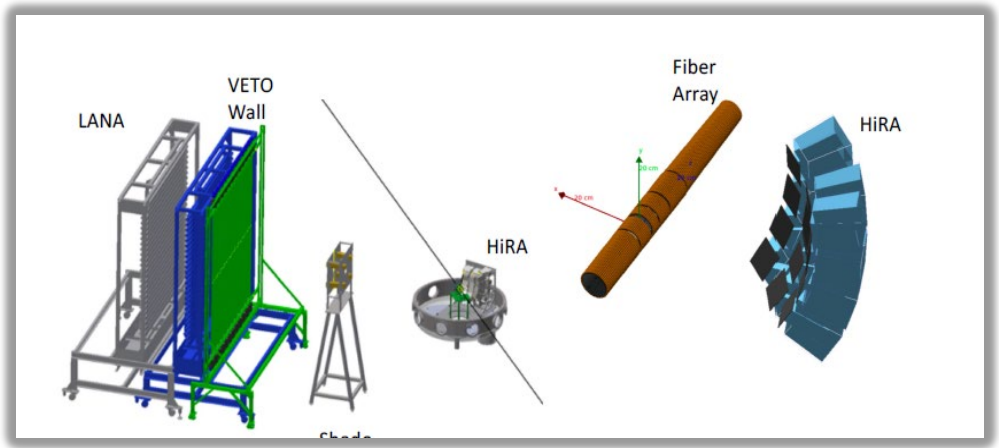
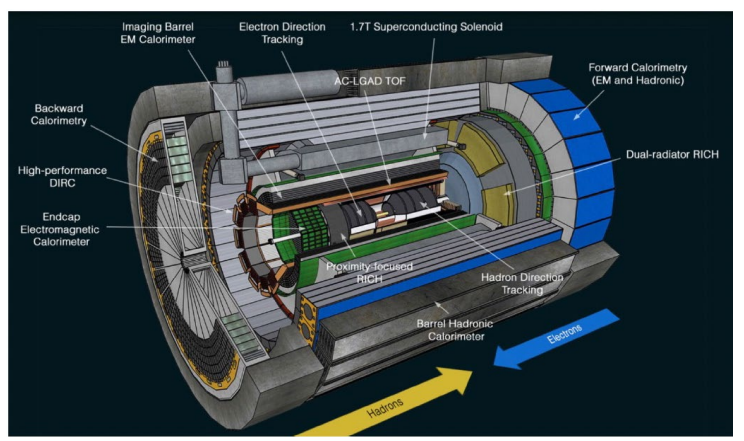
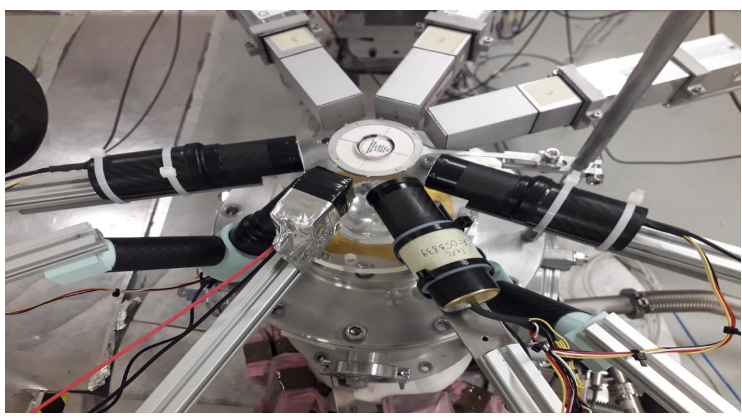


