



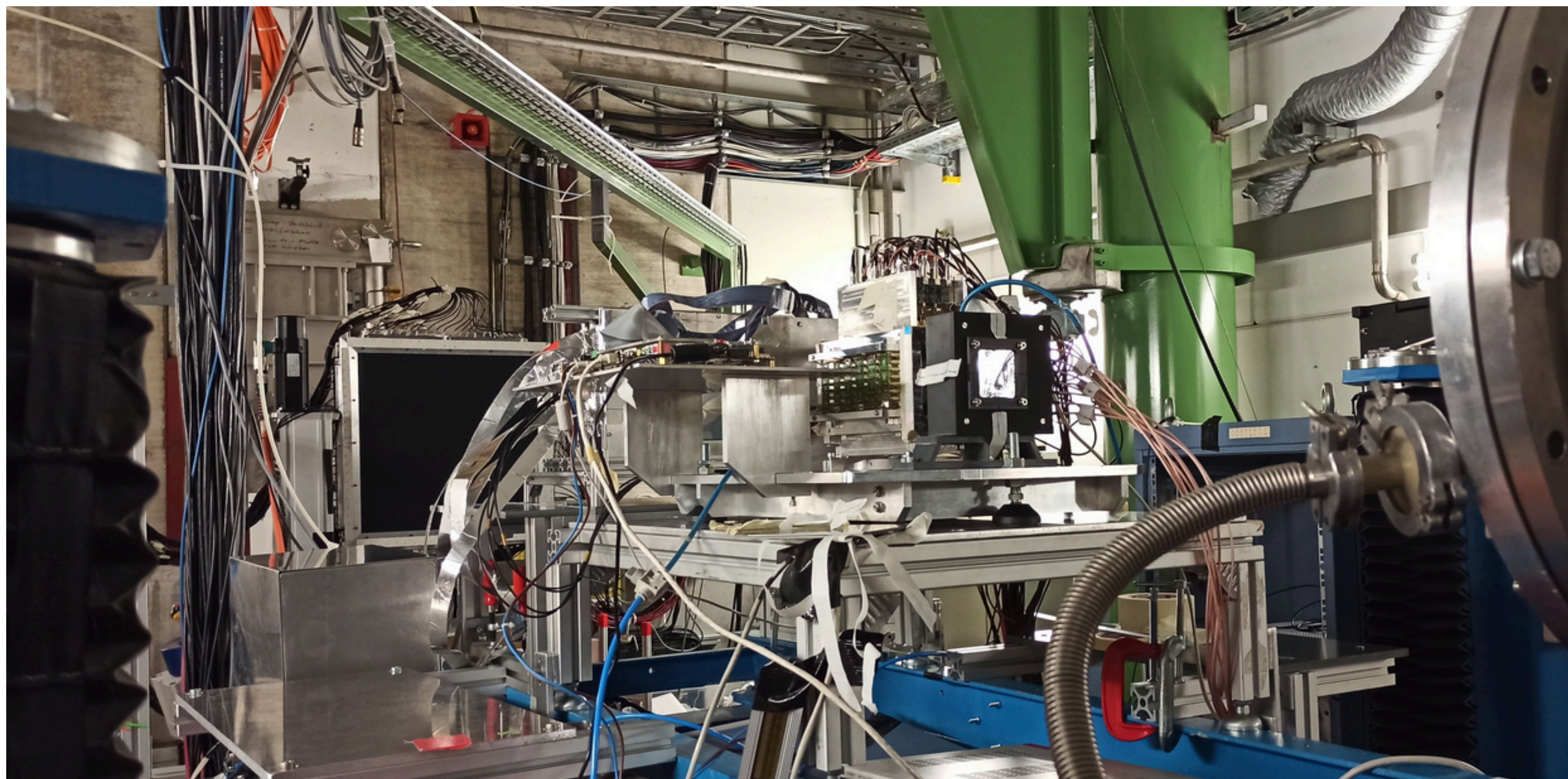
Start counter performance @ GSI 2021

Giacomo Traini on behalf of all the people involved in ST-TW-trigger...

