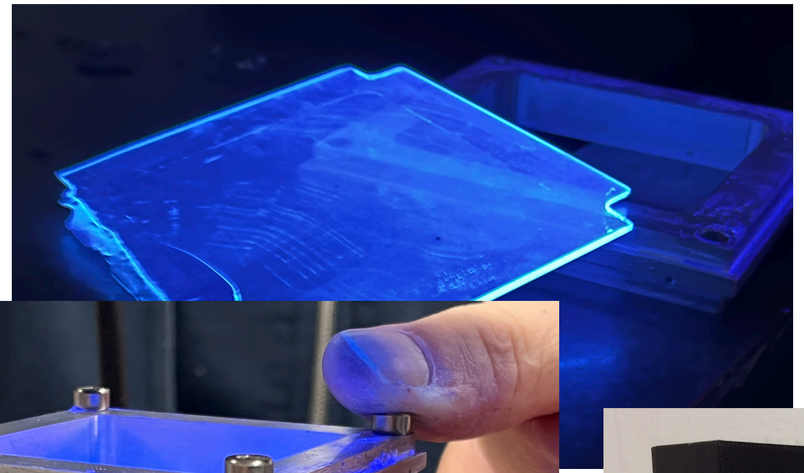
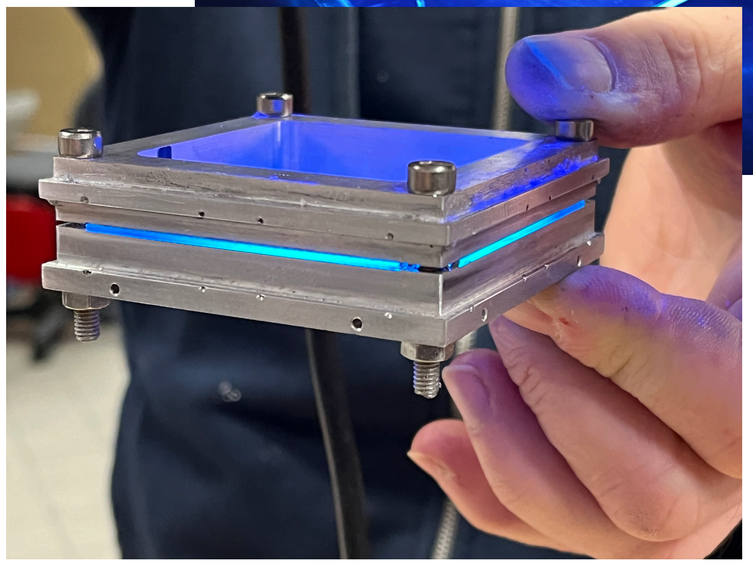
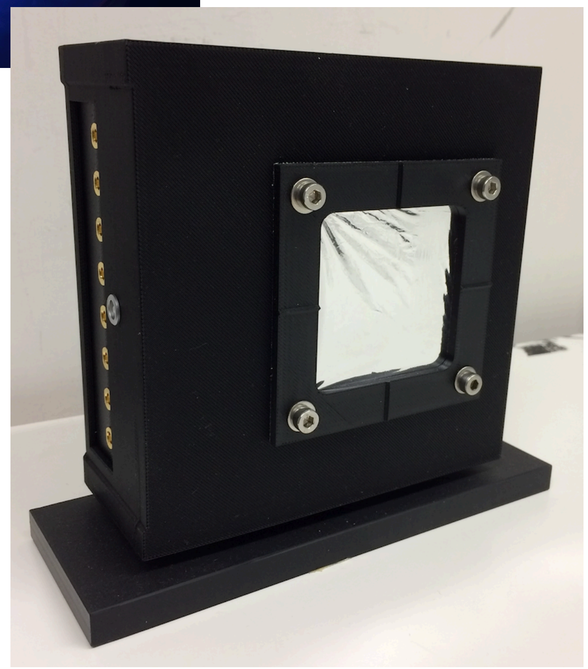
ST status

Giacomo Traini

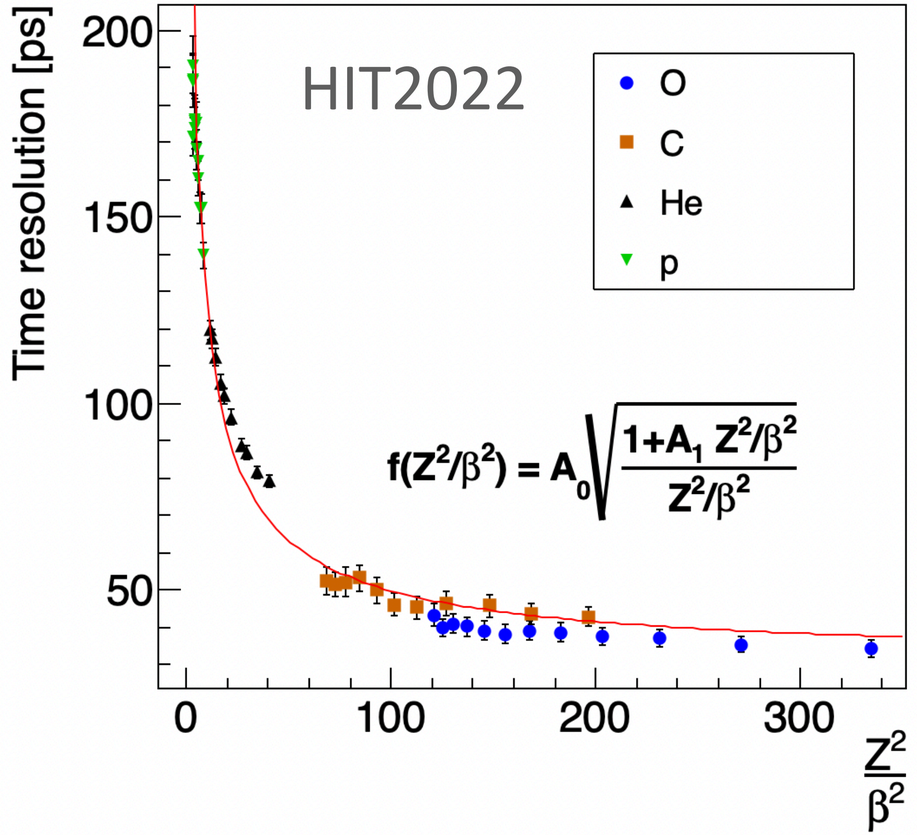
There is little to say…



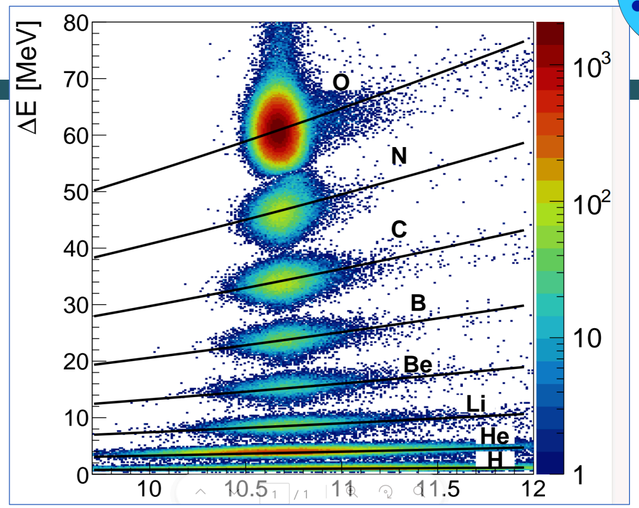




Performance in terms of time resolution ~ stable (small difference between campaigns due to different noise level, taken under control with filters in frequency domain)



ST perspectives (I)



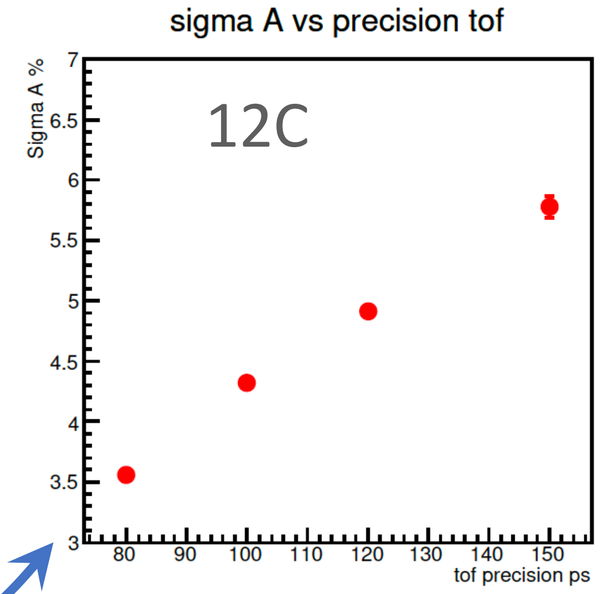
- The ToF resolution impacts on:
  - **Z-id,** Main current limitation due to pile-up in TW bars
  - **Mass-id**, whatever method is used (Ekin or p) .

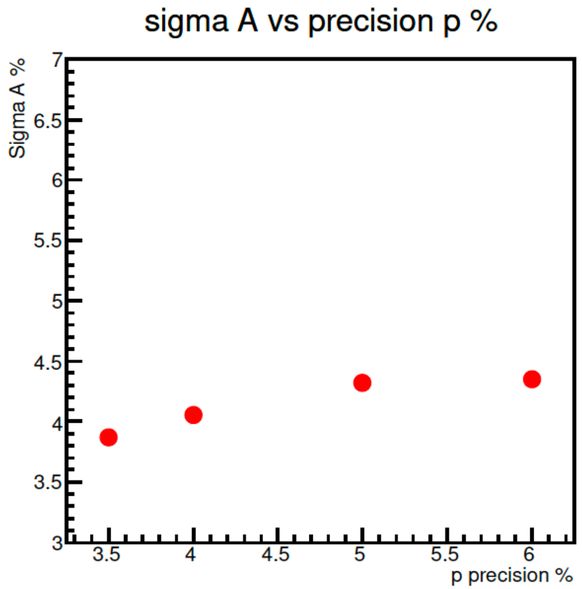
$$A_2 = \frac{E_k}{U \cdot c^2 \left(\gamma - 1\right)}$$

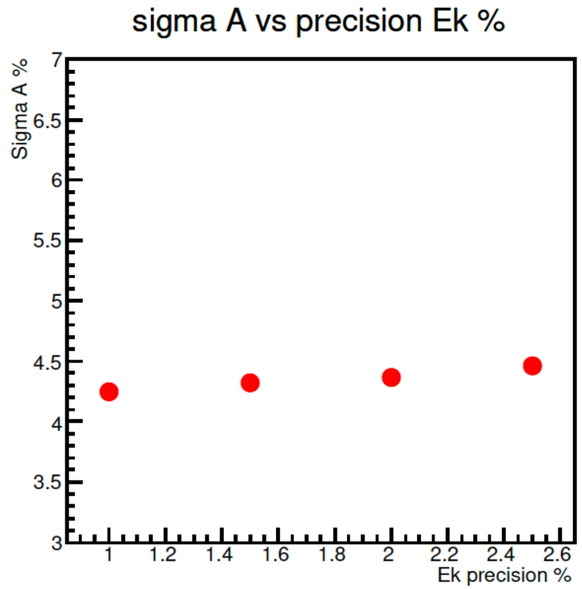
$$\frac{\sigma_m}{m} \propto \sqrt{\frac{\sigma_{ToF}^2}{\left(\left(1+\frac{E_k}{m}\right)^3 - 1 + \frac{E_k}{m}\right)} + \frac{\sigma_{E_k}^2}{E_k^2}}$$

From CDR (2017, many white hair ago)

N.B for light fragments ToF reso is dominated by TW resolution







We are here

ST perspectives (II)

- The “battistero” is currently in standby (the home-made, planar shaped fast scintillators did not give fantastic results)

- In my opinion **there are more urgent issues to address** in FOOT now, but:
  - Experimental results are coming, (calo?, tracking?) whether they suggest that for “standard” beam (12C, 16O in the range 100-400 MeV/u) that we need better resolution wrt the predictions we could start to study a different version (thicker? more channels?)

  - What about other beams of higher energies?