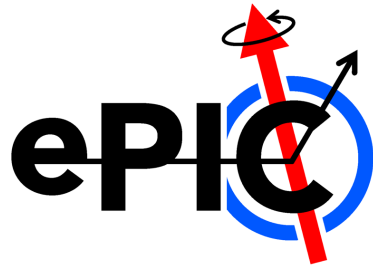


# Gruppo III: attività e preventivi 2025



Giacomo Volpe

03/07/2024

# Outline

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- Anagrafica generale e richieste dotazioni
- Dettaglio sulle varie sigle
  - ALICE (RL. A. Mastroserio)
  - EIC\_NET (RL: D. Elia)
  - FOOT (RL: Giuliana Galati)
  - LUNA3 (RL: G. Ciani, sigla in dotazione)
  - JEDI (RL: G. Tagliente, sigla in dotazione)
  - JLAB12 (RL R. Perrino, sigla in dotazione)
  - N\_TOF (RL: g. Tagliente)

# Anagrafica e Richieste finanziarie (k€) gruppi III

| Ricercatori            | ALICE | ePIC | FOOT | JEDI | LUNA | jLAB | nTOF | FAIR6 | PRIN_2022ljt55r | PNRR_prinx7f7 | ICSCS2 | PRIN_2022BAYM54 |
|------------------------|-------|------|------|------|------|------|------|-------|-----------------|---------------|--------|-----------------|
| Acharya Shreyasi       | 90    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 10              | 0             | 0      | 0               |
| Barile Francesco       | 80    | 20   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Bruno Giuseppe Eugenio | 80    | 10   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Colamaria Fabio        | 80    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 10              | 10            | 0      | 0               |
| Colella Domenico       | 50    | 50   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Colelli Angelo         | 100   | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| De Cataldo Giacinto    | 100   | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Di Bari Domenico       | 80    | 20   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Di Ruzza Benedetto     | 70    | 10   | 20   | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Elia Domenico          | 10    | 50   | 0    | 0    | 0    | 0    | 0    | 30    | 0               | 0             | 10     | 0               |
| Kumar Shyam            | 70    | 30   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Rajendra Nath Patra    | 100   | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Manzari Vito           | 80    | 20   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Mastroserio Annalisa   | 70    | 30   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Mazzilli Marianna      | 100   | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Mazziotta Nicola       | 10    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Nappi Eugenio          | 70    | 30   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Nicassio Nicola        | 70    | 30   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Palasciano Antonio     | 100   | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Terrevoli Cristina     | 75    | 10   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 5             | 10     | 0               |
| Triloki Triloki        | 70    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 30              | 0             | 0      | 0               |
| Volpe Giacomo          | 70    | 30   | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Galati Giuliana        | 0     | 0    | 70   | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Pappagallo Marco       | 0     | 0    | 20   | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Maggipinto Tommaso     | 0     | 0    | 20   | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| My Salvatore           | 0     | 0    | 10   | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Colonna Nicola         | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 90              |
| Tagliente Giuseppe     | 0     | 0    | 0    | 30   | 0    | 0    | 70   | 0     | 0               | 0             | 0      | 0               |
| Mucciola Riccardo      | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 100             |
| Salma U.               | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0               | 0             | 0      | 100             |
| Mazzone Anna Maria     | 0     | 0    | 0    | 0    | 0    | 0    | 50   | 0     | 0               | 0             | 0      | 0               |
| Variale Vincenzo       | 0     | 0    | 0    | 0    | 0    | 0    | 50   | 0     | 0               | 0             | 0      | 0               |
| Paticchio Vincenzo     | 0     | 0    | 0    | 0    | 20   | 0    | 0    | 0     | 0               | 0             | 0      | 0               |
| Perrino Roberto        | 0     | 30   | 0    | 0    | 0    | 70   | 0    | 0     | 0               | 0             | 0      | 0               |

## Anagrafica e Richieste finanziarie (k€) gruppi III

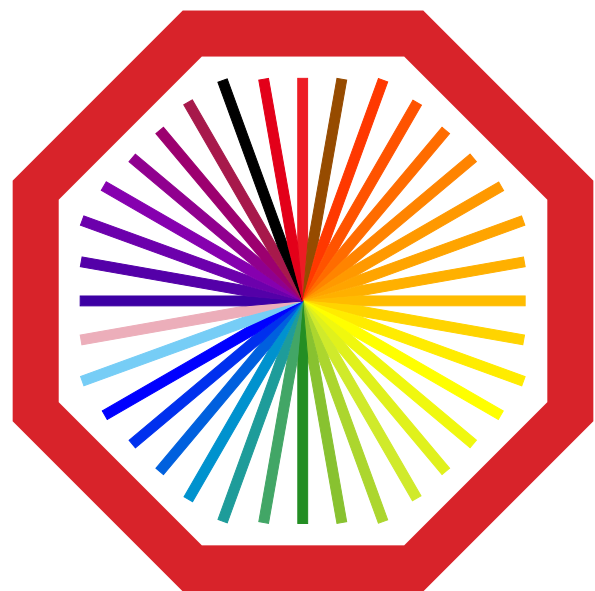
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| <b>Tecnologi</b>         | <b>ALICE</b> | <b>LUNA</b> | <b>prinxx7f7</b> | <b>ePIC</b> | <b>FAIR6</b> |
|--------------------------|--------------|-------------|------------------|-------------|--------------|
| Camerlingo Maria Teresa  | 0            | 0           | 0                | 0           | 100          |
| Ciani Giovanni Francesco | 65           | 30          | 5                | 0           | 0            |
| De Robertis Giuseppe     | 30           | 0           | 0                | 0           | 0            |
| De Venuto Daniela        | 50           | 0           | 0                | 0           | 0            |
| Diacono Domenico         | 10           | 0           | 0                | 0           | 0            |
| Licciulli Francesco      | 20           | 0           | 0                | 0           | 0            |
| Marzocca Cristoforo      | 30           | 0           | 0                | 0           | 0            |
| Pastore Cosimo           | 40           | 0           | 0                | 10          | 0            |
| Torresi Marco            | 30           | 0           | 0                | 0           | 0            |
| Loddo Flavio             | 20           | 0           | 0                | 0           | 0            |

# Anagrafica e Richieste finanziarie (k€) gruppi III

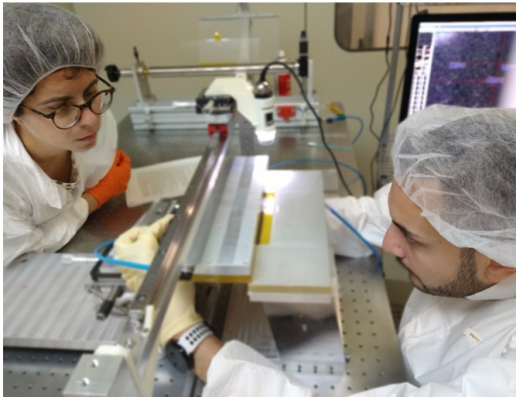
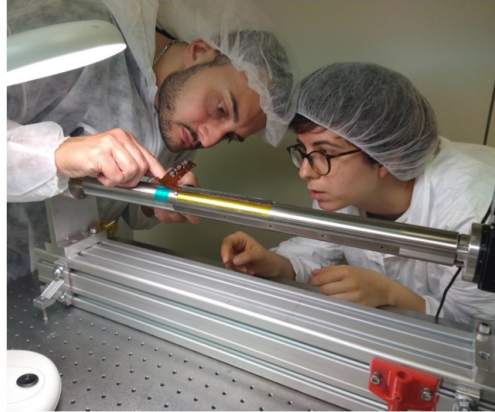
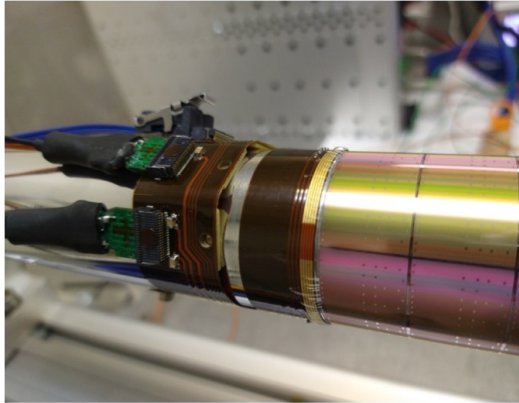
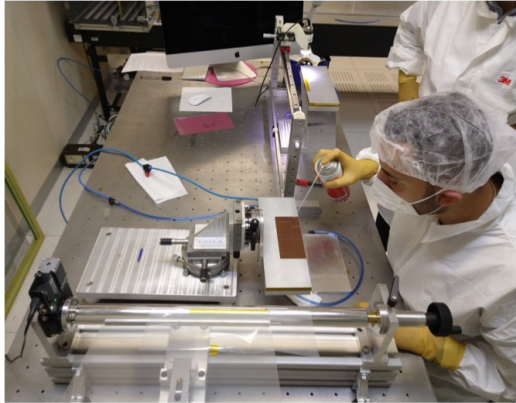
| FTE TOTALI  |             |             |
|-------------|-------------|-------------|
|             | 2024        | 2025        |
| Ricercatori | <b>26.6</b> | <b>28.3</b> |
| Tecnologi   | <b>4.1</b>  | <b>4.4</b>  |
| Totale      | <b>30.7</b> | <b>32.7</b> |

|           | Missioni | Consumo,<br>trasp., inv.,<br>costr. app | Totale |
|-----------|----------|-----------------------------------------|--------|
| Dotazioni | 20.0     | 47.0                                    | 67.0   |