FOOT physics meeting - 28 July 2021



Setup

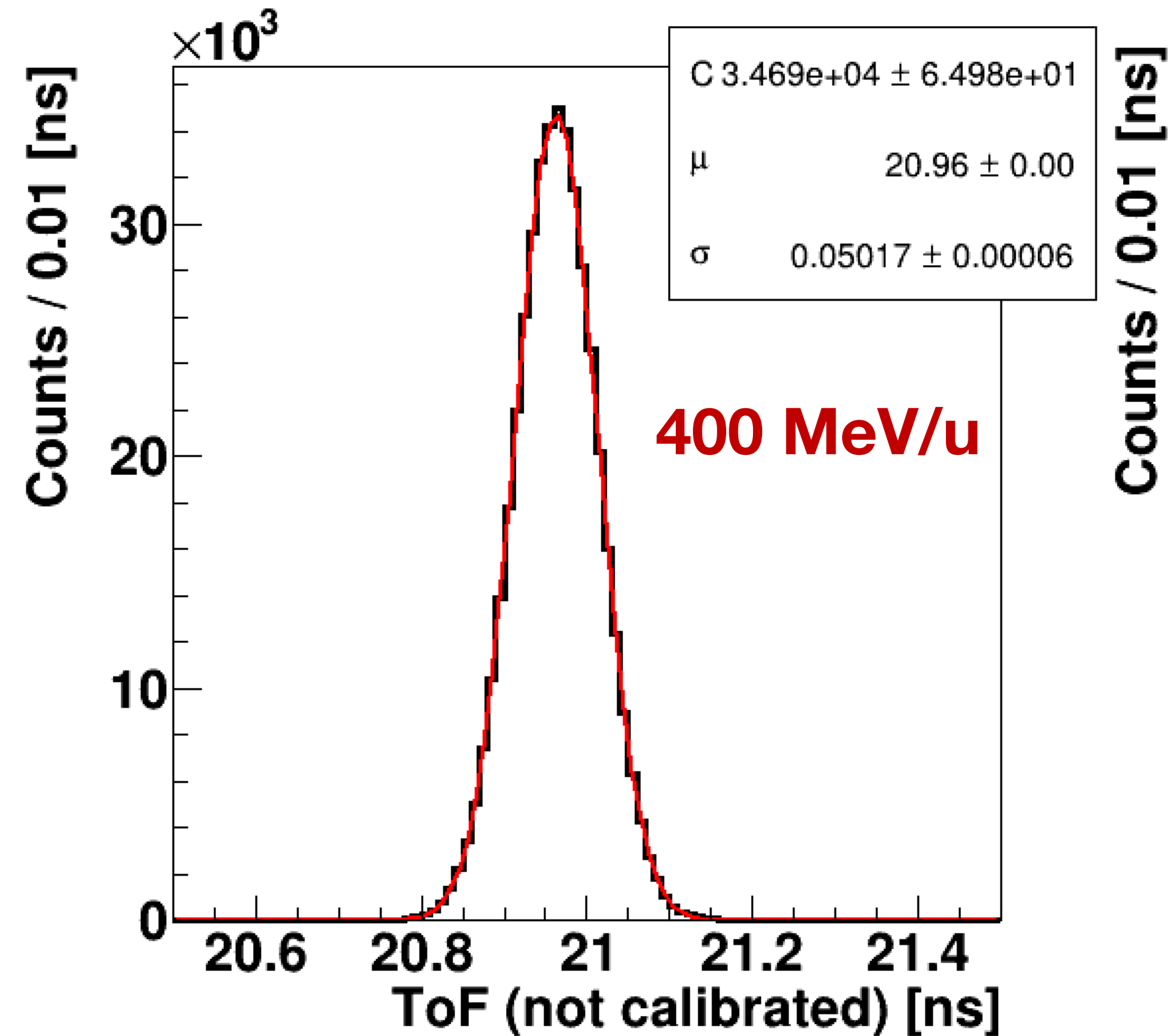


- The ST detector has not been changed with respect to the latest data-taking @ GSI in 2020 (12C ion)
- This time we used a different kind of cables (no lemo inter-connectors, double screen) to hopefully reduce the impact of noise. **It worked! Much less effort in the threshold tuning**