# Gruppo III Sezione di Catania Preventivi 2025

## A. Badalà - INFN Sezione CT



# Riunione CSN3 - Acitrezza - Settembre 2023





**ALICE** 6.7 FTE - 9 R&T  
Resp. CT P. La Rocca

**CHIRONE** 9.37 FTE - 12 R&T  
Resp. CT G. Politi

**EIC\_NET -> EPIC** 1.5 FTE - 7 R&T  
Resp. CT C. Tuvè

**JLAB12** 4.75 FTE - 7 R&T  
Resp. CT MA. Bondì

**N-TOF** 1.7 FTE - 2 R&T  
Resp. CT MG. Pellegriti

**NUCL-EX** 2.6 FTE - 4 R&T  
Resp. CT G. Verde

**Richieste 2025**  
**492 kE + 26.4 s.j.**  
**26.62 FTE**

Responsabili nazionali in Sezione:  
Sara Pirrone (CHIRONE)  
Giuseppe Verde (NUCL-EX)

# Richiesta Dotazioni gruppo3

FTE	Missioni (kE)	Consumo (kE)	Seminari (kE)	Pubbl. (kE)	Inventario (kE)	Tot (kE)
26.62	16.5+9.5	13.5	2.5 +5.0	5.5	21.5	74

Mobilità coordinatore + partecipazione conferenze per FTE

Richieste ad personam per mobilità persone in comitati/commissioni di interesse INFN o per referee non coordinatori

# NUSDAF - Nuclear Structure, Dynamics and Astrophysics at FRIB (MSU)

Proposta di accordo/convenzione fra INFN (CSN3) ed FRIB per attività di ricerca in struttura e dinamica nucleare con fasci radioattivi ad energie  $E/A=100-250$  MeV.

Inizio settembre incontro Giunta (Bettoni) + Pres. CSN3 con direzione FRIB per discutere accordo

- **Fase 1: 2025-2027 - Esplorativa**

Tests, partecipazione ad esperimenti già approvati (Nucl\_ex e Asfin), preparazione LoIs e proposals

Per NUCL\_EX: esperimento 23058 approvato + test blocchi FAZIA e altri rivelatori interessati (Farcos, Oscar, ...) + test accoppiamenti con detectors HiRA e LANA

- **Fase 2: 2027-2030 - Setup e Misure**

Completamento montaggi e campagne di misura

- **Fase 3: > 2030 - Misure**

Altre campagne con esperimenti approvati da PAC  
Disponibilità di FRIB400 a più alte  $E/A$  e  $\rho/\rho_0 > 2.5$

Sinergia fra 5 sigle di CSN3 (ASFIND2, CHIRONE, GAMMA, NUCL\_EX, NUMEN)  
+ 2 iniziative specifiche di CSN4 (MONSTRE, NUCSYS)

**1. SYMEOS - Symmetry energy and Equation of State (NUCL\_EX, CHIRONE)**

Heavy-ion collisions, collective flow, particle-particle correlations, femtoscopy, resonance decays

**2. GASPEC - Gamma & Charged Particle Spectroscopy and Collective Excitations (GAMMA, NUCL\_EX, CHIRONE)**

Shell evolution towards drip lines, collective excitations,, gamma spectroscopy, charged particle spectroscopy

**3. RIBDCE - Radioactive Ion Beam induced Double-Charge Exchange reactions (NUMEN, NUCL\_EX)**

Cross sections for DCE, nuclear matrix elements in neutrinoless double-beta decay, few-body quantum systems, three-body forces, etc.

**4. NUSYC - Nucleosynthesis and Clustering (ASFIND2, CHIRONE)**

Nucleosynthesis, r-, rp-process... clusters...

**5. THEOF - Theoretical nuclear physics at FRIB (MONSTRE, NUCSYS @ CSN4)**

Modelli per struttura e dinamica, few- and many-body systems, meccanismi di reazione

- Isospin transport and symmetry energy in HIC
  - INDRA-FAZIA @ GANIL, RAON (MoU), FRIB (new line NUSDAF)
- Clustering phenomena in nuclei (stable and exotic) and in nuclear matter under extreme conditions
  - OSCAR @ LNL, FAZIA@LNS, GANIL
- HIC at low energies
  - GARFIELD @ LNL
- Nuclear structure and nuclear astrophysics with direct reactions
  - OSCAR @ LNL, ACTAR @ GANIL
- X17 and signals of BSM physics
  - New equipment @ LNL

Realizzazione dispositivo **OSCAR**

-In corso (Si-strip, Si-pad, elettronica associata): 4 blocchi completi + spare detectors and electronics (molti esperimenti a LNL e test per possibili campagne ad WMU e FRIB)

- **ACTAR e GARFIELD**

-1 Esperimento a LNL con GARFIELD appena concluso

-Esperimento a GANIL "Measurement of  $^8\text{Li}(\alpha, n)^{11}\text{B}$  cross section with ACTAR" proposto da M.G. Pellegriti appena concluso (Giugno): analisi dati in 2025

- **X17 @ LNL**: raccolta dati continua

- **INDRA-FAZIA @ GANIL**

- Due nuovi proposal approvati e schedulati nel 2025

1. Measurement of the  $^{12}\text{C}$  Hoyle state radius via double-excitation inelastic scattering

2. Impact of projectile-target size asymmetry on the isospin equilibration rate extracted from quasi-projectile breakup reactions

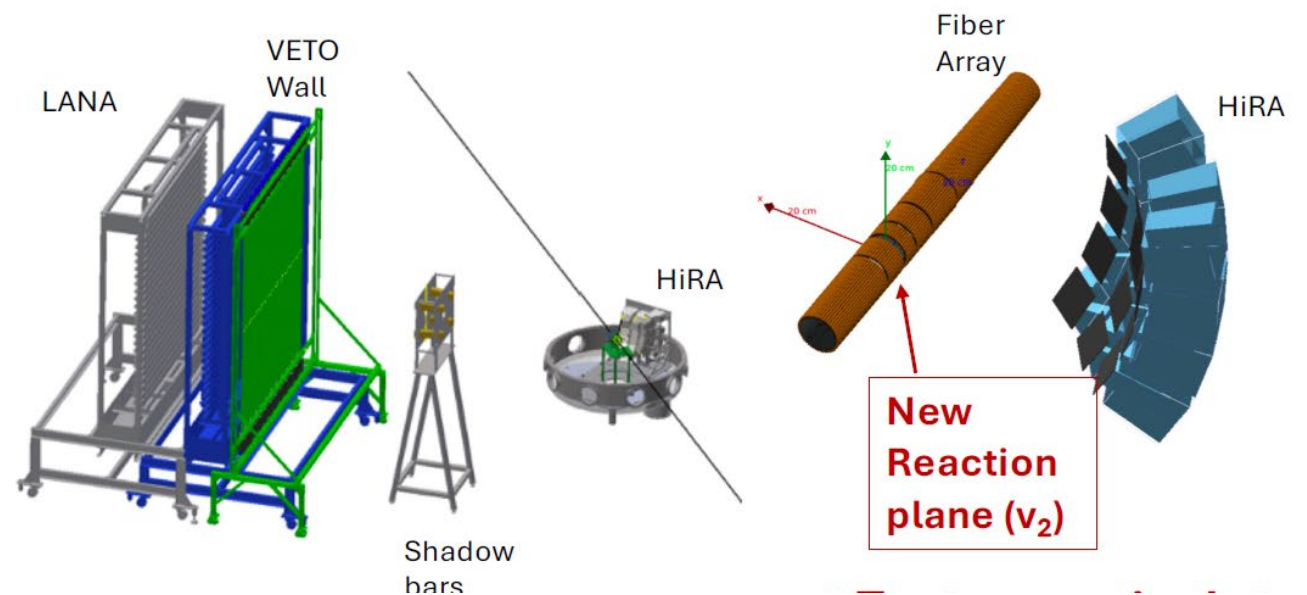
- **Collaborazione FRIB - nuovo progetto NUSDAF**



# New proposal 23058 @ PAC2 FRIB

$^{56,70}\text{Ni} + ^{58,64}\text{Ni}$   $E/A = 175$  MeV

*Constraining the momentum dependence of the symmetry energy and  $n/p$  effective masses with  $n/p$  elliptic flow and energy spectra*



• Proposal signed FAZIA (NUCL\_EX):

**G. Verde, I. Lombardo, T. Marchi, D. Dell'Aquila et al. @ INFN**

D. Gruyer, A. Chbihi, C. Ciampi, J.F. Ducret, Q. Fable @ IN2P3-GANIL

• Approved by PAC2 on February 2023 ( $^{56}\text{Ni}$  at  $10^7$  p/s and  $^{70}\text{Ni}$  at  $3 \times 10^5$  p/s)

• To be run... 2024-2025(?) at higher beam rates available

# NUCL-EX Richieste Sezione di Catania 2025

FTE	Missioni	Consumo	Trasp	Inv	Totale (kE)
2.6	51.5 + 19.4 s.j.	26	5	-	82.5 + 19.4 s.j.

R&T	Qualifica	Percentuale
E. Lanza	Ass. Senior	0
I. Lombardo	RTdB/Ricercatore	0
M.G. Pellegriti	Ricercatore	20
L. Redigolo	PhD	100
M. Russo	Prof. Ordinario	50
G. Verde	Primo Ric.	90

Servizio	m.p.
Elettronica	4
Tecnologie Avanzate	2

## Attività apparati CHIMERA e FARCOS

- Transizione da analogico a digitale dell'elettronica e del Sistema di acquisizione di CHIMERA;
- Sviluppo di un sistema di trasmissione dei segnali da single end a differenziale realizzato dal servizio Elettronica

## Attività @GSI

- Attività Collaborazione R3B (NEULAND)
- Esperimento ASYEOS II - EOS Energia di Simmetria ( $\rho > \rho_0$ )

## Attività preparatorie per sperimentazione con fasci, stabili ed esotici, HI @LNS

- Studio sistemi tagging in CHIMERA per fasci esotici in-flight
- Preparazione nuovi esperimenti

## Sviluppo rivelatore particelle cariche/neutroni

- Realizzazione di un dimostratore

## Attività @HIL-Warsaw

- Caratterizzazione nuovi rivelatori
- Studio di effetti di clustering

## Analisi dati esperimenti pregressi

- Dinamica delle reazioni - Cronologia emissione - EOS Energia di Simmetria - Influenza dell'isospin sui meccanismi reazione - Cluster - Condensati di Bose

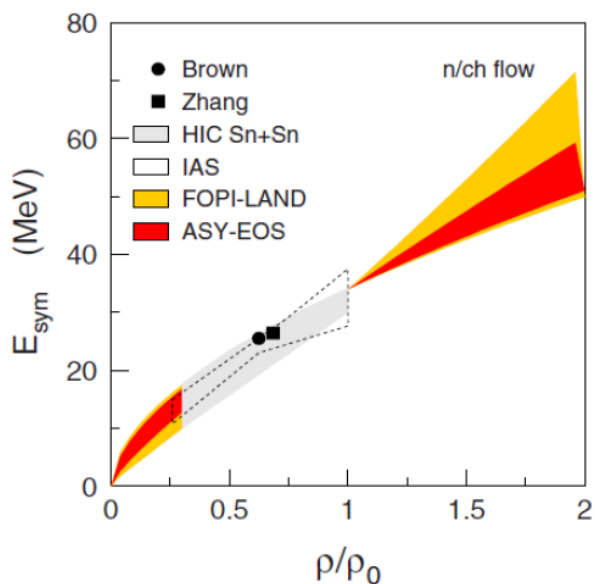
## Attività @SPES

- Estensione studi influenza dell'isospin sui meccanismi di reazione (LOI@SPES)

# CHIRONE at R3B@GSI

2025 planned activities: ASY-EOSII experiment (advancing Symmetry Energy studies towards high densities) approved by G-PAC, scheduled March 2025 Spokeperson P. Russotto

Au+Au @ 400 A MeV

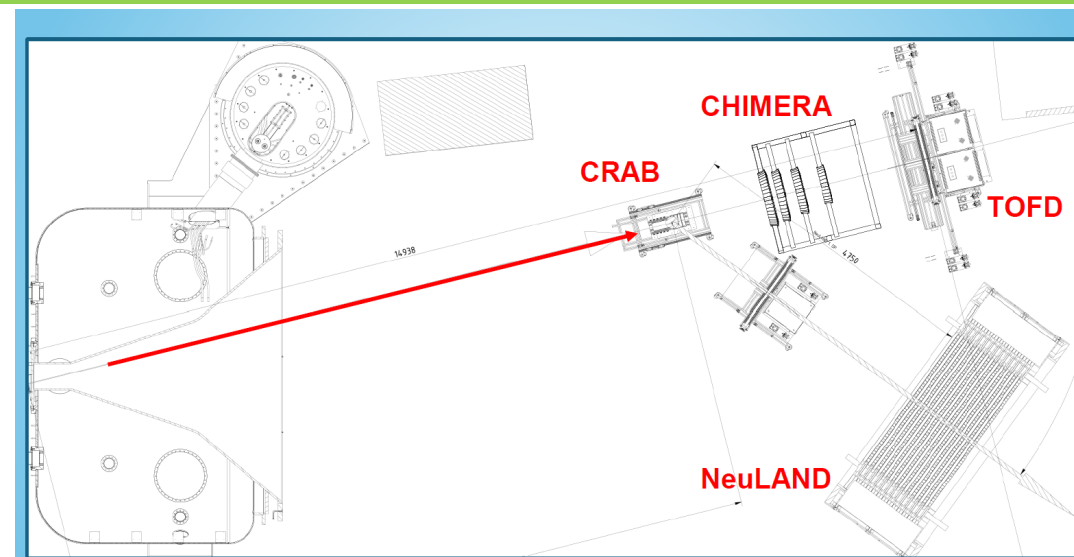


P. Russotto et al.,  
PRC 94, 034608 (2016)

Density to be probed in the ASY-EOS II exp, most relevant for neutron star physics

KRAB: new detector for reaction plane determination and on-beam centrality selection

S122 (ASY-EOS II) set-up in Cave C @GSI



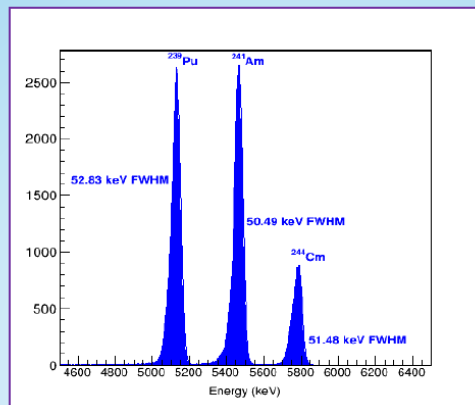
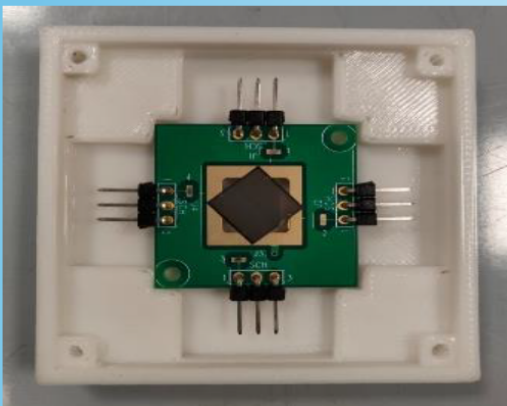
NeuLAND: able to resolve p, d, t

Set-up is going to be arranged and tested at LNS. It should be shipped to GSI on November 2024. Chimera people should start setting up at GSI within this year.

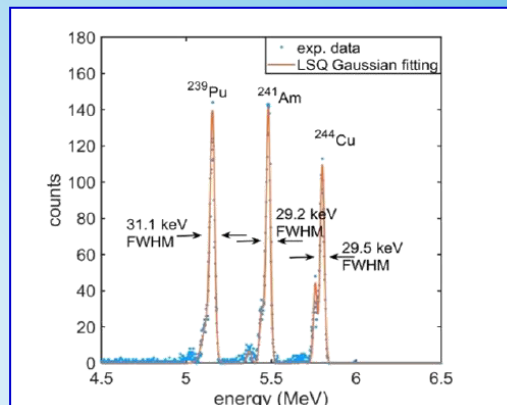


# Preliminary results on SiC

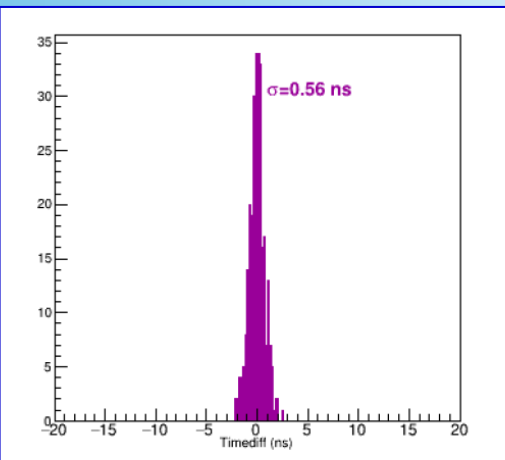
Characterization of 2x2 monolithic SiC detector with a Mesytec preamplifier and a CAEN digitizer DT5742, 1 GHz @LNS



And @ INFN-Milano with ASIC-FARCOS preamplifier



Energy response



In 2024/2025:

- Test at Singletron, DFA Catania,  $H^+ - He^{++}$  1-3 MeV
- Test at LABEC, Florence, proton 1-3 MeV
- **T-INSIDE** (spokespersons N.S. Martorana, E. Geraci) - **approved by HIL PAC, Warsaw**,  $^{12}C+^{12}C$  @90 MeV with two SiC 2x2 monolithic detectors (pad  $5 \times 5 \text{ mm}^2 - 100 \mu\text{m}$ ) in order to extract the time resolution as a function of fragments energy

Timing response

**SAMOTHRACE - Spoke 5  
PNRR (up to Oct. 2025)**

**TASK: Design study of a Silicon Carbide (SiC) particle detector for dose measurements in radiation dosimetry and real-time beam monitoring**

# Advances with NARCOS (Neutron array for correlation studies)

In synergy with PRIN ANCHISE-2020 (3 years starting June 2022). Coordinator and spokes: S.Pirrone/A.Pagano(INFN)-G.Politi(Unict) -M.Trimarchi(UniME) -A.Castoldi(PoliMI).

- Plastic scintillator EJ276-Green Type (ex EJ299-33) ( $3 \times 3 \times 3 \text{ cm}^3$ )
- 1 cluster: 4 consecutively cubes (stack configuration)  $\rightarrow 3 \times 3 \times 12 \text{ cm}^3$  (64 detection cells)
- Reading the light signal: Si-PM and digitalization
- Modular, reconfigurable (in mechanic and electronic)
- Discrimination of  $n/\gamma$  from PSD (but also light charged particles)
- Energy measurement from ToF ( $\Delta t \leq 1 \text{ ns}$  with  $L_{\text{ToF}} \approx 1 \div 1.5 \text{ m}$ )  
TOF measured using the RF of the CS or with an ancillary MCP (low intensity exotic beams)

E.V Pagano NIM A1064 (2024) 169425

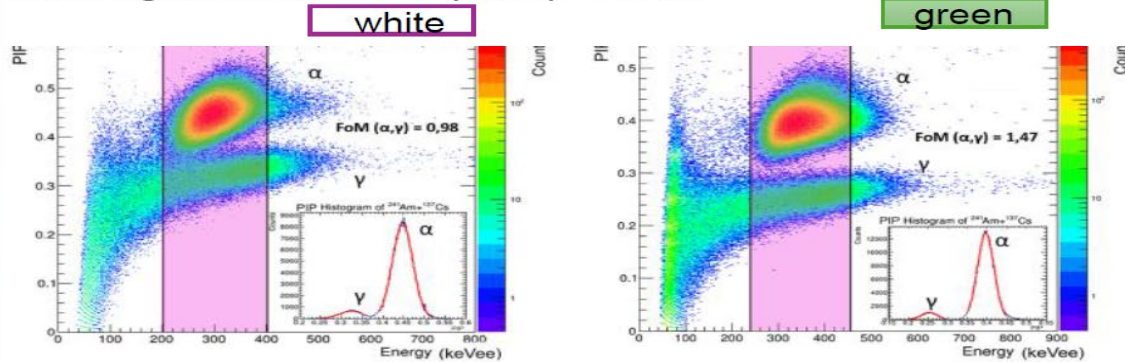


Fig. 4. PIP vs Energy spectrum with  $^{241}\text{Am}$  and  $^{137}\text{Cs}$  sources for the i-Spector + EJ-276 detector; the inset shows the projection of the PIP for the selected region.

Fig. 5. PIP vs Energy spectrum with  $^{241}\text{Am}$  and  $^{137}\text{Cs}$  sources for the i-Spector + EJ-276G detector; the inset shows the projection of the PIP for the selected region.

see E.V. Pagano et al., NC C47 63 (2024)

E.V. Pagano et al Frontiers in Phys. 10, 1051058 (2023)

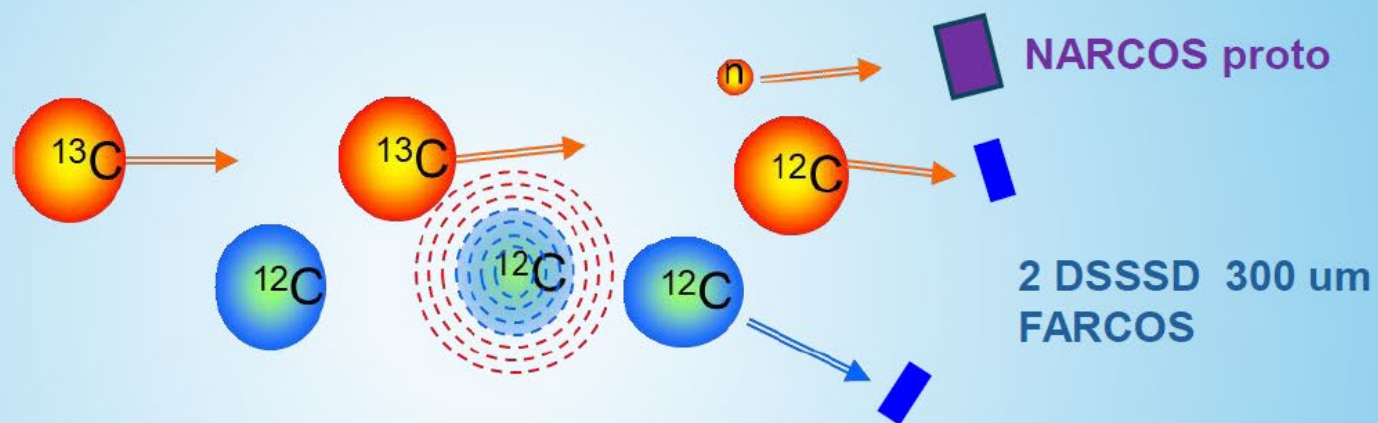
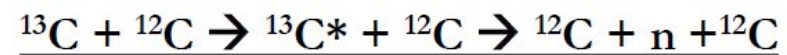
S. Santagati et al, RAD Conf. Proceed. 7, 52 (2023)



Each elementary cell of EJ276G is equipped with a matrix of 25 SiPM (Broadcom  $6 \times 6 \text{ mm}^2$  of  $30 \mu\text{m}$  thickness)

MoReNA (spokes B. Gnoffo, E. Pagano) approved by HIL PAC on Jan 2024

Break-up of  $^{13}\text{C}$





# CHIRONE Richieste Sezione di Catania 2025

R&T	Qualifica	Percentuale
A. Barbon	PhD PNRR	0 (100 S)
G. Cardella	Dirig. Ric.	80 (20 S)
G. D'Agata	RTDA PNRR	0 (100 S)
E. De Filippo	Primo Ric.	79 (21 S)
E. Geraci	Ricercatore	70
B. Gnoffo	RTDA	100
N.S. