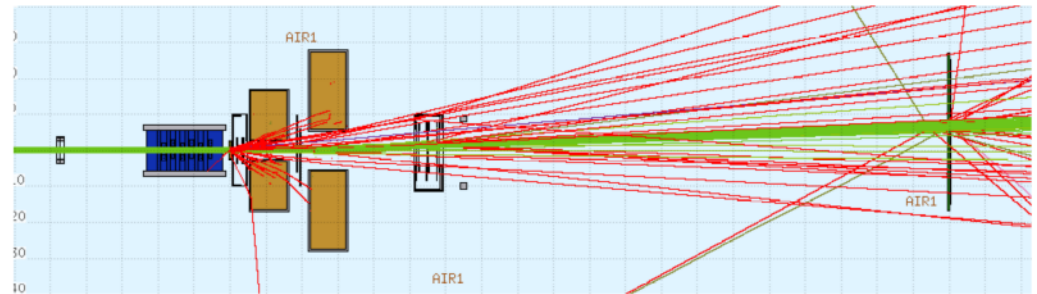
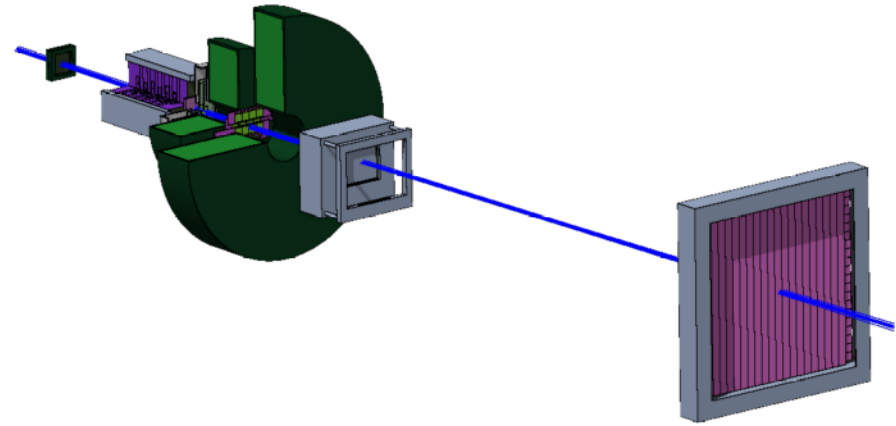


Towards double differential cross section measurement with GSI2026 MC data

Francesco Morisetti

GSI2026 experimental setup

- MC campaign GSI26PS_MC
- $^{12}\text{C} / ^{16}\text{O}$ at **700 MeV/n** impinging on a 5mm graphite target
- Highest energy reached so far with the FOOT detector, interesting for space radioprotection
- Full setup except for the CALO. At this energy, the final-state fragments will not be fully contained



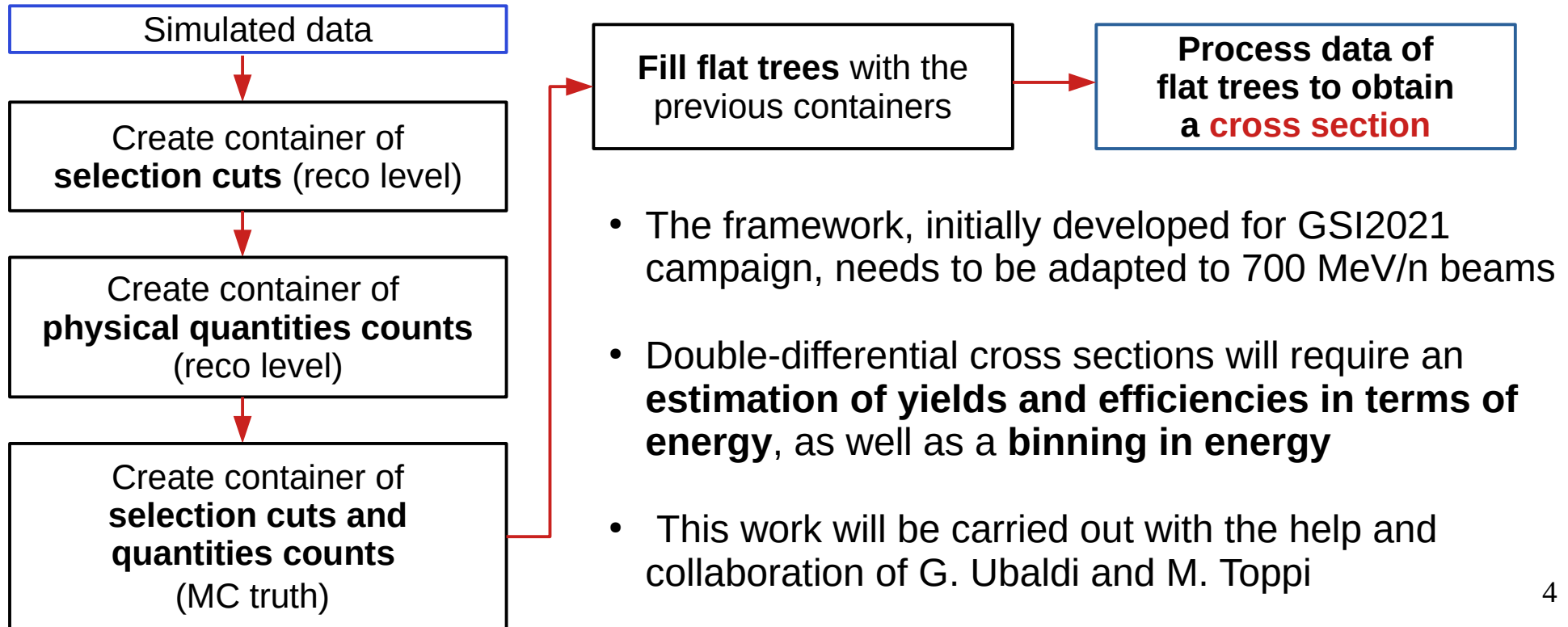
Purpose of this work

- Performance assessment of the whole event reconstruction chain at a limit energy for the FOOT detector
- First attempt to reconstruct **isotopic double differential cross section** (angle & energy) using MC simulated data

$$\frac{d^2\sigma(A, Z, \theta, E)}{d\Omega dE} = \frac{Y(A, Z, \theta, E)}{N_{\text{beam}} N_t \epsilon(A, Z, \theta, E) \Delta E \Delta\Omega(\theta)}$$

Tools and strategy

The cross section measurement will be carried out using **G. Ubaldi's analysis framework** in SHOE (*GlobalAna* class), a powerful tool based on ROOT RDataFrame to optimize the execution



Thanks!