ALICE

# ALICE – Silici : ITS3 (sinergia ePIC)



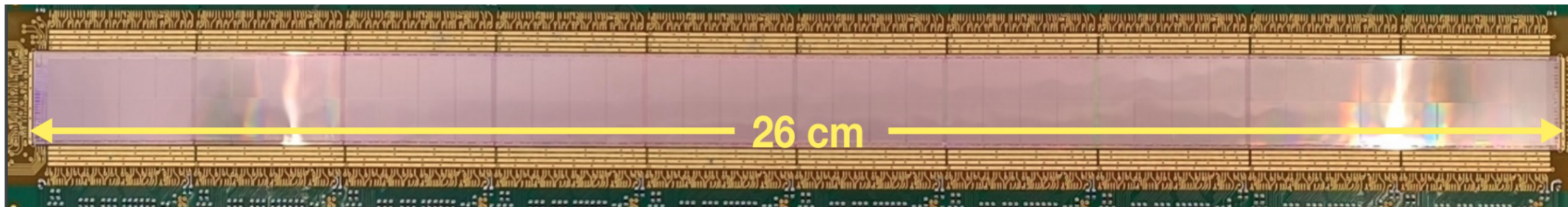
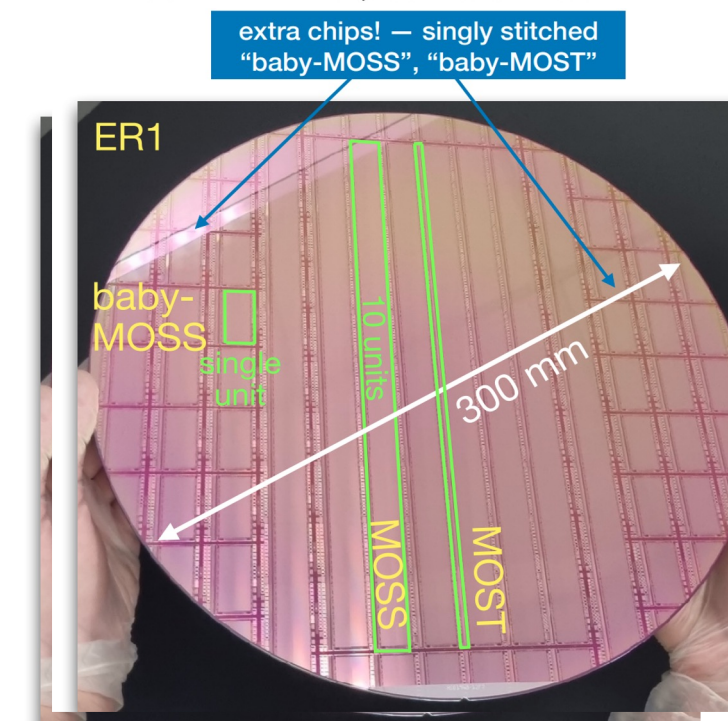
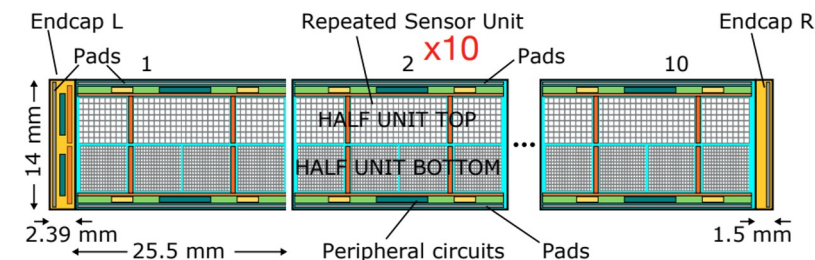
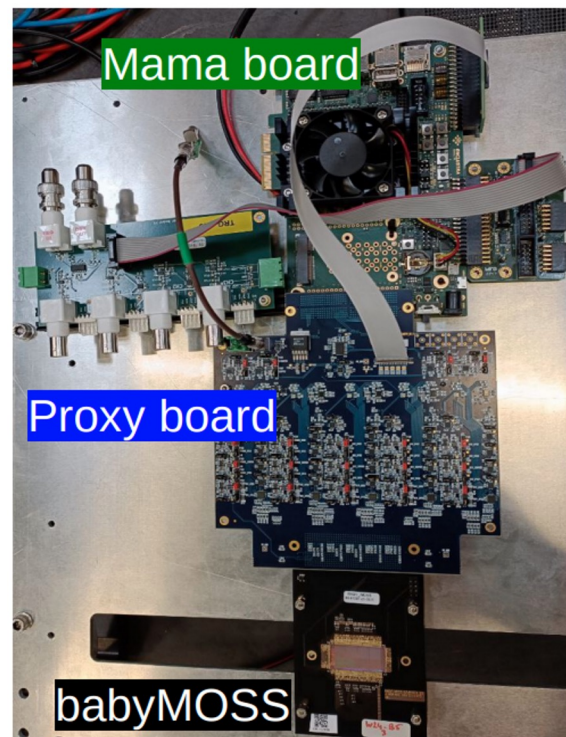
Attività “core” : realizzazione del BBM6

- jigs in officina
- 3 mandrini in acciaio
- cylindrical support structure) in due versioni
- conical support structure
- silici dummy embedded con dissipatori termici
- carbon foam support structures
- Parti stampate in 3D a Bari o a ditte vicino Bari

# ALICE – Silici : ITS3

## ❑ MAPS in 65 nm: Baby Moss

- “MOSS”: **MO**nolithic **S**titched **S**ensor 14 x 259 mm, 6.72 Mpixel ( $22.5 \times 22.5$  and  $18 \times 18 \mu\text{m}^2$ )
- extra “baby-”chips on the sides
- 2025: **Attività di caratterizzazione e test** @ Bari sui Baby MOSS e su fascio al CERN



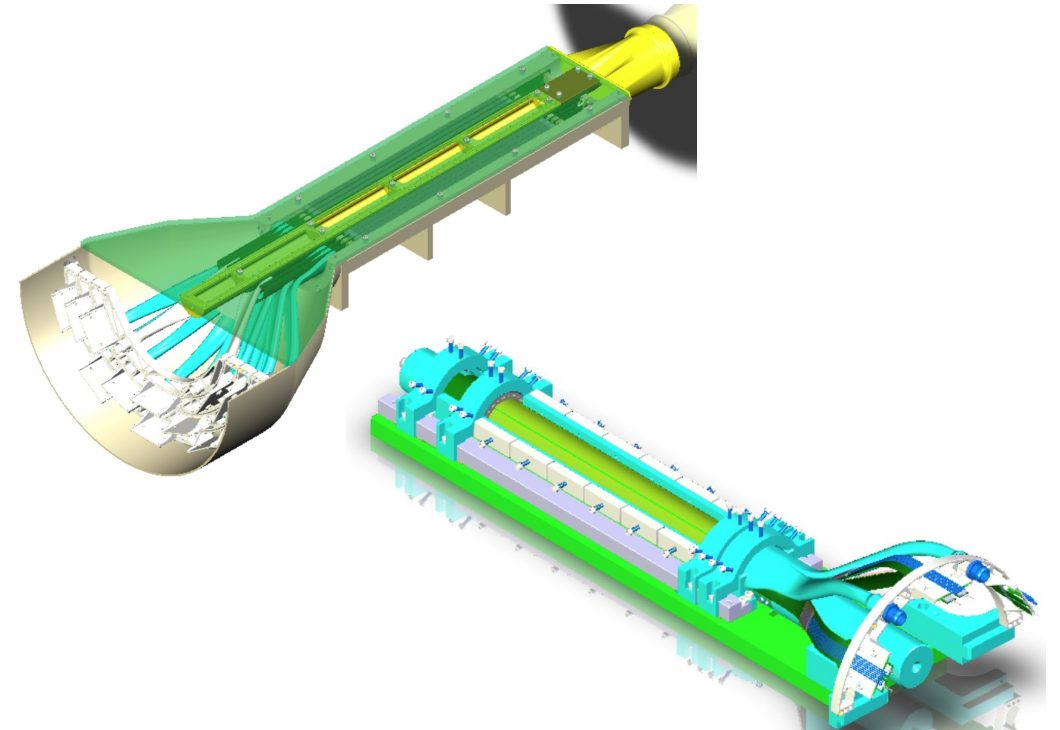
# ALICE – Silici 2025

## □ ITS3

- Caratterizzazione strutture "Baby-MOSS"
- Design di un secondo dissipatore termico per mockup finalizzato a studi termici (-> in discussione, sinergico con ePIC)
- Costruzione prototipi ITS3 con sensori delle dimensioni finali; adattamento disegno e produzione tool

} Elettronica

} Progettazione/  
Officina Meccanica  
Camera Pulita



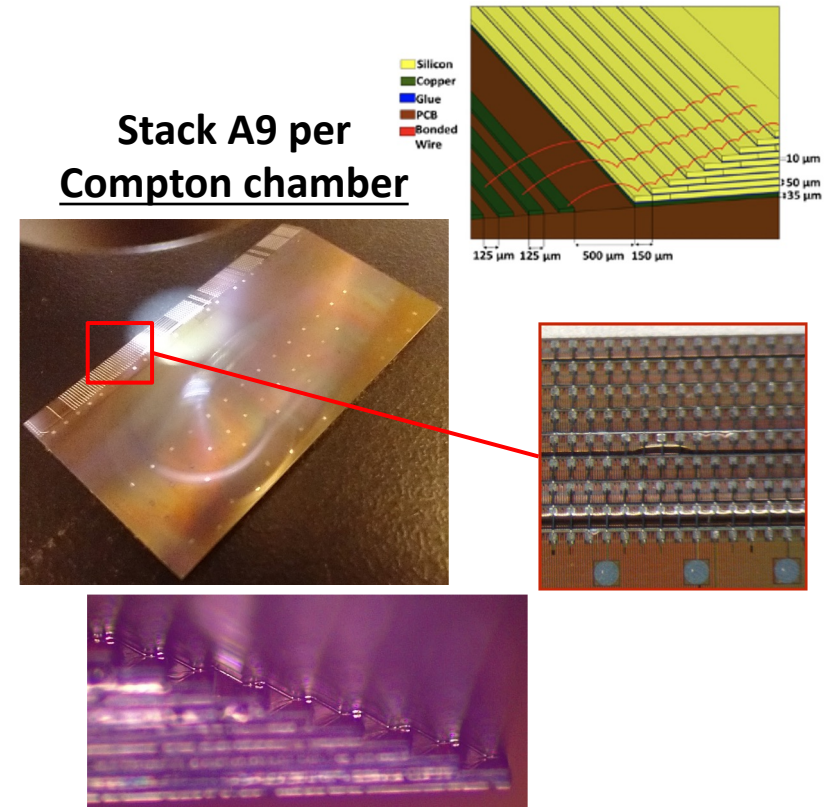
# ALICE – Silici : PRIN 2025

□ PRIN\_2022ljt55r e PRNN\_Prinx7f7 sinergici ad ALICE:

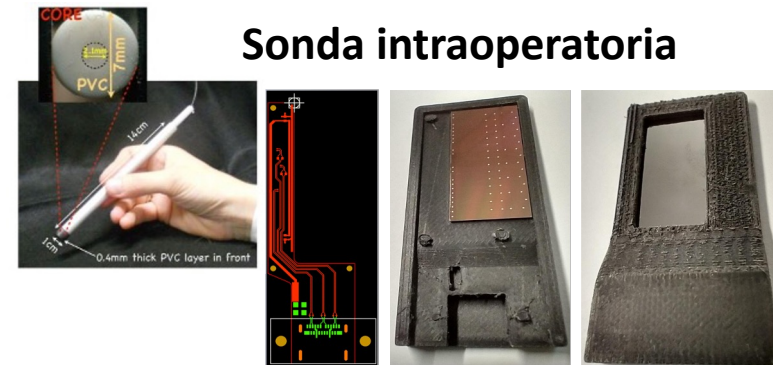
- Assistenza set-up di lettura stack di sensori (pixel chamber), es. adattamento disegno flex per lettura ALPIDE multipli e sua produzione
- Elettronica per chip Alpide/Altide a scopo di sonda intra-operatoria

- Disegno e produzione di piccolo supporto per test-beam con stack di 9 sensori ALPIDE (A9). Disegno e produzione jigs allineamento e posizionamento di stack di chips dummy di più grande dimensione. Eventuale modifica e produzione del case per la sonda intraoperatoria.

