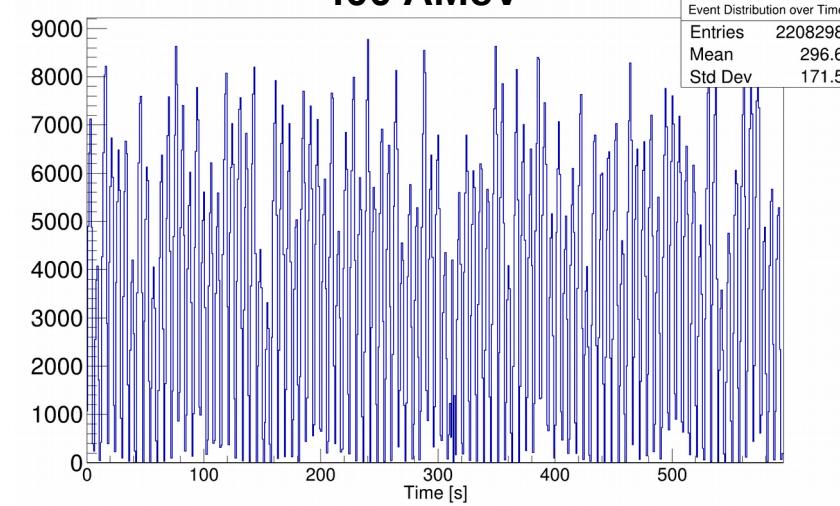
Binsize = 1 second

800 AMeV

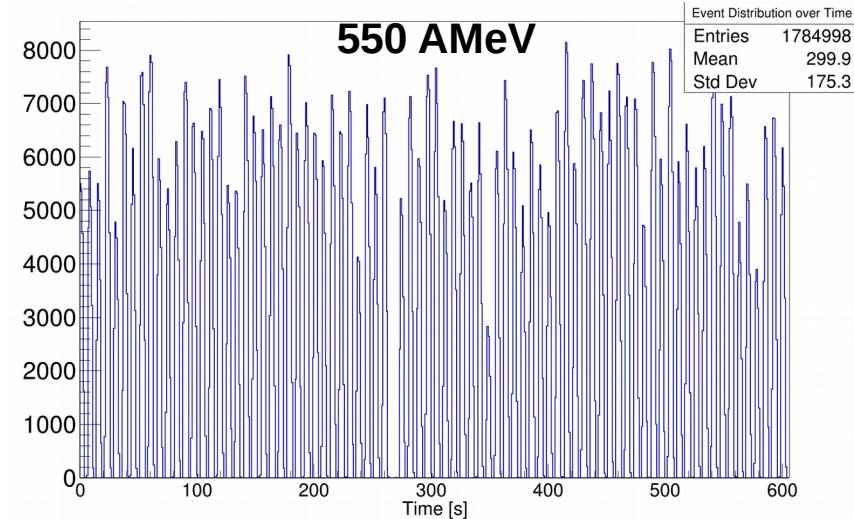


# Empty runs

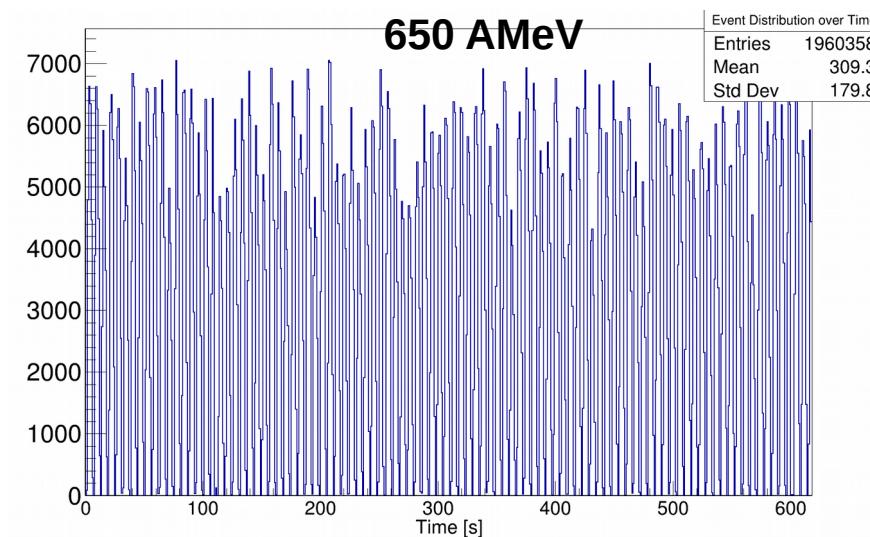
**400 AMeV**



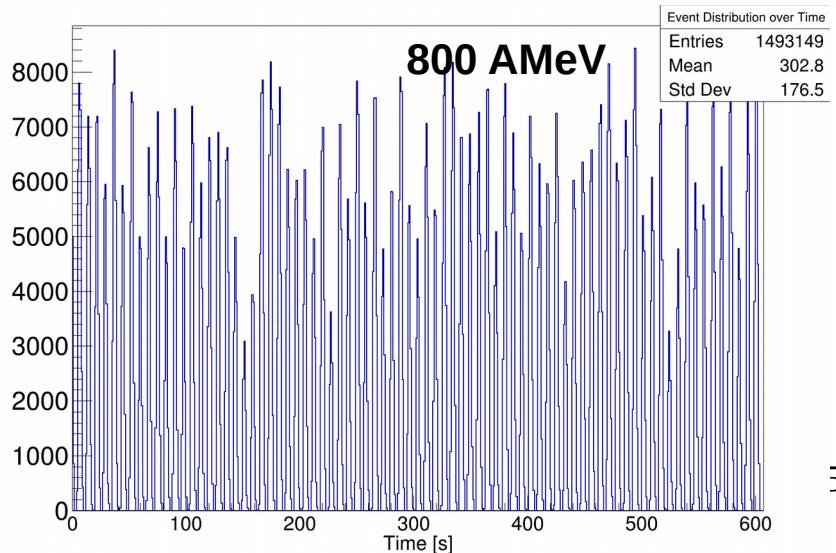
**550 AMeV**



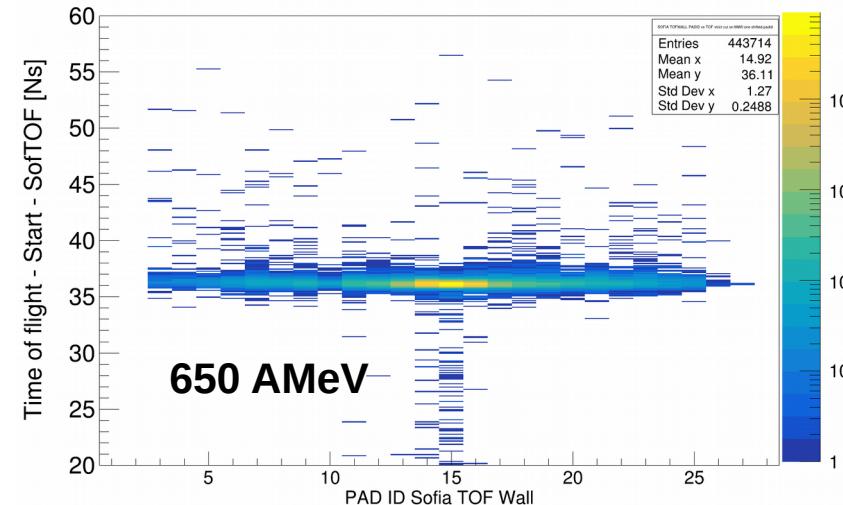
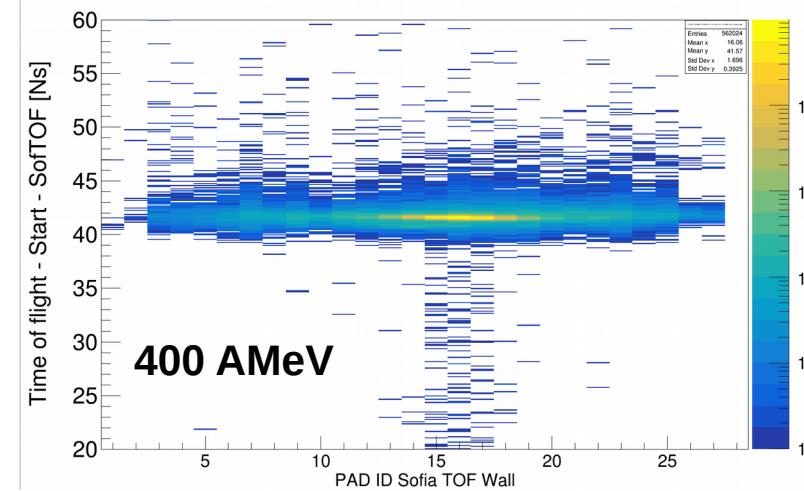
**650 AMeV**



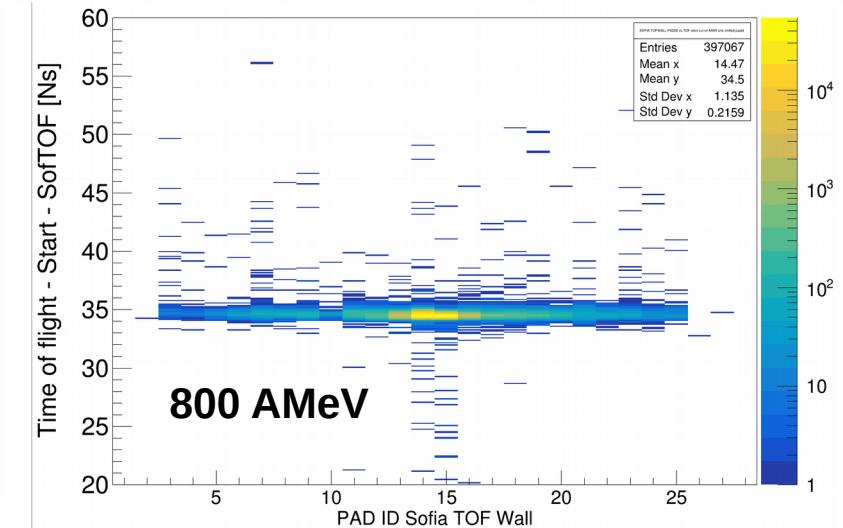
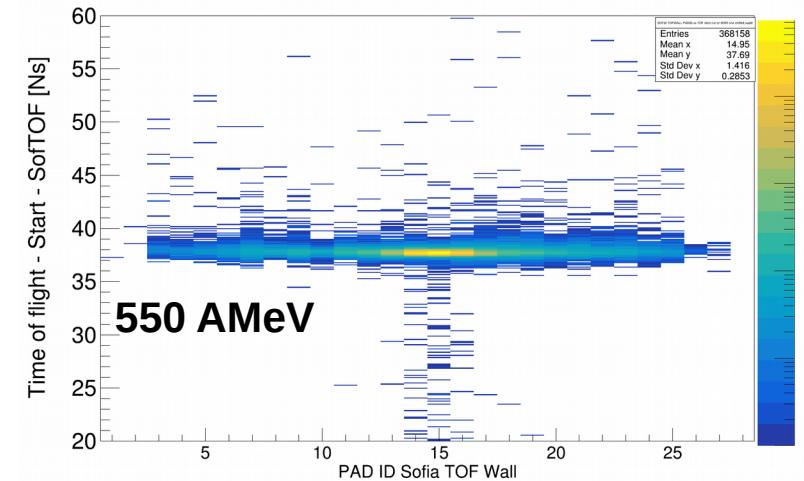
**800 AMeV**



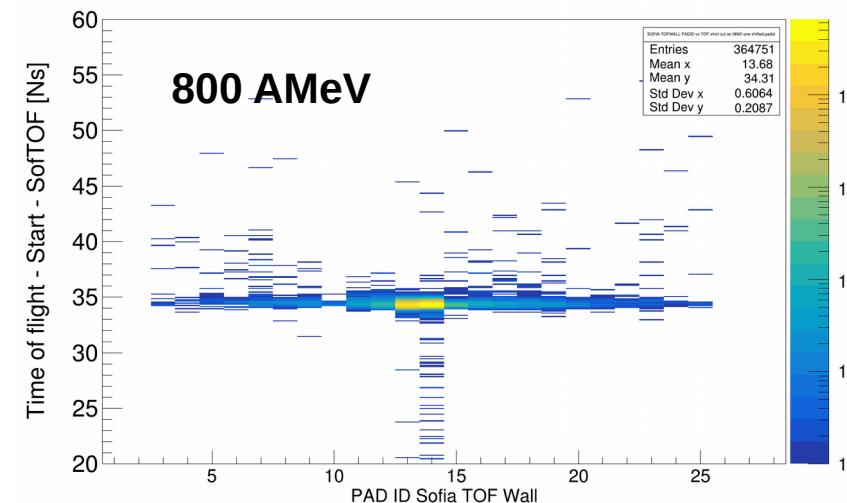
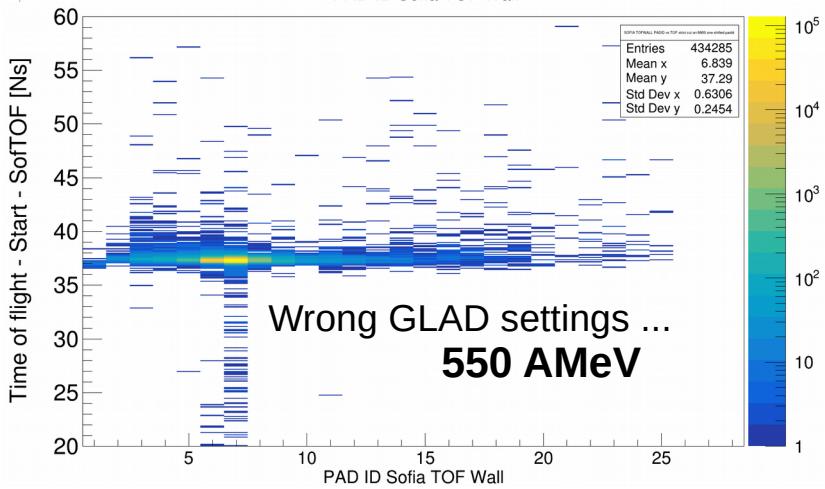
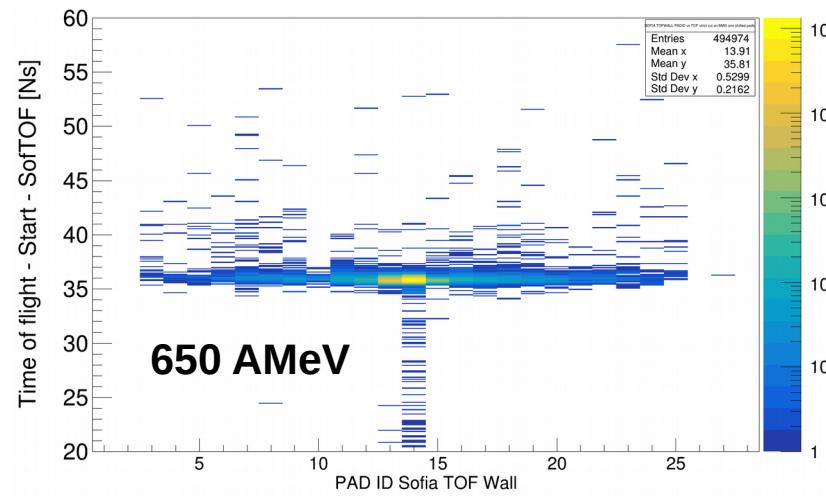
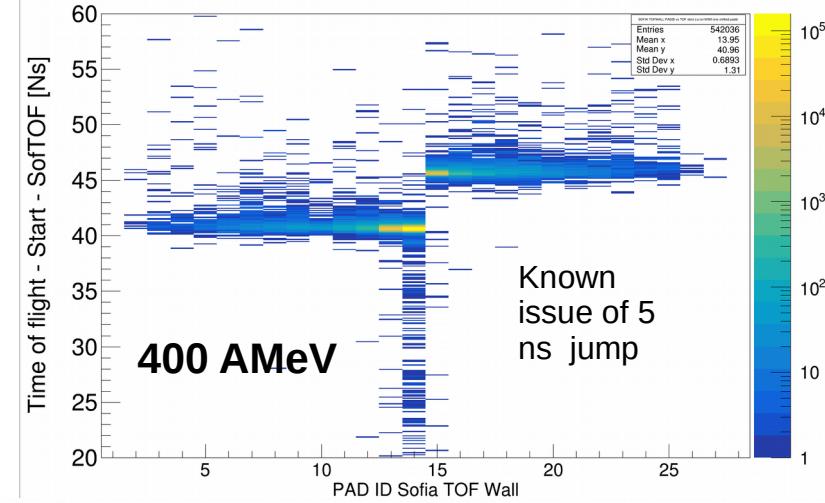
# Q4: Have you plot TOF PadID vs time of flight? In S467 the beam was striking ROLU. This could affect measurements



Applying strict cuts on charge of incoming ion and MW0 x-y cut

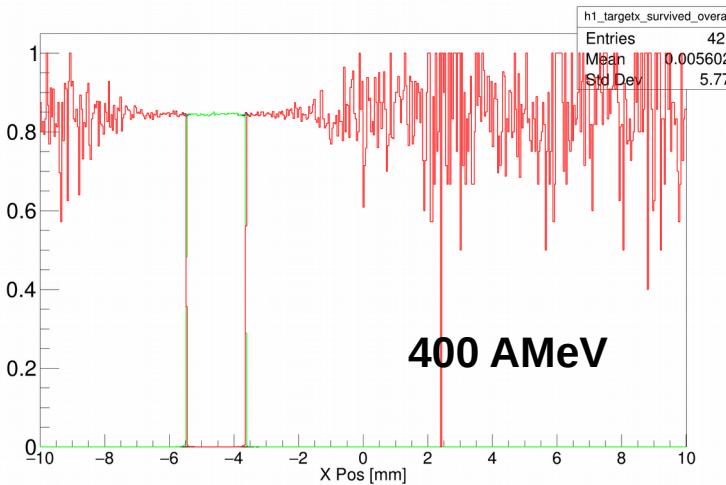


## Empty runs

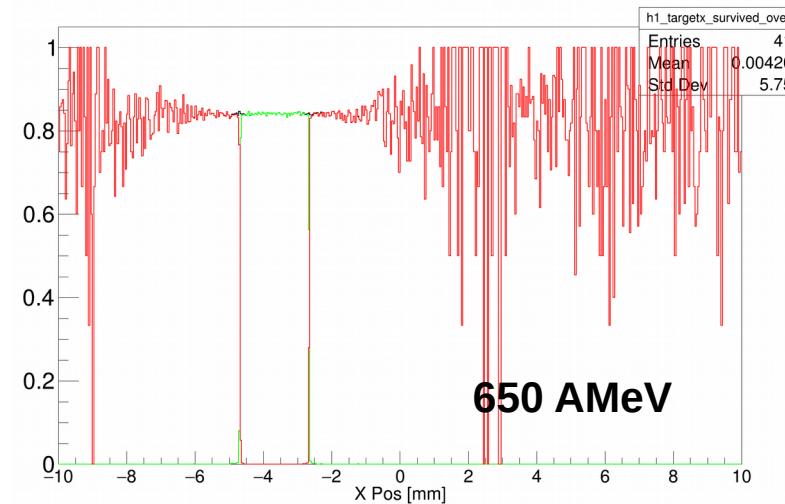


# Ratio survived ions vs x position at target

Beam x position on target position r3bmusic charge cut, CARBON overall

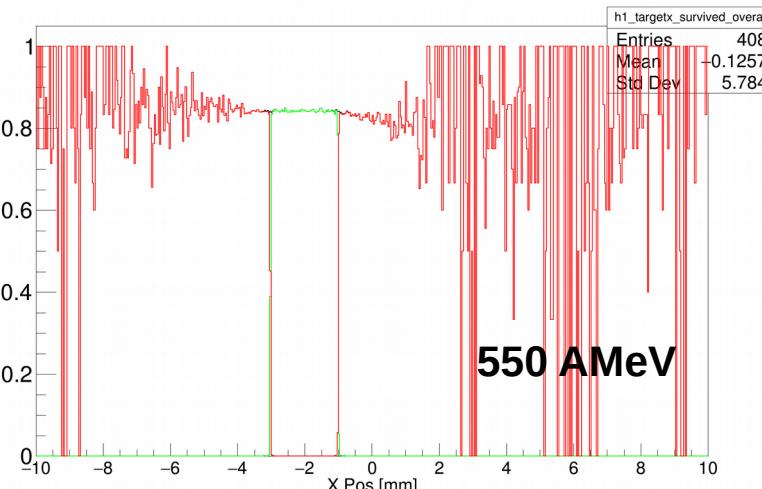


Beam x position on target position r3bmusic charge cut, CARBON overall

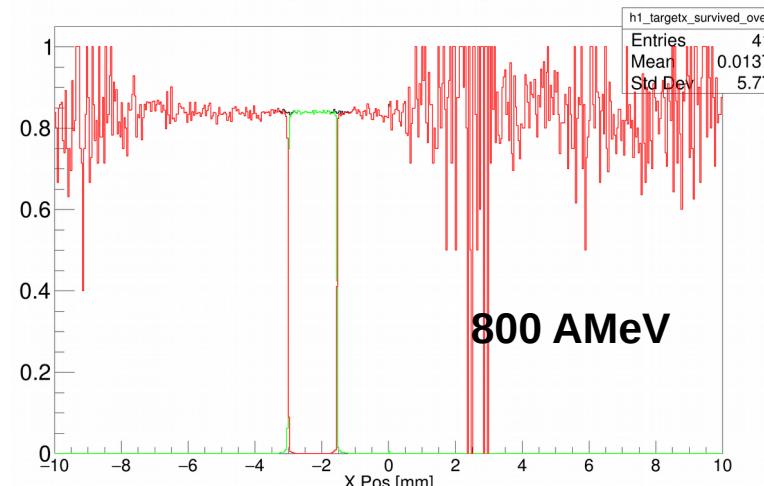


**Red:** ratio survived vs incoming carbon, outside MW0 -x cut  
**Green:** ratio survived vs incoming carbon, inside MW0-x cut  
**Black:** ratio survived vs incoming carbon both inside and outside MW0 -x cut (not well visible)

Beam x position on target position r3bmusic charge cut, CARBON overall



Beam x position on target position r3bmusic charge cut, CARBON overall



# Empty runs:

