

Attività del gruppo 3 della Sezione di Torino dell'INFN

Gli esperimenti

ALICE

• Responsabili Locali: M. Maserà e C. Oppedisano

Richieste nella sessione del 12.06 e 13.06

ePIC

• Responsabile Locale: M. Ruspa

Richieste nella sessione del 13.06

FOOT

• Responsabile Locale: P. Cerello

JLAB12

• Responsabile Locale e Nazionale: A. Filippi

Richieste nella sessione del 12.06

LUNA 3

• Responsabile Locale: F. Cavanna

Richieste nella sessione del 12.06

NA60+

• Responsabili Locali: E. Scomparin e R. Arnaldi

Richieste nella sessione del 13.06

n_TOF

• Responsabile Locale: G. Gervino

Richieste inviate per Officina Meccanica e Laboratorio Elettronica

NUMEN

• Responsabile Locale: D. Calvo

Richieste nella sessione del 12.06

REST

• Responsabile Locale: D. Calvo

ULYSSES

• Responsabile Locale e Nazionale: A. Feliciello

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FOOT (FragmentatiOn Of Target)

Calorimeter

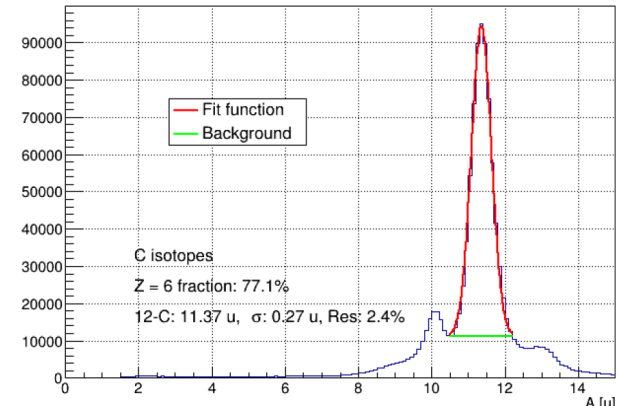
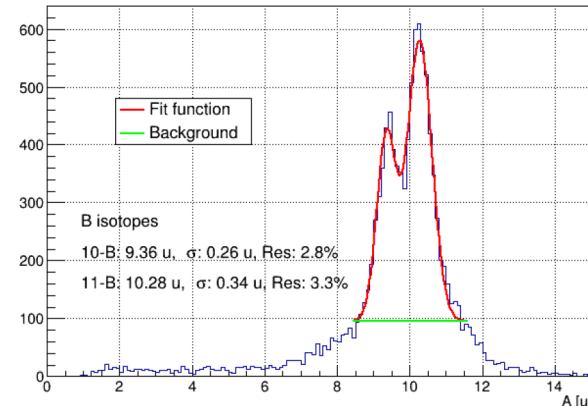
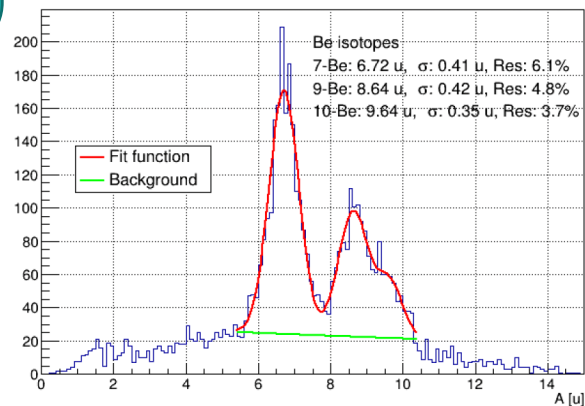
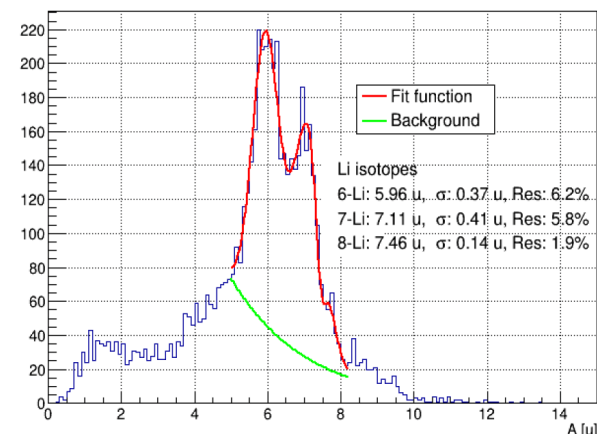
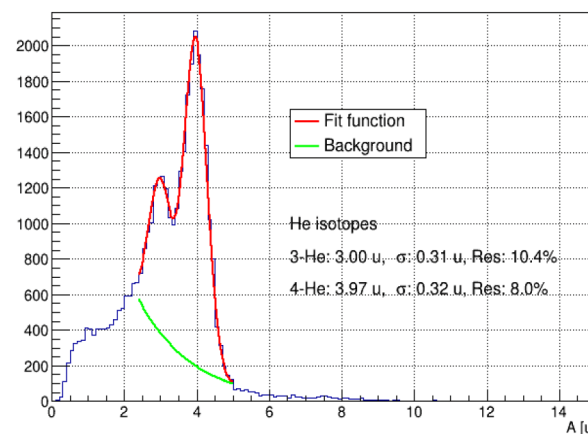
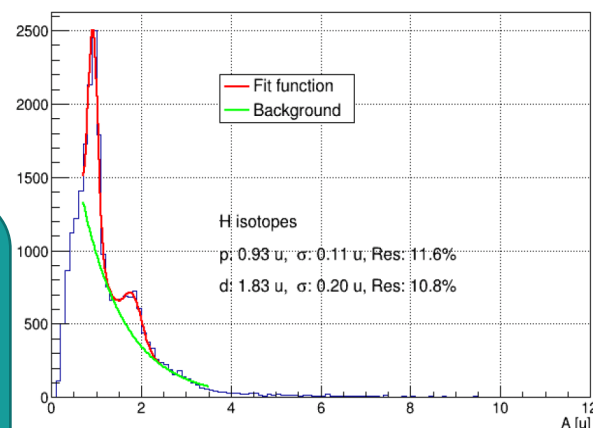
- Calibrated and used in 2024 data taking
- Smooth operations
- First Mass reconstruction

Fragmentation measurements for

- Particle Therapy
- Space Radioprotection

Mass peaks fitting

- 2026 activity:
 - Data takings (CNAO &/or GSI)
 - New calibration
 - Maintenance

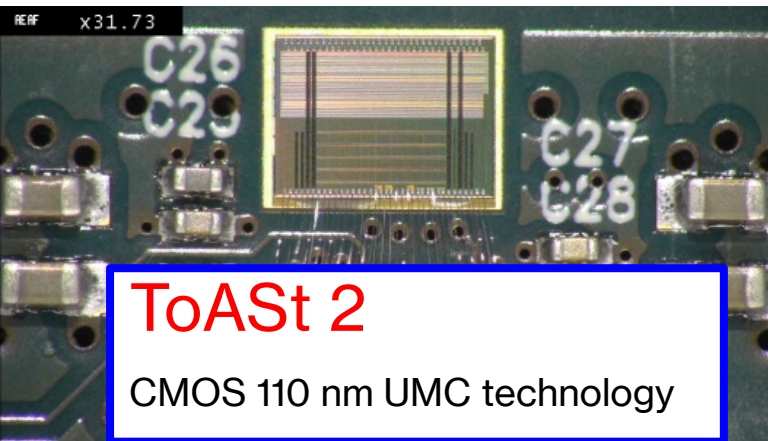


Istituto Nazionale di Fisica Nucleare
SEZIONE DI TORINO



REST (Readout Strip) - ToASt

D. Calvo, F. Cossio, F. Lenta, G. Mazza,
P. De Remigis, M. Mignone, R. Wheadon

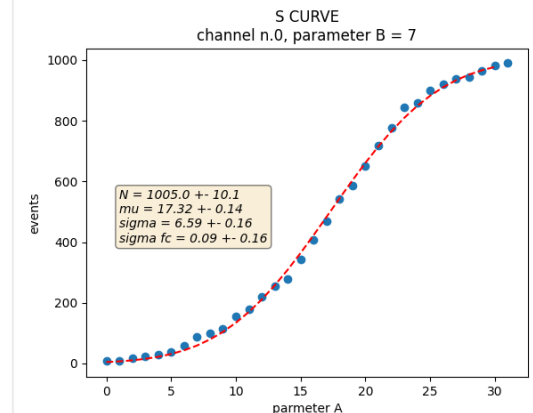
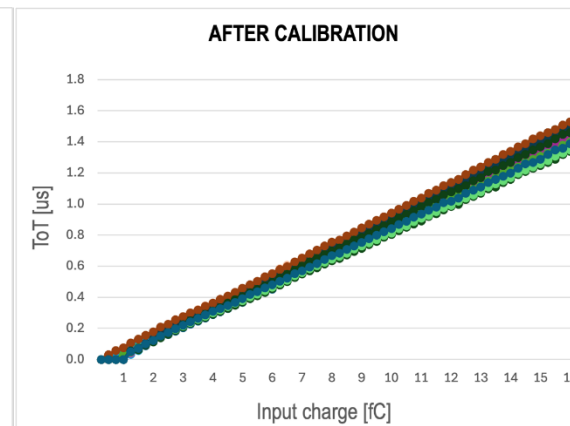
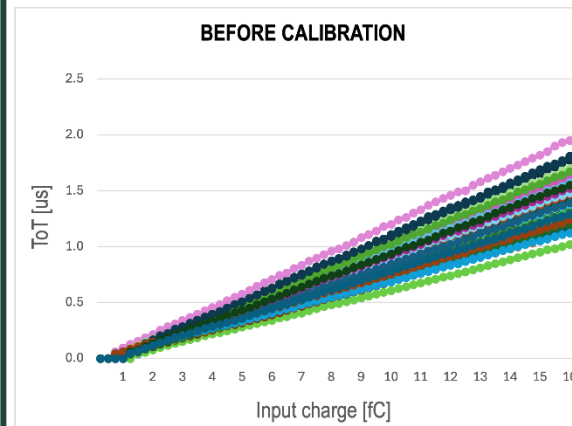


Main features

- 64 input channels and size 4.4 mm x 3.2 mm. Power dissipation: < 4 mW/ch
- Time of Arrival (ToA) and Time over Threshold (ToT) measurements (8 bit charge resolution). Input charge up to 40 fC
- Triggerless. Master clock frequency at 160 MHz
- Max rate/strip: 40 KHz
- 8 channels (region) are grouped to a local FIFO, and Second level FIFO buffering for the 8 regions
- Two output serial links at 160 Mb/s, SLVS driver/Receivers. Serial configuration protocol at 80 Mb/s
- SEU protection of digital logic with Triple Modular Redundancy. TID protection with enclosed gate layout for n-transistors of all analog switches

RESULTS

- Functionality test ongoing in Torino
- **Yield of 100 % !**
- SEU test performed with ion beams at LNL.
Cross section less than 10^{-16} cm²/bit
- X ray test planned next week with X-ray source in Strada delle Cacce.
Thanks to Ernesto and Lino!

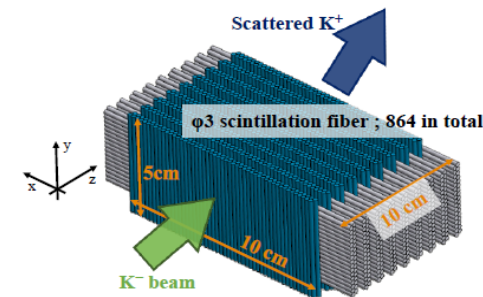
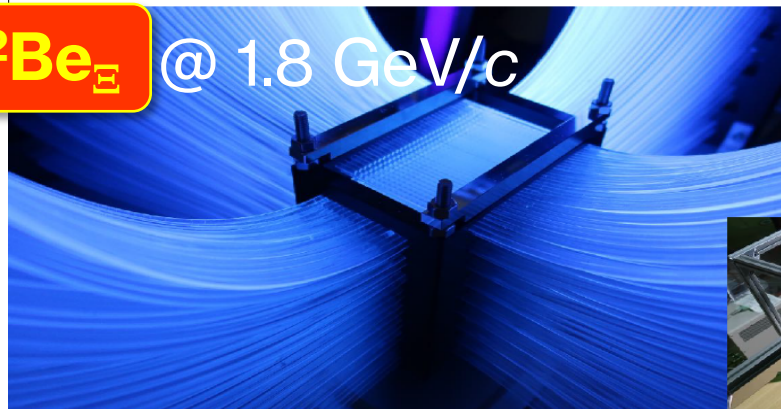


ULYSSES

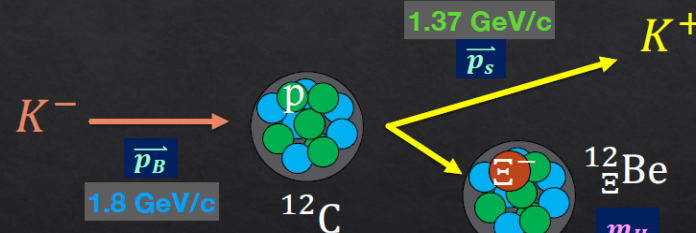
(UnraveLing hYpernuclear Structure and Spectroscopy ExperimentS)



$^{12}\text{C}(K^-, K^+)^{12}\text{Be}_\Xi$ @ 1.8 GeV/c

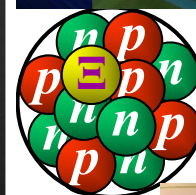


Missing mass spectroscopy (E70)



$$m_H = \sqrt{E_H^2 - \vec{p}_H^2} = \sqrt{(E_{\text{beam}} + M_t - E_s)^2 - (\vec{p}_B - \vec{p}_s)^2}$$

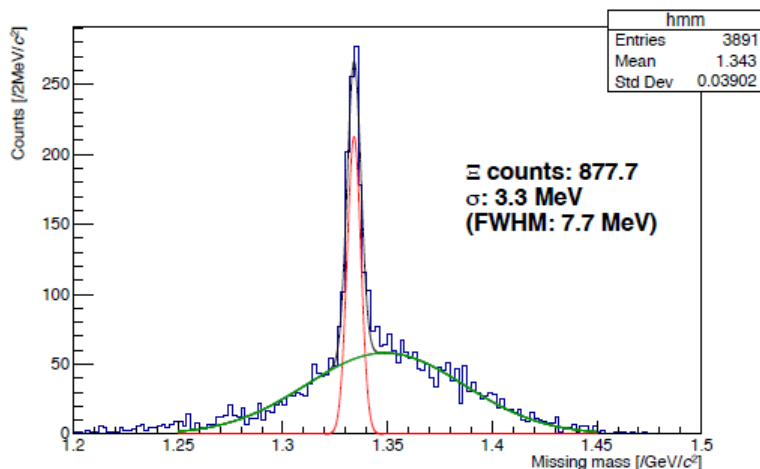
$$\rightarrow B_\Xi = (m_{\text{core}} + m_\Xi) - m_H$$



primo studio
spettroscopico
di ipernuclei Ξ !

il "metodo" FINUDA:

bersaglio attivo di fibre scintillanti
→ l'impulso del K^+ viene corretto
evento per evento per la dE/dx



- installazione:
- commissioning run:
- presa dati:

dic. 2023
apr.-mag. 2024
feb.-mag. 2025