Elettronica



Progettazione  
Officina Meccanica  
Camera Pulita



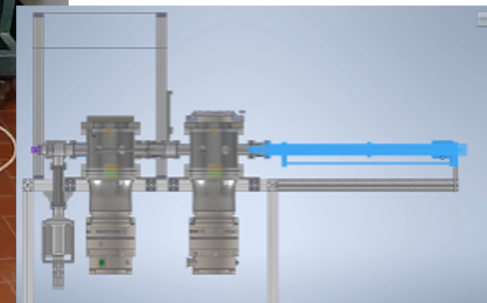
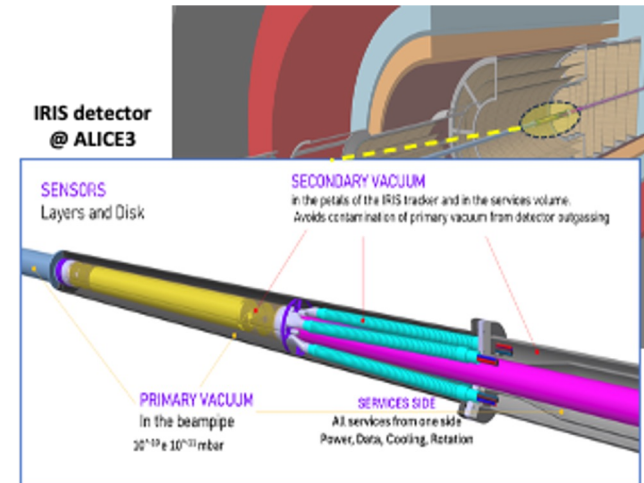
# ALICE – Silici: ALICE3 2025

❑ **Studi outgassing:** camera per pulizia ultrasuoni, gasket di rame, flange

Old Setup:  $10^{-6}$  mbar



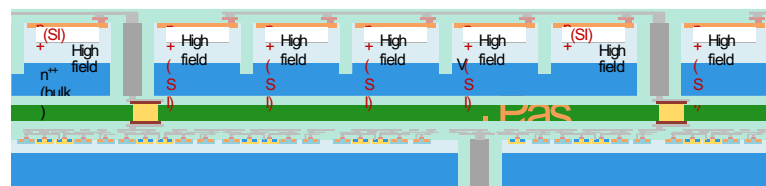
New Setup:  $10^{-10}$  mbar (LHC primary vacuum level)





# ALICE 3 - RICH

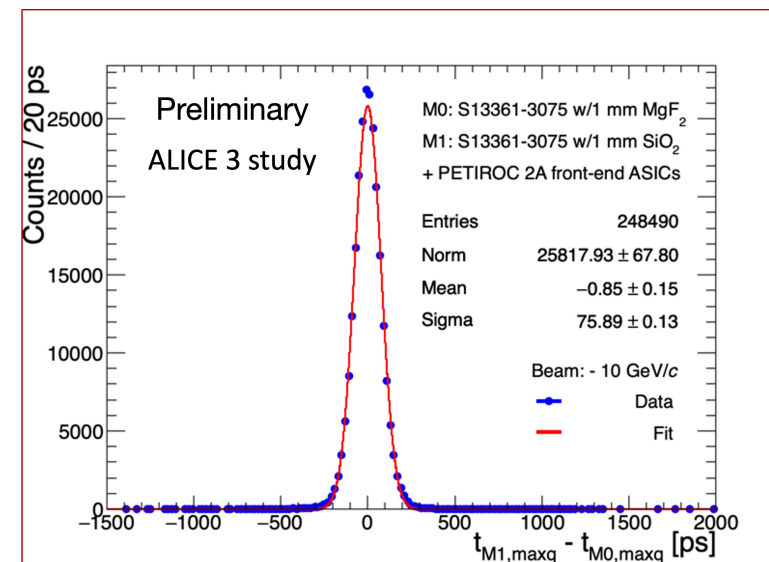
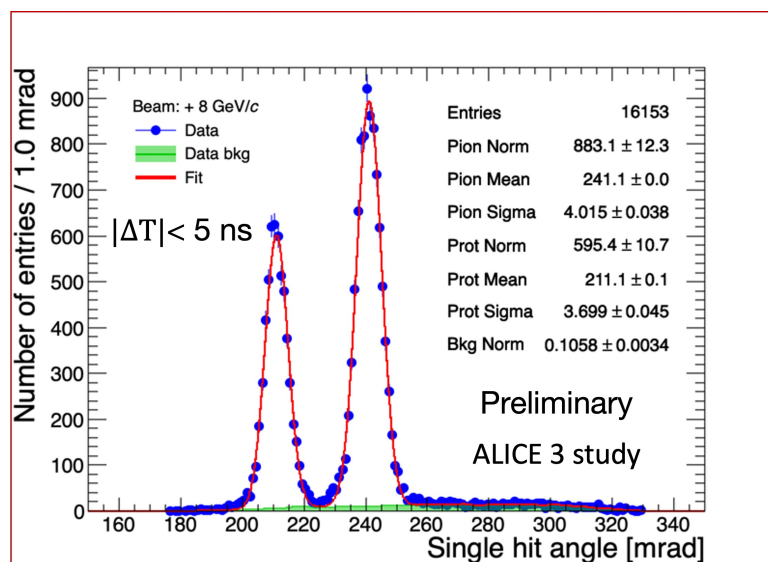
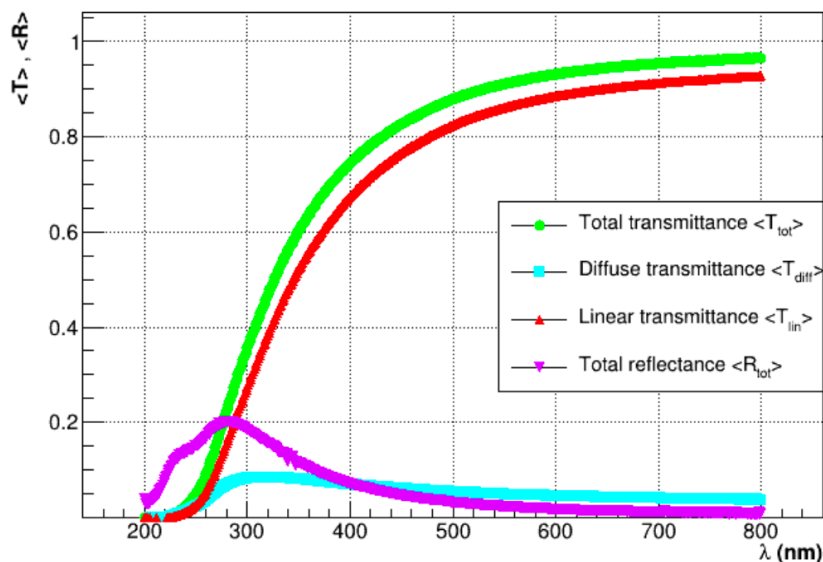
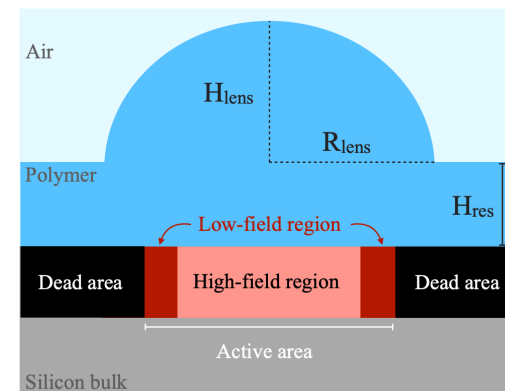
- Studi di simulazione
- Caratterizzazione aerogel (sinergia EIC\_NET)
- Studio sensori (SiPM) ed elettronica di lettura
- Test su fascio (PS al CERN) di prototipi
  - Primi test eseguiti nel 2022 e nel 2023 ed un altro già programmato per ottobre 2024
- Studio prototipo interposer e sistema di cooling
- RUN ASIC ALCOR
  - *Sub judice* a studi compatibilità di ePIC ALCOR a ALICE 3 – RICH (misure di tempi)
- Realizzazione micro lenti per ottimizzare risposta temporale SPAD
- Costruzione mock-up modulo RICH