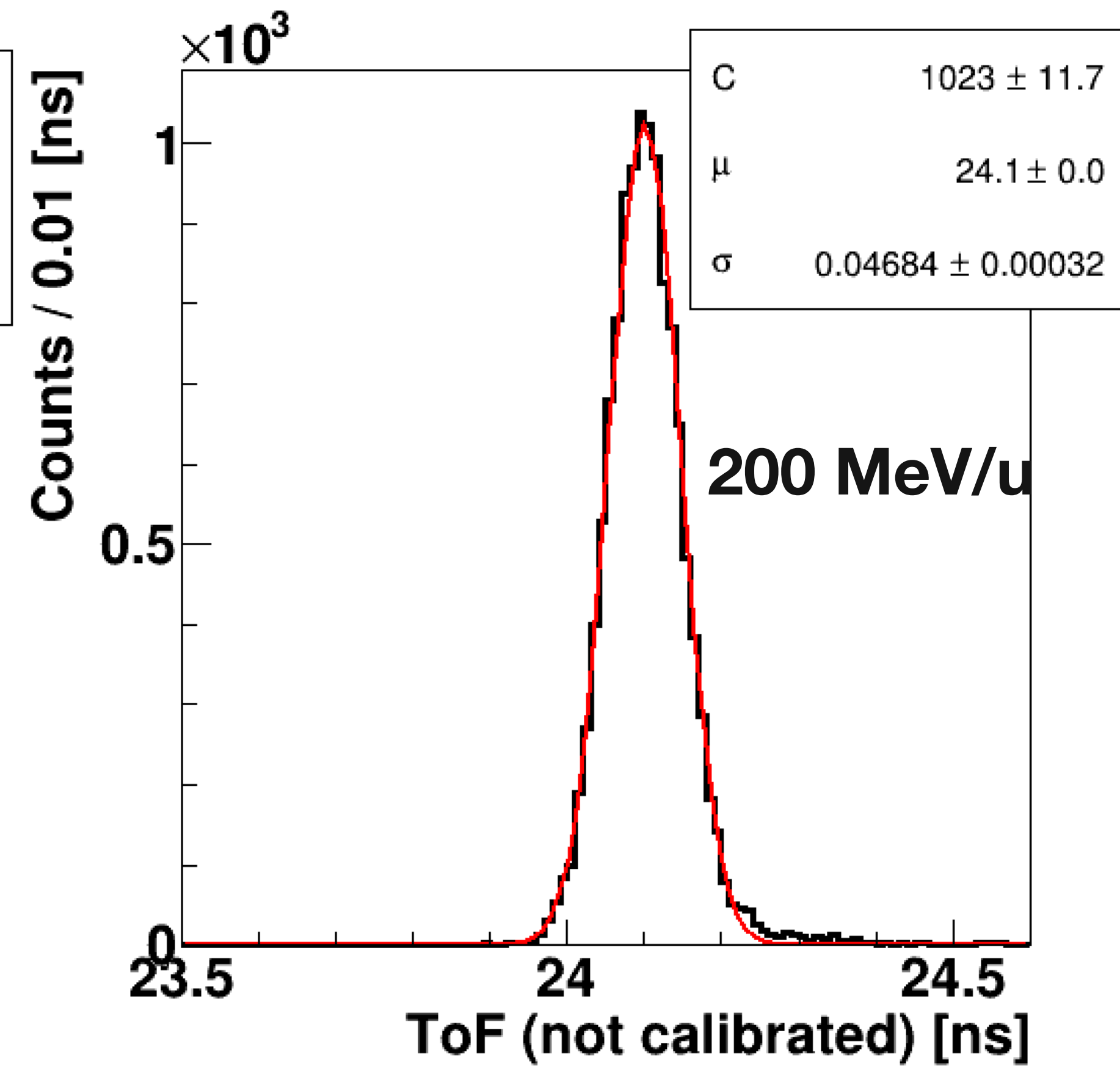
Time of flight



- ToF with respect to the TW central bar (front)
- Resolution of **47 ps @ 200 MeV/u** and **50 ps @ 400 MeV/u**

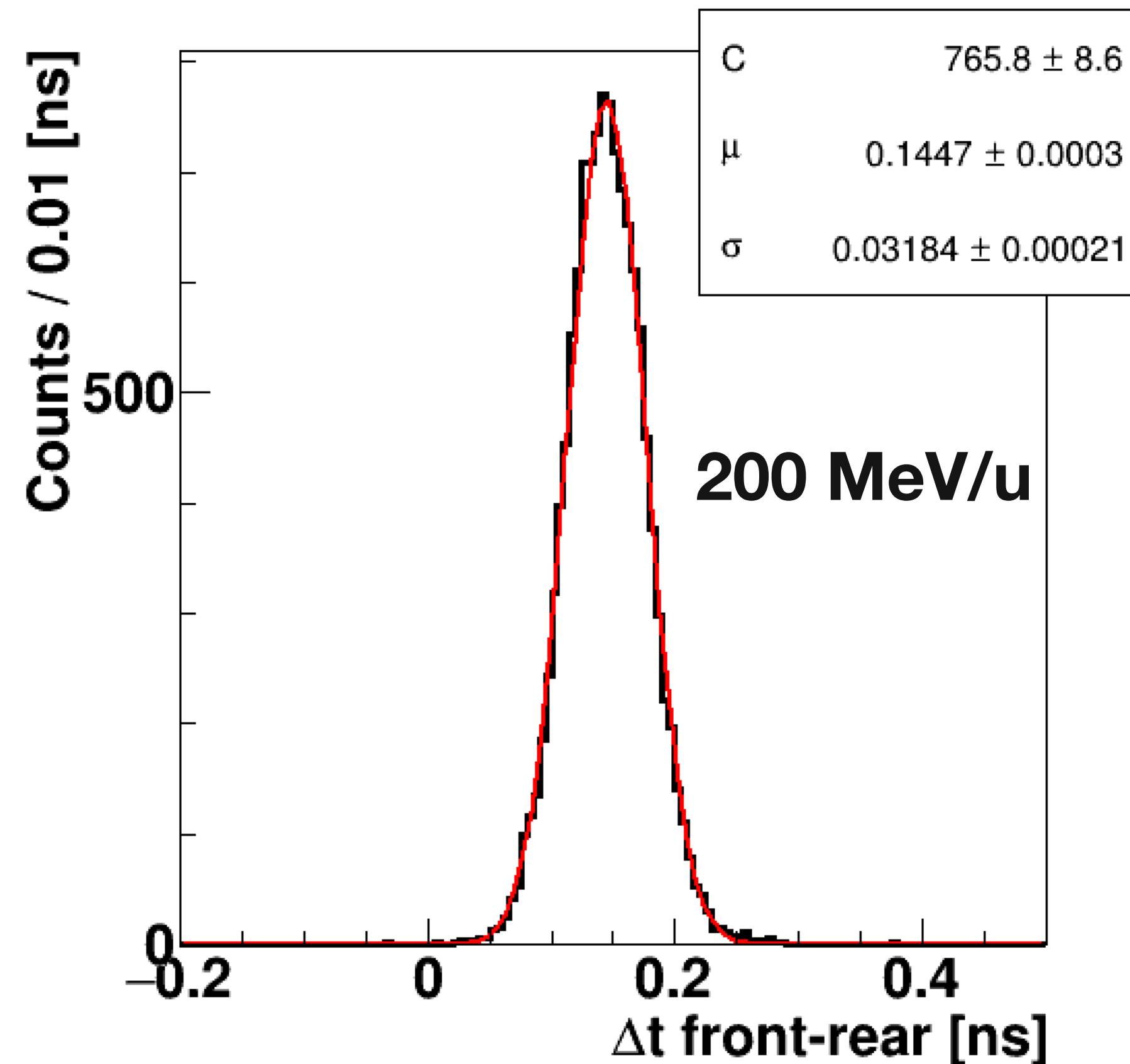
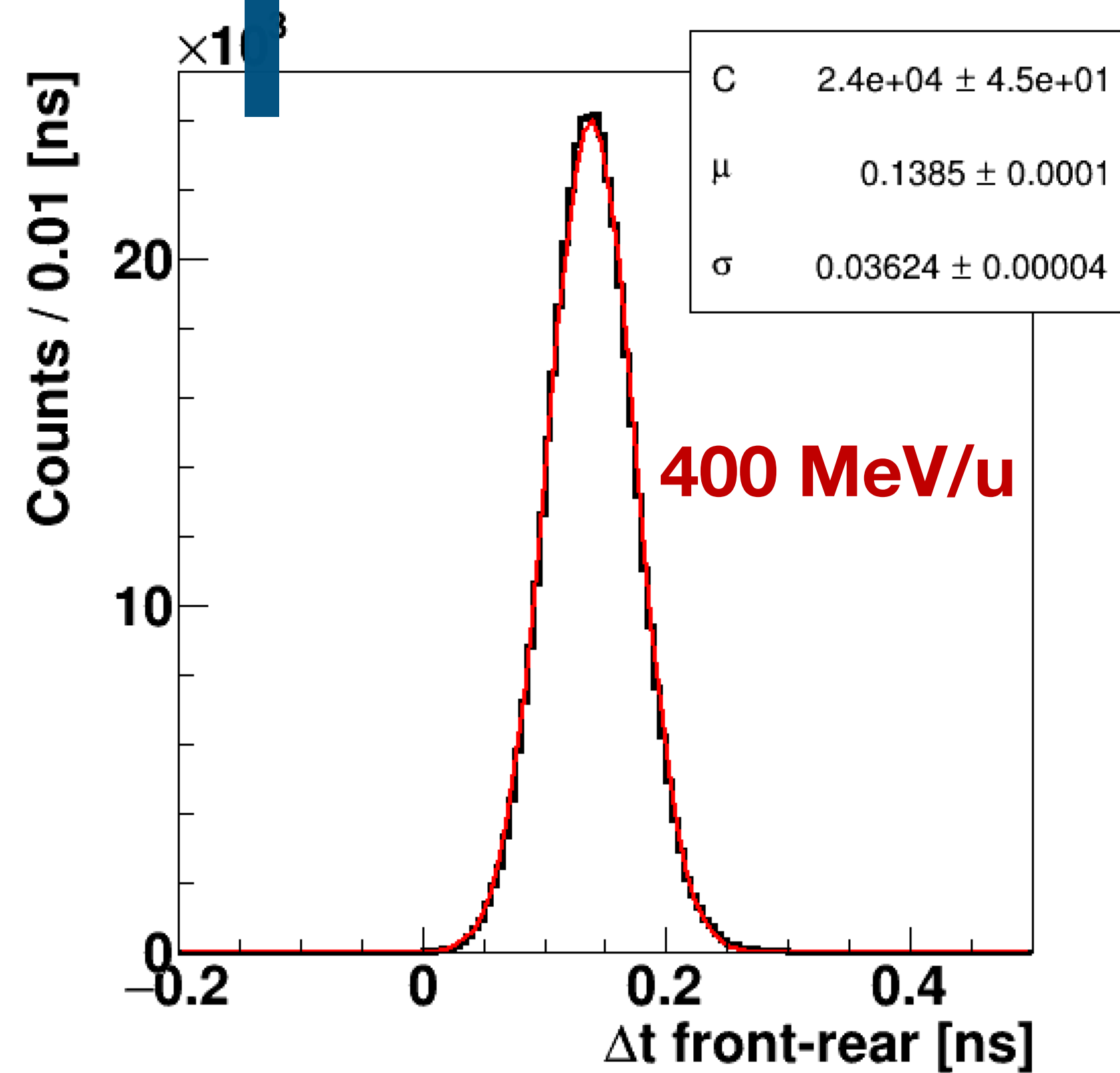


Run 4307 (MB)



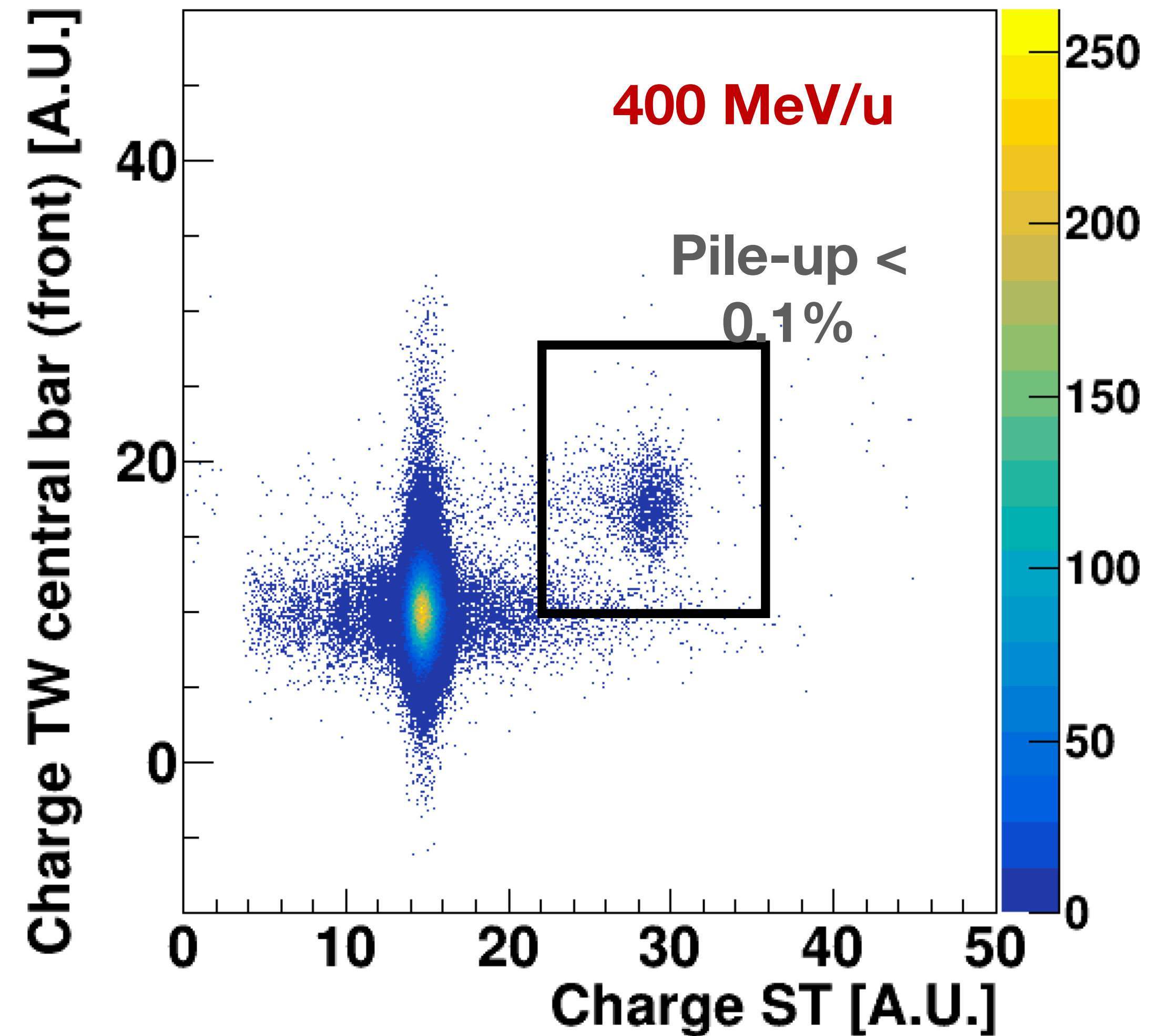
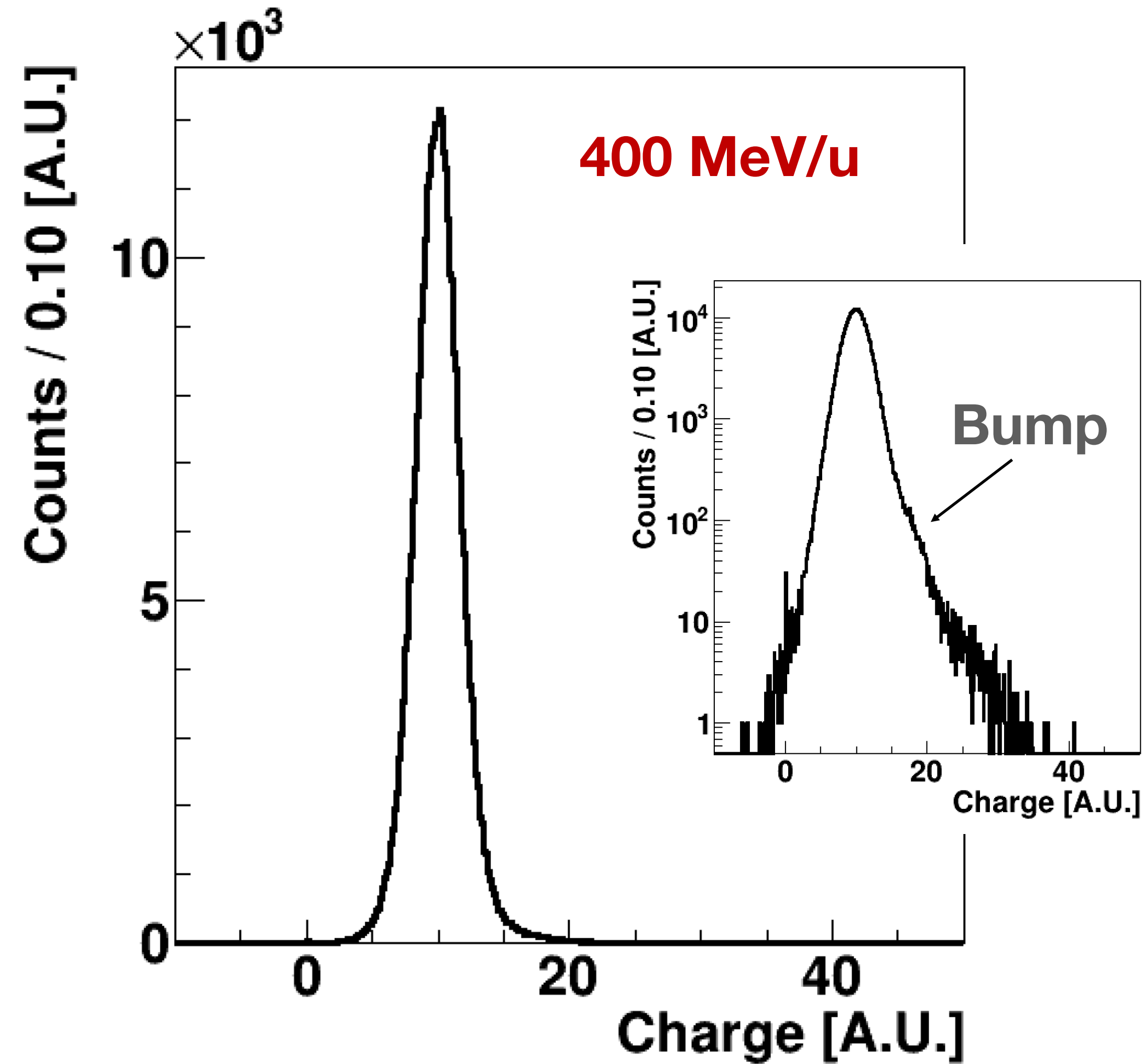
Run 4242 (MB)

Single detectors resolution

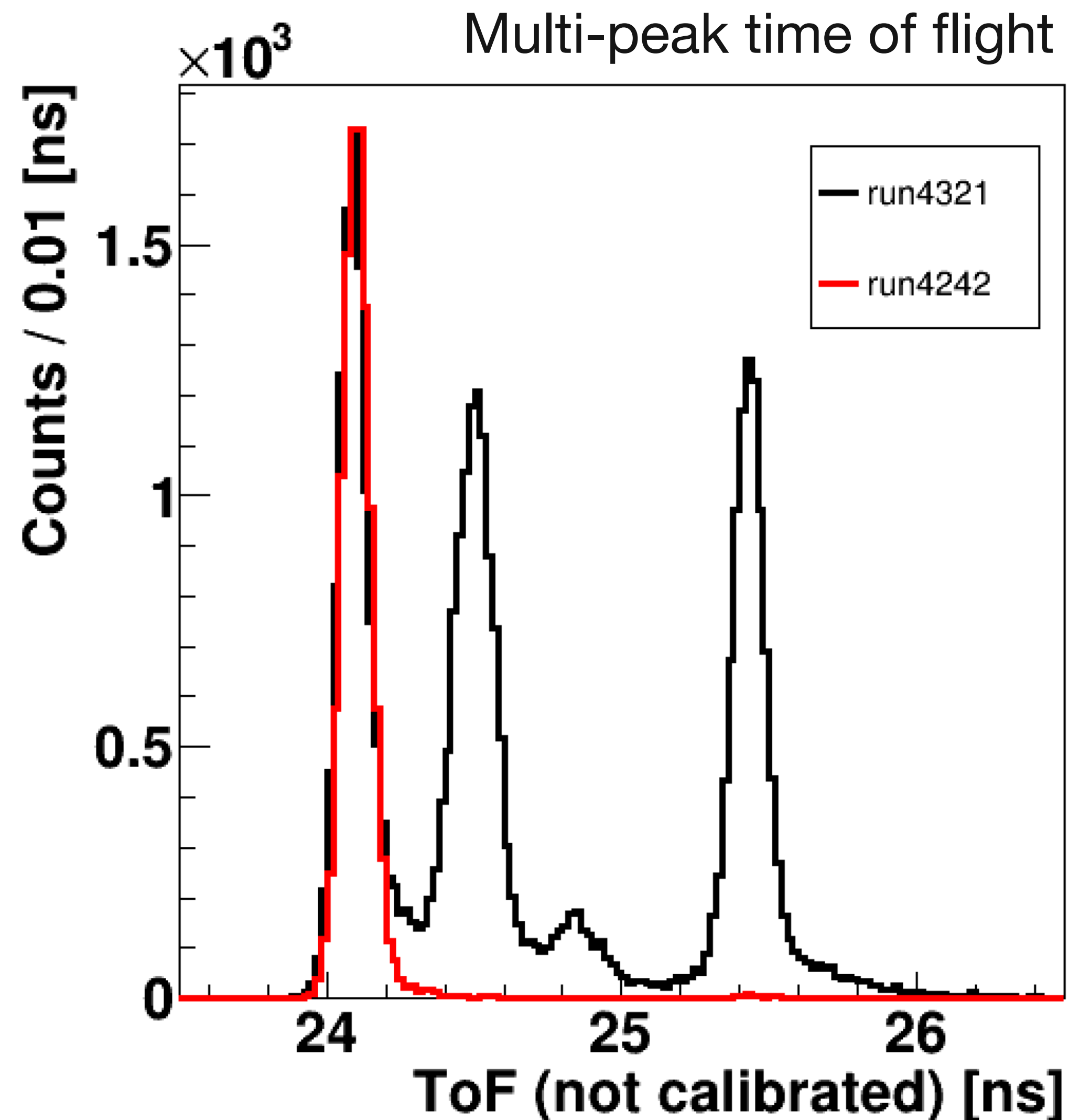


- Assuming an equal energy loss between the bars (yes, it is not exactly true) $\sigma_{\text{bar}} \sim \sigma_{\Delta t} / \sqrt{2}$
- $\sigma_{\text{bar}} \sim 25\text{ps}$ @ 400 MeV/u
 $\sigma_{\text{bar}} \sim 22\text{ps}$ @ 200 MeV/u
- $\sigma_{\text{ST}} = \sqrt{\sigma_{\text{ToF}}^2 - \sigma_{\text{bar}}^2}$
- $\sigma_{\text{ST}} \sim 43\text{ps}$ @ 400 MeV/u
 $\sigma_{\text{ST}} \sim 40\text{ps}$ @ 200 MeV/u

ST charge response



Monsters...



There are few runs @ 200 MeV/u in which I see a "particular" ToF pattern... this seems to be related to few runs "around" 4321

I suspect this is related to some beam instability (large spot size?) (also the TW observe some strangeness Roberto will show in his presentation)