SiPM Array

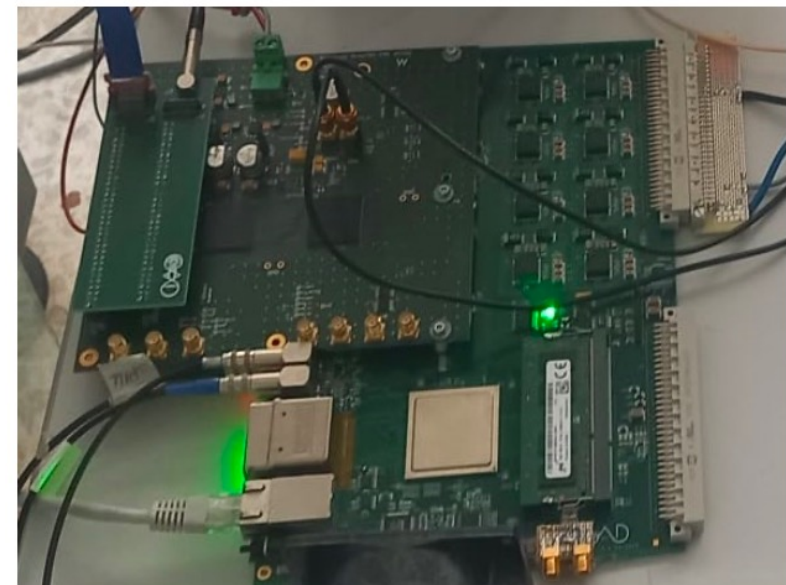
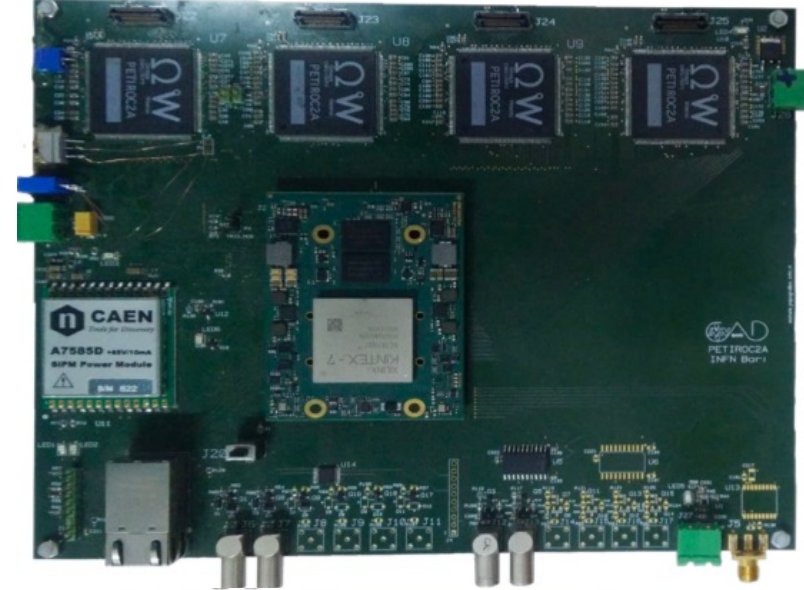
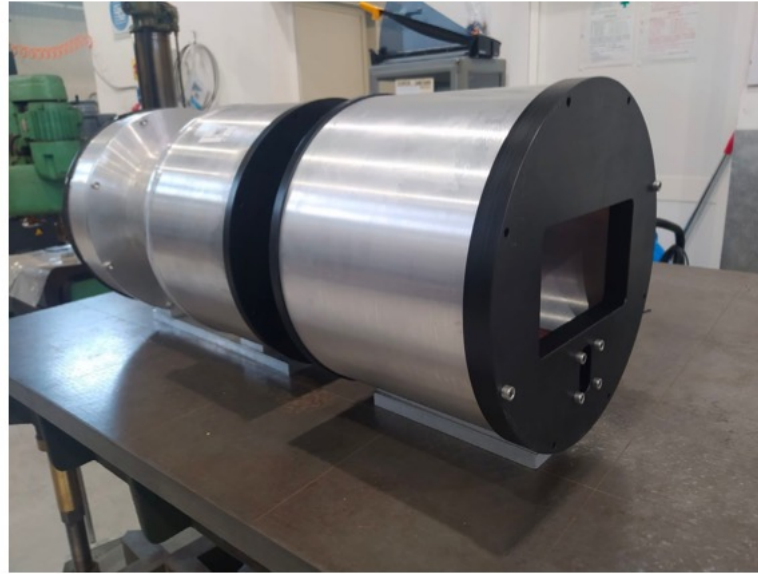
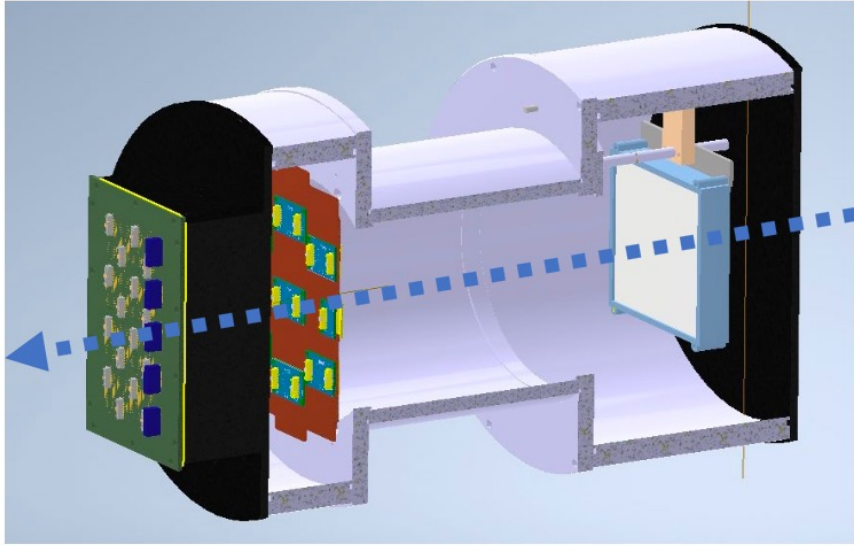
PCB Interposer with embedded CO2 cooling and annealing

FEE ASIC



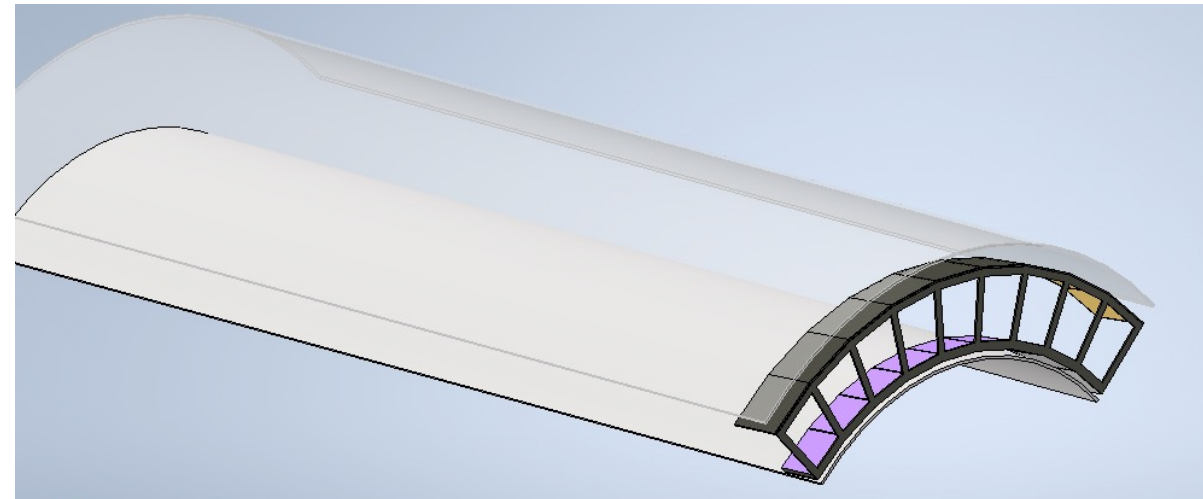
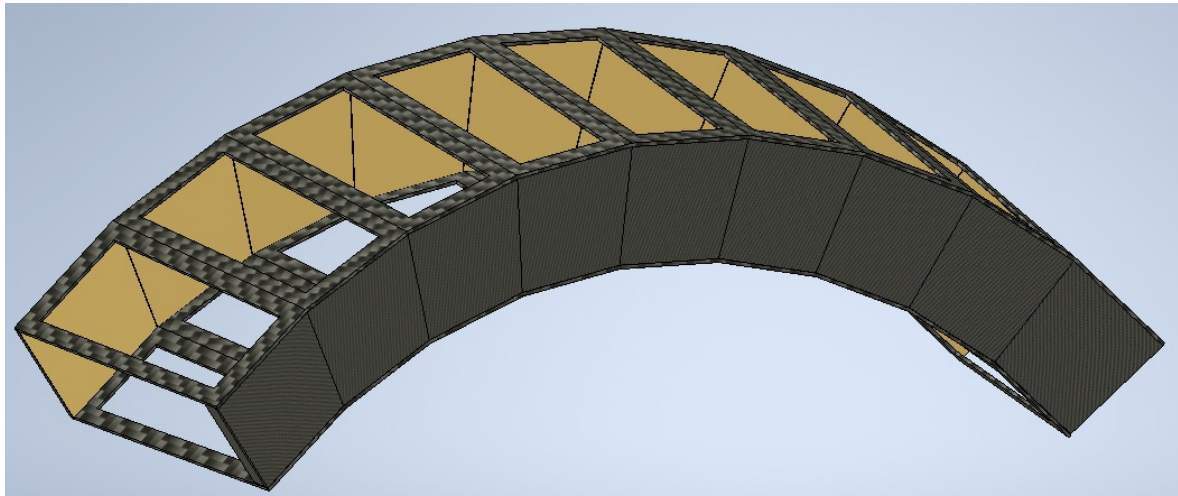
# ALICE 3 - RICH

Costruzione prototipi e annessi sistemi di DAQ e Front-end Board



## Richieste ai servizi di sezione

- **Progettazione meccanica:**
  - struttura di supporto meccanico per rivelatore RICH di ALICE3
- **Servizio elettronica:**
  - progettazione di schede (eventuale re-work a valle del test beam di quest'anno di quanto già sviluppato (eg. adapter per array di SiPM, feedthrough)
  - progettazione nuova scheda di front-end con un nuovo ASIC.
  - Sviluppo di FW per FPGA.
  - tecnico al test beam per 1-2 settimane
- **Officina meccanica:**
  - realizzazione della meccanica necessaria per test beam di prototipi rivelatore ed in laboratorio



# Anagrafica prevista nel 2025

| Ricercatori             | FTE          | FTE siner   | FTE tot     |
|-------------------------|--------------|-------------|-------------|
| Acharya Shreyasi        | 90           | 10          | 100         |
| Barile Francesco        | 80           | 0           | 80          |
| Bruno Giuseppe Eugenio  | 80           | 0           | 80          |
| Camerlingo Maria Teresa | 0            | 70          | 70          |
| Colamaria Fabio         | 80           | 20          | 100         |
| Colella Domenico        | 50           | 0           | 50          |
| Colelli Agelo           | 100          | 0           | 100         |
| De Cataldo Giacinto     | 100          | 0           | 100         |
| Di Bari Domenico        | 80           | 0           | 80          |
| Di Ruzza Benedetto      | 70           | 0           | 70          |
| Elia Domenico           | 10           | 40          | 50          |
| Kumar Shyam             | 70           | 0           | 70          |
| Rajendra Nath Patra     | 100          | 0           | 100         |
| Manzari Vito            | 80           | 0           | 80          |
| Mastroserio Annalisa    | 70           | 0           | 70          |
| Mazzilli Marianna       | 100          | 0           | 100         |
| Mazziotta Nicola        | 10           | 0           | 10          |
| Nappi Eugenio           | 70           | 0           | 70          |
| Nicassio Nicola         | 70           | 0           | 70          |
| Palasciano Antonio      | 100          | 0           | 100         |
| Terrevoli Cristina      | 75           | 15          | 90          |
| Triloki Triloki         | 70           | 30          | 100         |
| Volpe Giacomo           | 70           | 0           | 70          |
| <b>Totale</b>           | <b>16.25</b> | <b>1.85</b> | <b>18.1</b> |

| Tecnologi              | FTE         | FTE siner   | FTE tot    |
|------------------------|-------------|-------------|------------|
| Ciani Giovanni Frances | 65          | 5           | 70         |
| De Robertis Giuseppe   | 30          | 0           | 30         |
| De Venuto Daniela      | 50          | 0           | 50         |
| Diacono Domenico       | 10          | 0           | 10         |
| Licciulli Francesco    | 20          | 0           | 20         |
| Marzocca Cristoforo    | 30          | 0           | 30         |
| Pastore Cosimo         | 40          | 0           | 40         |
| Torresi Marco          | 30          | 0           | 30         |
| <b>Totale</b>          | <b>2.75</b> | <b>0.05</b> | <b>2.8</b> |

FTE totali = 20.9  
(20.05 nel 2023)

# Richieste finanziarie

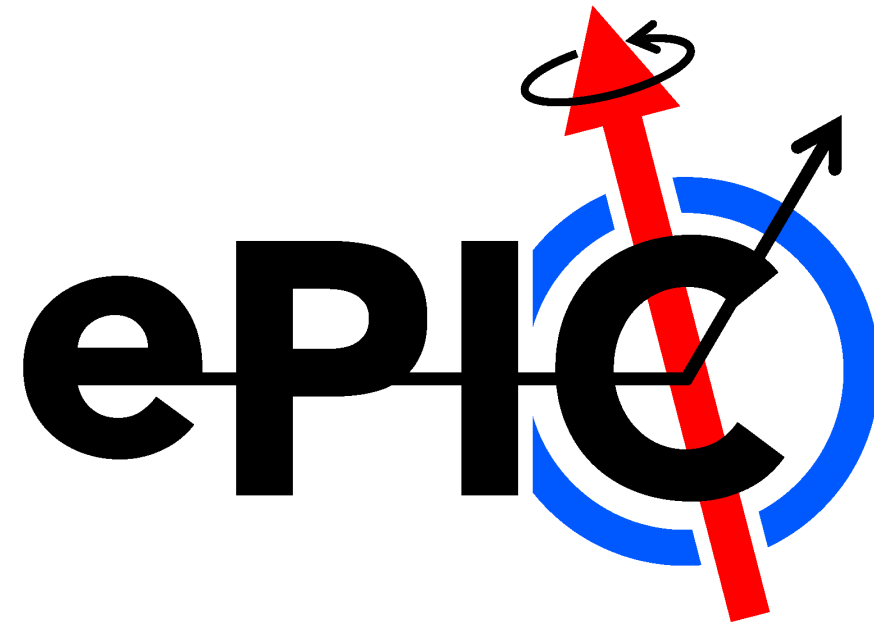
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## Missioni:

- Metabolismo:  $\cong$  150 k€
- ITS3 specifiche: da definire
- ALICE3 RICH specifiche: 40 k€

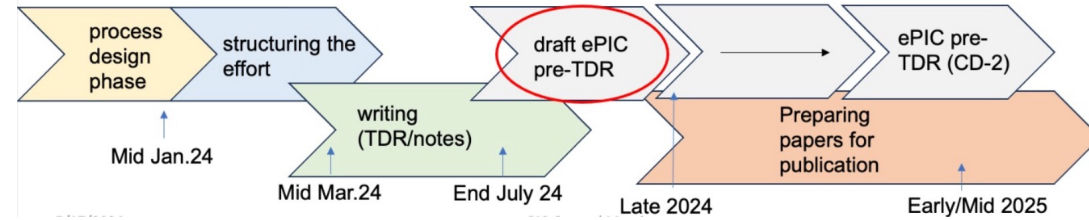
## Consumo, inventario, ecc

- ITS3 specifiche : 30 k€
- M&O-B HMPID: 20 k€
- ALICE3 Tracker specifiche: 10 k
- ALICE3 RICH specifiche:  $\cong$  175 k€

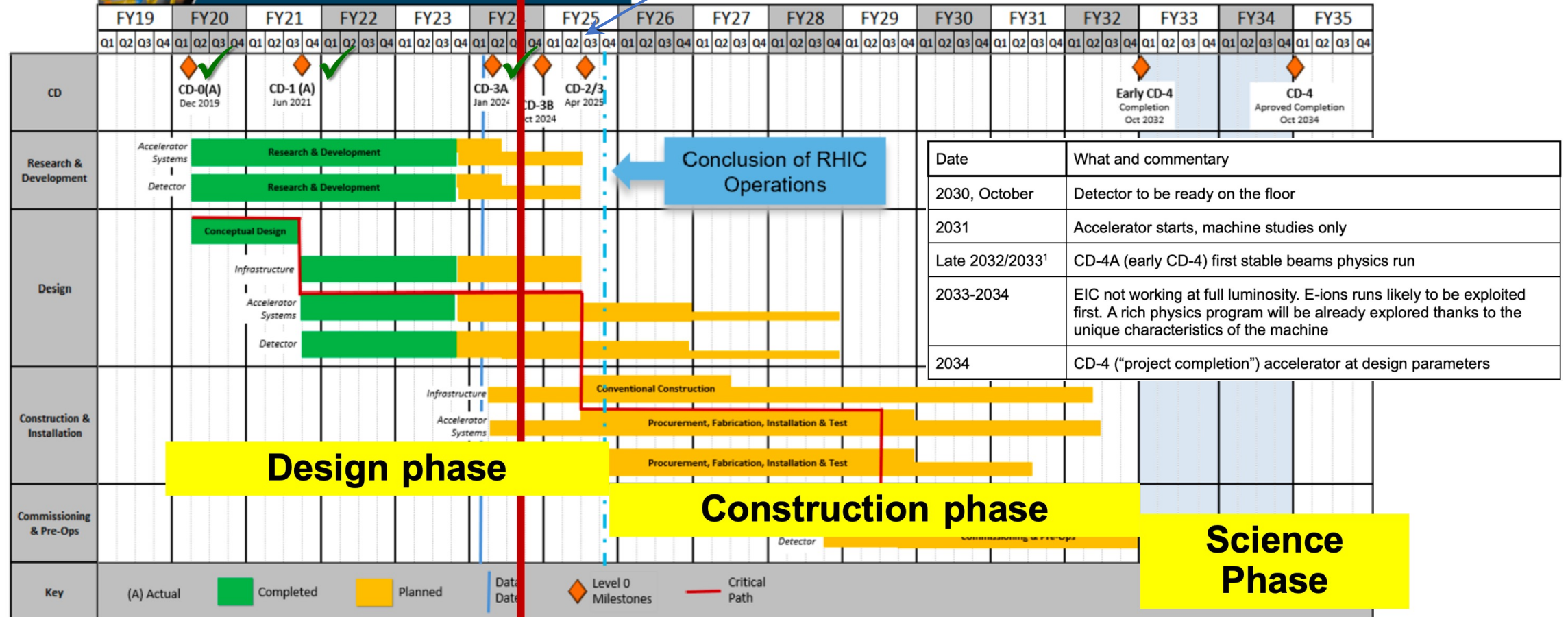


EIC\_NET

# EIC schedule

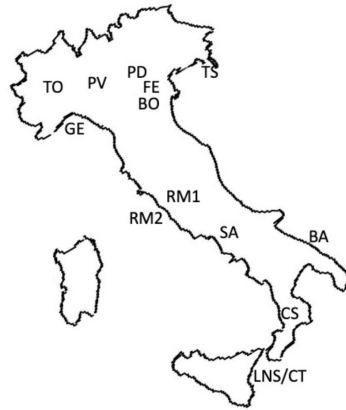
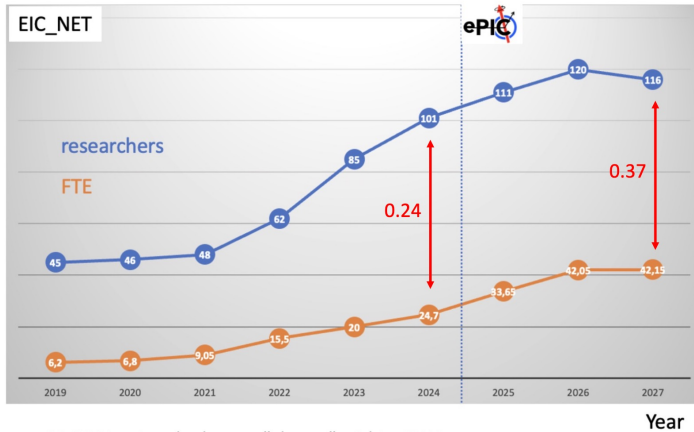


## Electron-Ion Collider

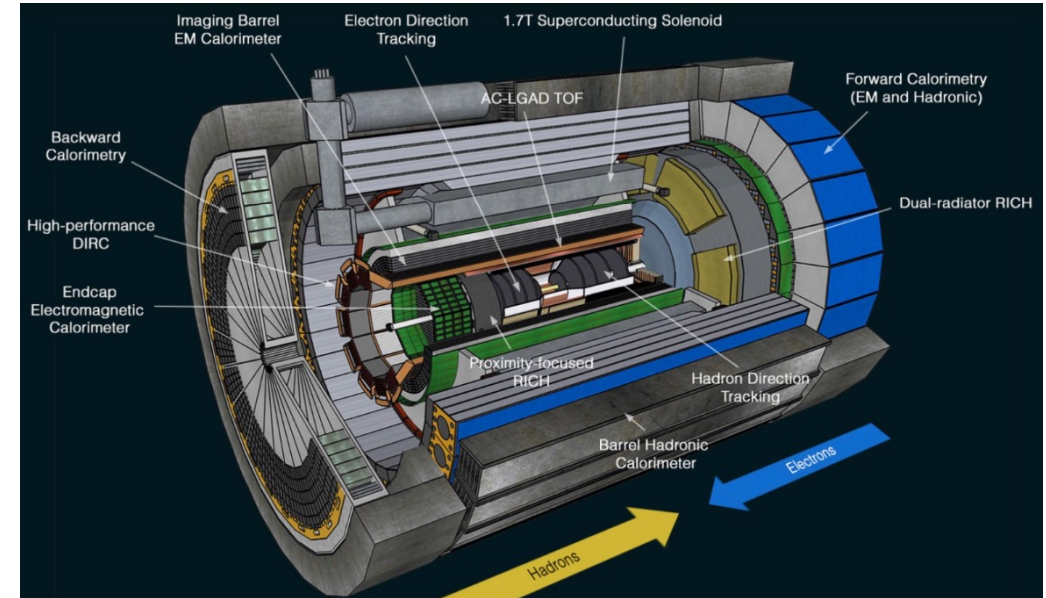


# ePIC experiment and INFN

## INFN involvement in EIC:



- 14 INFN units: the largest "cluster" within CSN3
  - steady growth consistently with the project, **capacity to attract also from other CSN**
  - **solid(\*)** 3-year projections
- (\*) no senior associations, only contracts assigned or under recruitment



- Lol presented to CSN3 in June 2024: **EIC\_NET → "sigla" ePIC from 2025**
- in-kind contribution to ePIC (to be formalized by end 2024):
  - ✓ forward PID detector → **dRICH**
  - ✓ innermost layers of the → **SVT-IB**
  - ✓ forward tracking disks → **MPDG-ECT**

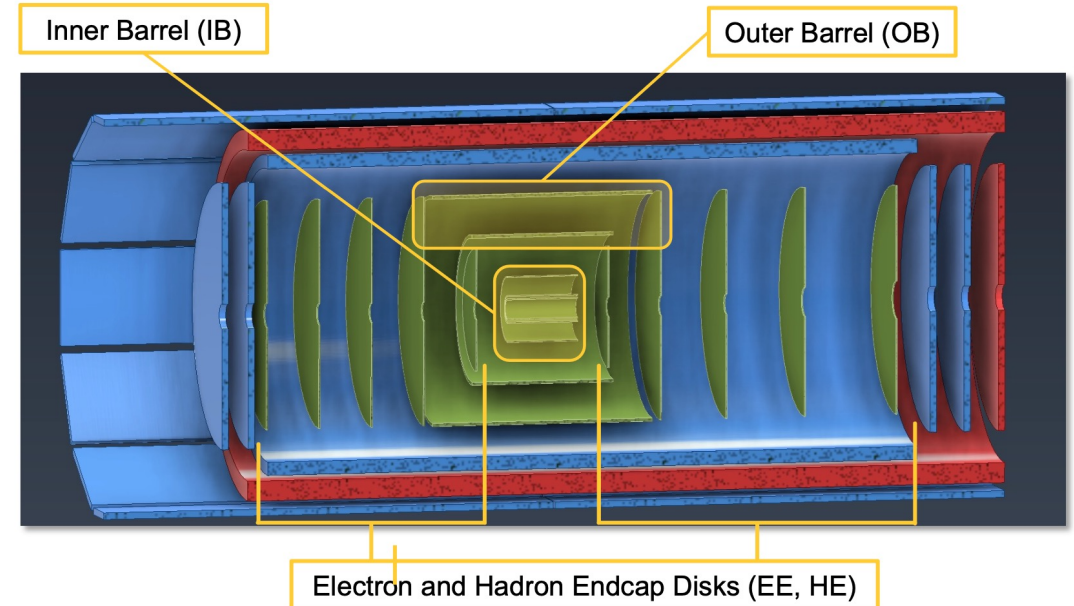
In May 2024: **D. Elia (BA)** elected as ePIC RN takes over from **P. Antonioli (BO)** on 2024/11/1

# Activity for ePIC in Bari

## Main contributions from Bari:

- innermost layers of the **ePIC SVT**:
  - ✓ in collaboration with PD, PV and TS
  - ✓ synergies with ALICE ITS3
  - ✓ INFN IKC: build the 2 innermost layers
  - ✓ **D. Elia** responsible for the SVT IB

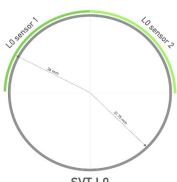
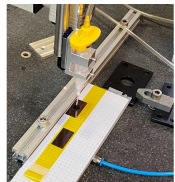
In 2025 **D. Colella** takes over from D. Elia as ePIC-Bari RL



### INFN involvement in SVT

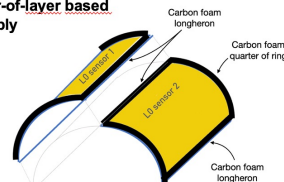
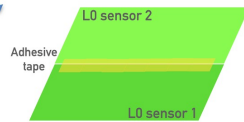
#### BARI:

- Design, prototyping and construction of SVT L0-L1 barrel:
  - ✓ exploiting experience with bending and interconnection for ITS3
  - ✓ investigating two possible bending/assembly strategies:
    - ✓ **2-sensor bending**: try to exploit "connect" the two sensors with kapton tape and bend them as a single object
    - ✓ **independent bending**: bend each of the two sensors separately and glue them on independent support structures



#### quarter-of-layer based assembly

#### half-layer based assembly (a la ITS3)



- aerogel for the **ePIC dRICH**:
  - ✓ synergies with ALICE 3 RICH
  - ✓ **G. Volpe** responsible for qualif. & production

**A. Mastroserio** deputy chair ePIC Publication Committee

# Percentuali e richieste 2025

| Ricercatori             | FTE | FTE siner       | FTE tot    | Commenti sinergie etc |
|-------------------------|-----|-----------------|------------|-----------------------|
| Barile Francesco        | 20  | 0               | 20         |                       |
| Bruno Giuseppe Eugenio  | 10  | 0               | 10         |                       |
| Colella Domenico        | 50  | 0               | 50         |                       |
| Di Bari Domenico        | 20  | 0               | 20         |                       |
| Di Ruzza Benedetto      | 10  | 0               | 10         |                       |
| Elia Domenico           | 50  | 0               | 50         |                       |
| Kumar Shyam             | 30  | 0               | 30         |                       |
| Manzari Vito            | 20  | 0               | 20         |                       |
| Mastroserio Annalisa    | 30  | 0               | 30         |                       |
| Nappi Eugenio           | 30  | 0               | 30         |                       |
| Nicassio Nicola         | 30  | 0               | 30         |                       |
| Perrino Roberto         | 30  | 0               | 30         |                       |
| Terrevoli Cristina      | 10  | 0               | 10         |                       |
| Volpe Giacomo           | 30  | 0               | 30         |                       |
|                         |     |                 | <b>370</b> |                       |
| <b>Tecnologi</b>        |     |                 |            |                       |
| Camerlingo Maria Teresa | 0   | 30              | 30         | 100% FAIRS6           |
| Pastore Cosimo          | 10  | 0               | 10         |                       |
|                         |     |                 | <b>40</b>  |                       |
|                         |     |                 |            |                       |
|                         |     | <b>Tot 2025</b> | <b>410</b> |                       |
|                         |     | <b>2024</b>     | <b>270</b> |                       |

# Percentuali e richieste 2025

| Capitolo | Descrizione                                                                                                                    | Parziali (k€) |      | Totale (k€) |    |
|----------|--------------------------------------------------------------------------------------------------------------------------------|---------------|------|-------------|----|
|          |                                                                                                                                | Richieste     | SJ   | Richieste   | SJ |
| consumo  | 2 Mandrini per piegamento sensori a raggi L0-L1 SVT                                                                            | 3.00          | 0.00 | 74          | 0  |
|          | 1 Motorino (spare) per rotazione controllata e automatica piegamento sensore                                                   | 2.00          | 0.00 |             |    |
|          | Stampe 3D strutture di supporti meccanici per costruzione prototipi L0-L1 SVT                                                  | 1.00          | 0.00 |             |    |
|          | Strutture in schiuma di carbonio (Allcomp k9 standard density o ERG Duocell + lavorazione) per prototipi L0-L1 SVT             | 5.00          | 0.00 |             |    |
|          | Sviluppo e produzione jig per movimentazione/allineamento sensori grandi dimensioni per procedura bending e wirebonding        | 3.00          | 0.00 |             |    |
|          | Silicio blank (10 wafer), in parte con pad (test wirebonding) e con heaters (studi cooling), incluso taglio e assottigliamento | 20.00         | 0.00 |             |    |
| missioni | Campioni di aerogel per R&D e caratterizzazione (sinergia ALICE 3)                                                             | 40.00         | 0.00 | 25.5        | 0  |
|          | Partecipazione riunione annuale ePIC Italia: 3gg x 6 persone                                                                   | 3.00          | 0.00 |             |    |
|          | Contatti ITS3 per sviluppi dedicati SVT (CERN): 5gg x 4 persone                                                                | 4.00          | 0.00 |             |    |
|          | Contatti tra sedi INFN per sviluppi dedicati SVT e dRICH: 2 viaggi x 3 persone                                                 | 3.00          | 0.00 |             |    |
|          | Partecipazione riunione di collaborazione ePIC (Roma): 5gg x 5 persone                                                         | 5.00          | 0.00 |             |    |
|          | Partecipazione riunione annuale EICUG e riunioni DSC SVT (USA): 7gg x 3 persone                                                | 7.50          | 0.00 |             |    |
|          | Partecipazione test beam campioni aerogel (CERN): 7gg x 3 persone (sinergia ALICE 3)                                           | 3.00          | 0.00 |             |    |
| Totale   |                                                                                                                                |               |      | 99.5        | 0  |

**Consumo**

**Missioni**

**R&D aerogel  
per PID:  
sinergia con  
ALICE 3**

# Percentuali e richieste 2025

## Richieste servizi di sezione (mesi/persona):

- Elettronica: 1
- Camera pulita: 3
  - Wire bonding, incollaggi
- Progettazione meccanica 3 e Officina meccanica 4
  - Costruzione prototipi SVT L0-L1 con componenti via via più evoluti (silicio vuoto, silicio con dissipatori termici, silicio-sensore) includendo in particolare:
    - Adattamento dei setup posizionamento/connessione/bending sensori
    - Sviluppo meccanica di supporto locale SVT L0-L1.



The FOOT (FragmentatiOn Of Target) experiment



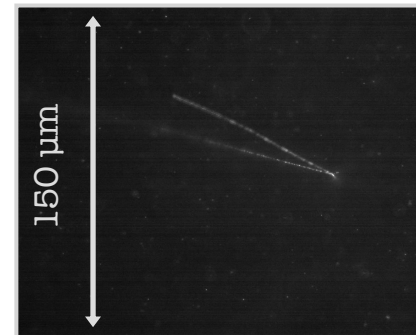
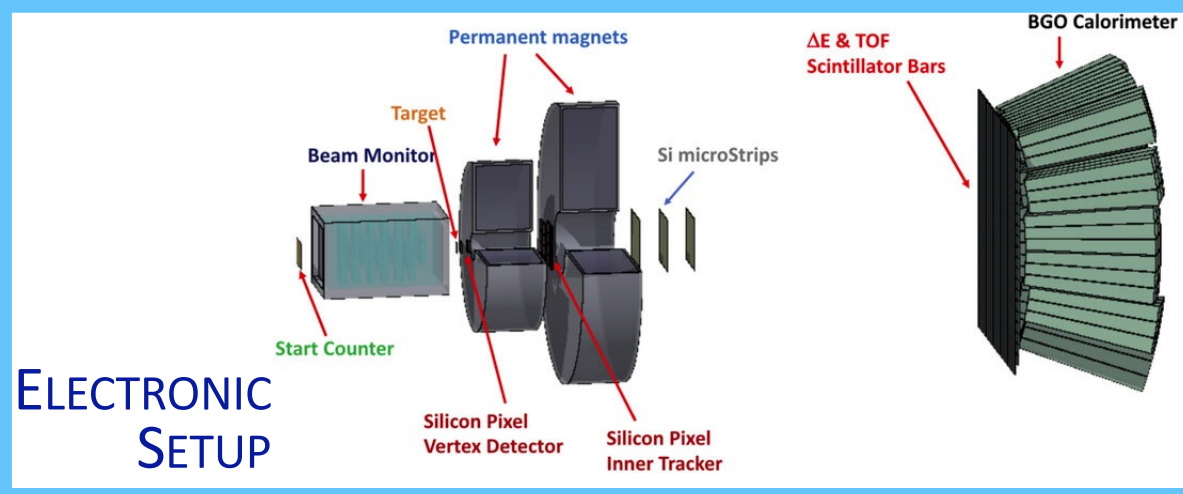
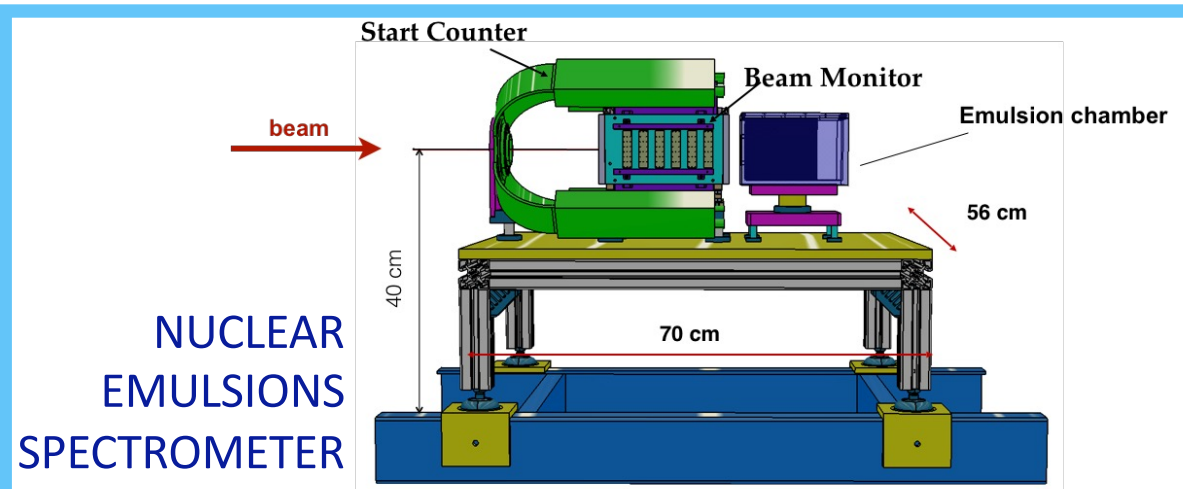
# Aim

- ▶ Charge Particle Therapy efficiency currently limited by the lack of knowledge of the nuclear fragmentation cross sections in body tissues
- ▶ The **FOOT** experiment aims at measuring nuclear fragmentation cross sections to develop more precise Treatment Planning Systems for proton and ion therapy and Radio Protection in Space
- ▶ 2 complementary table-top setups: **nuclear emulsions spectrometer** to measure  $Z \leq 3$  + **electronic setup** to measure  $Z \geq 3$

## Spin off in Bari:

## PRIN “DAMON: Direct meAsureMent of target fragmentatiON”

- ▶ Feasibility study for making a direct measurement of target fragments produced by a proton beam using Nano Imaging Trackers emulsions and optical microscopes overcoming the diffraction limits
- ▶ People involved from Bari: G. Galati (PI), T. Maggipinto, S. My
- Other 2 units: INFN (LNGS), UniNA





# Activities in Bari

- Participation to the Data Taking at CNAO (Carbon@200MeV/n) with both setups (first time with full electronic setup!): contribution in assembling, data taking, data analysis related to MSD sub detector in the electronic setup and Emulsion Spectrometer

## ELECTRONIC SETUP

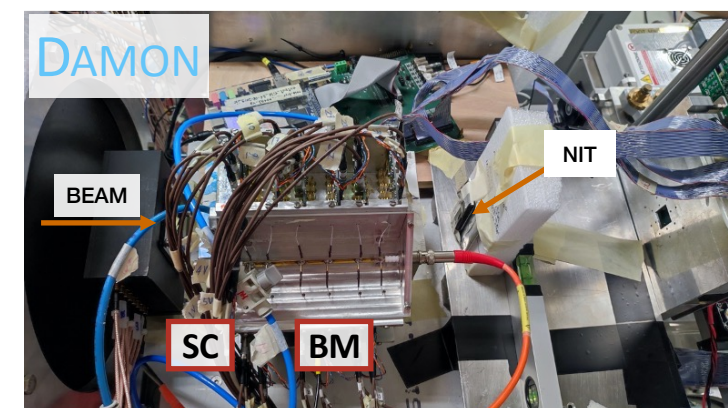
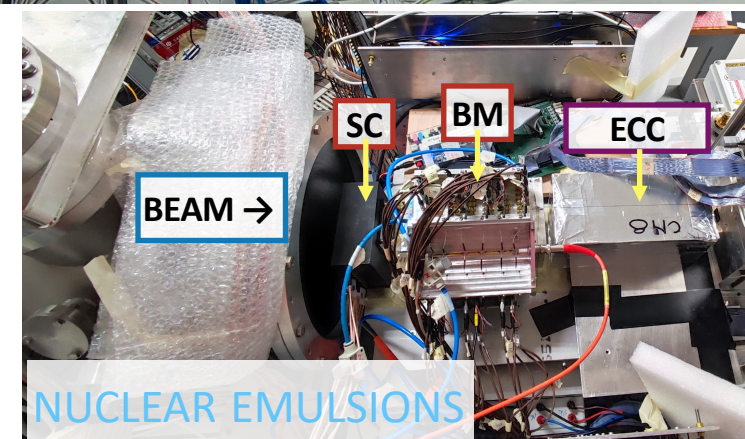
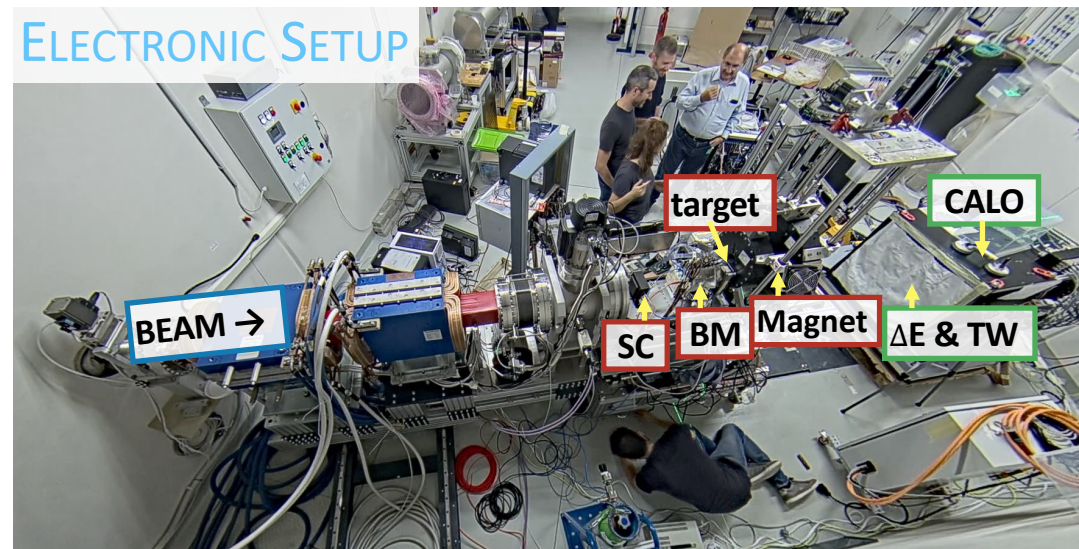
- Evaluation of the efficiency of the Micro Strip Detector in the identification of Protons using the data from the RUN 2021 carried out in Trento in the absence of a magnetic field

## NUCLEAR EMULSIONS SPECTROMETER

- Monte Carlo simulation
- Cross section evaluation for Oxygen@200MeV/n on C, C<sub>2</sub>H<sub>4</sub> and H
- Article published (10.3389/fphy.2023.1327202) on the completed charge analysis for fragments coming from Oxygen@200MeV/n and @400MeV/n on C and C<sub>2</sub>H<sub>4</sub>

## DAMON

- Nano Imaging Trackers R&D
- Proton sensitivity test at CNAO to 70 MeV protons
- Pilot run (19 NIT at protons@211MeV/n) analysis





# Future activities

- ▶ Data Taking in GSI with Oxygen beam (feb-jun 2025)
- ▶ Data Taking at CNAO with Proton and Carbon beams (oct-nov 2025)
- ▶ Analysis and detectors R&D

## Participants and Requests

▶ FTE 1.4

### PEOPLE INVOLVED:

Giuliana Galati: 70% (local responsible)

Benedetto Di Ruzza (UniFg): 20%

Tommaso Maggipinto: 20%

Salvatore My: 10%

Marco Pappagallo: 20%

▶ Financial request:  
Missions 15000 Euro

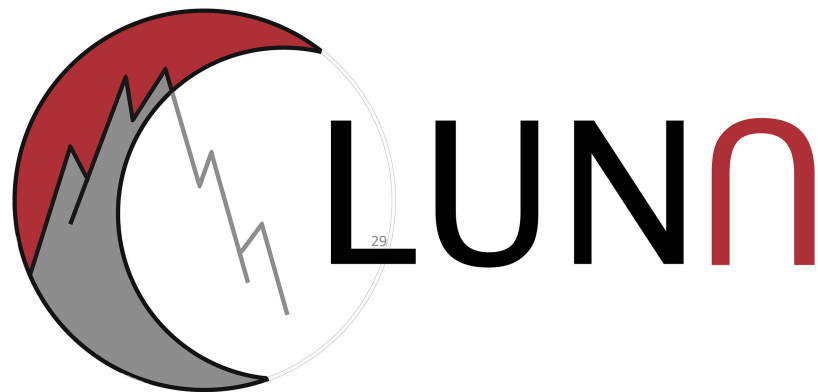
### DETAILS:

Collaboration Meetings: 1500 Euro

GSI Data Taking in 2025: 7500 Euro

CNAO Data Taking in 2025: 6000 sub-judice

- ▶ Technical Support: 1-2 Weeks for Nuclear emulsion film development (Aldo Andriani)
- ▶ Laboratories: none



**2 persone**

- **Ciani Giovanni Francesco 0.3**
- **Paticchio Vincenzo 0.2**

**(senior)**

# Principali risultati recenti e misure in corso in cui il Gruppo di Bari è coinvolto

- Conclusa la misura alla Bellotti Ion Beam Facility della reazione di commissioning  $^{14}\text{N}(p,\gamma)^{15}\text{O}$ . Effettuate misure di sezione d'urto e di distribuzione angolare a bassa energia. Contribuito il servizio CAD e l'officina meccanica Bari nella progettazione del setup. Paper in preparazione
- Accettato su PRL un articolo sui risultati della  $^{17}\text{O}(p,\gamma)^{18}\text{F}$ , misura coordinata da Bari
- Montato a LUNA400 il setup della  $^{23}\text{Na}(p,\alpha)^{20}\text{Ne}$ , progettato anche da Bari



# Prospettive per il 2025

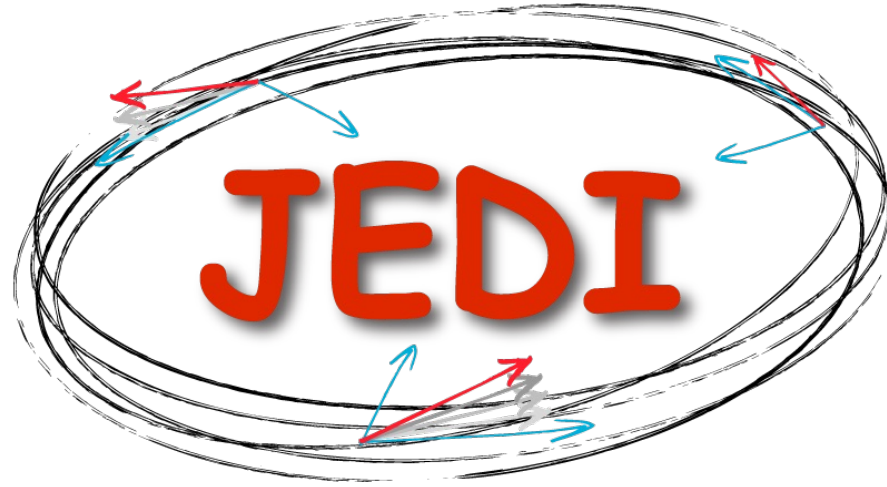
- Partecipazione al gruppo di lavoro per la misura della  $^{22}\text{Ne}(\alpha, n)^{25}\text{Mg}$  nell'ambito del progetto ERC starting SHADES e co-coordinamento della  $^{22}\text{Ne}(\alpha, \gamma)^{26}\text{Mg}$ . Di quest'ultima si deve progettare il setup sperimentale

## Richiesta preventivi

| Consumo   | 15 kEuro per costruzione tavolo |
|-----------|---------------------------------|
| Trasporti | 2 kEuro                         |
| Missioni  | 4 kEuro                         |

# RICHIESTA SERVIZI

- 45 gg/uomo per servizio progettazione CAD
- 45 gg/uomo per officina meccanica : progettazione, costruzione e installazione ai LNGS del supporto per 6 NaI e schermatura in piombo per la misura della  $^{22}\text{Ne}(\alpha, \gamma)^{26}\text{Mg}$  alla Bellotti Ion Beam Facility



33

**J**ülich **E**lectric **D**ipole **I**nvestigation

# Attività JEDI BA



2024

- Sviluppo slow control per test sulla sistematica dell'anello di accumulazione COSY
- Turni misura

2025

- Studi sulla sistematica del sistema RF-Wien filter
- Analisi dati

## Richieste finanziarie

|          |      |
|----------|------|
| Missioni | 2 k€ |
| Consumi  | 0 k€ |
| Apparati | 0 k€ |
| TOTALE   | 2 k€ |

Giuseppe Tagliente: 30 %

$e^-$   Lab12

---

## SBS Era @ Hall A - Program Status 2024 and 2025 outlook

|                        |                                                                                                    |                                                                          |      |
|------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------|
| GMN<br>(E12-09-019)    | GMn/GMD up to 13.5 GeV <sup>2</sup><br>(perspective to 18 GeV <sup>2</sup> )                       | Ratio Method D/H                                                         | 2021 |
| nTPE<br>(E12-20-010)   | Rosenbluth slope in e+n scattering at<br>Q <sup>2</sup> =4.5 GeV <sup>2</sup> , with high accuracy | Same apparatus of GMN; measure $\sigma(e,n)/\sigma(e,p)$ on<br>deuterium | 2021 |
| GEN-II<br>(E12-09-016) | GEN/GMn up to 10 GeV <sup>2</sup>                                                                  | Beam-target double spin asymmetry on <sup>3</sup> He                     | 2023 |
| GEN-RP<br>(E12-17-004) | GEN/GMn at 4.5 GeV <sup>2</sup>                                                                    | Charge-exchange recoil polarimetry (first time!), on<br>deuterium        | 2024 |
| GEP-V<br>(E12-07-109)  | GEP/GMp to 12 GeV <sup>2</sup> (perspective to<br>15 GeV <sup>2</sup> )                            | Polarization Transfer<br>(the most demanding SBS experiment)             | 2025 |

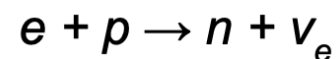
### Developments and Outlook

- Riconfigurazione SBS per GEP-V
- Spostamento SBS in Hall C (>2025)
- JLab Hypernuclear Collaboration
- Studio di fattibilità di misura fattore di forma assiale del nucleone (LoI 2024 - PAC52, Proposal 2025?)

JLAB12-Bari  
FTE: 0.80 (R. Perrino)  
Finanziamento in DOT3

Richieste preliminari: Missioni  
8 kEur / Consumo 3 kEur

Proton weak Form Factor through the  
measurement of the elementary  
reaction

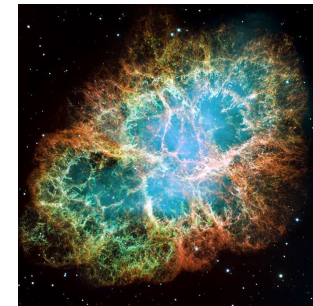
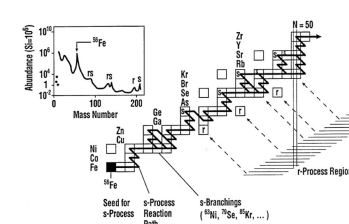
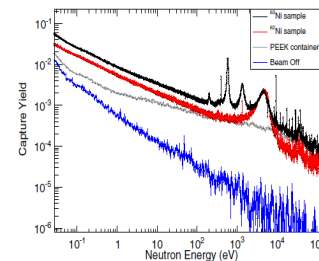
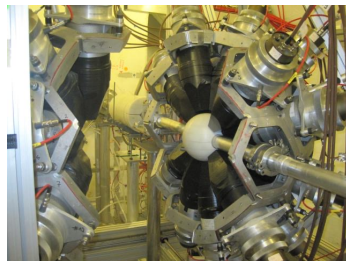
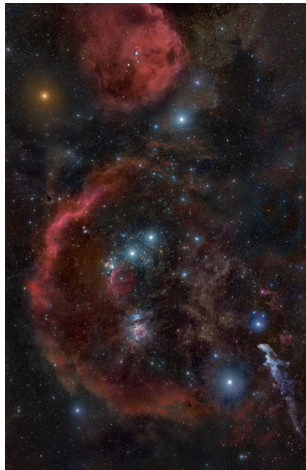


Synergy with nTOF for the  
development of neutron detector and  
with theorists for the physics case  
establishment.  
Collaboration building up.



# Esperimento n\_TOF

## neutron Time Of Flight



# Attività n\_TOF Ba 2024

- Misure attivazione nella NEAR station
- Sviluppo e test rivelatori LaBr
- Sviluppo e test rivelatore anulare per reazioni (n,cp)
- Analisi dati

# Attività n\_TOF Ba 2025

- Misure di sezione d'urto  $(n, cp)$  di interesse per reattori a fusione
- Misure  $(n, n')$ ,  $(n, 2n)$  di interesse per reattori a fusione
- Simulazione del Molecular Dynamics del danno da neutroni in materiali strutturali dei reattori di fusione
- Analisi dati

# Richieste n\_TOF Ba 2025

## Partecipanti

- N.Colonna 100%
- A.M. Mazzone 50%
- G. Tagliente 70%
- V. Variale 50%
- R. Mucciola 100%
- U. Salma 100%

**FTE 4.7**

**PRIN associati a n\_TOF (RADAMES )**

## Supporto Tecnico

- Off. Meccanica
- Tecnico Mecc.
- Tecnico Elet (Sacchetti)

- |            |         |
|------------|---------|
| • Missioni | 34.5 k€ |
| • Apparati | 28 k€   |
| • Consumo  | 5.5 k€  |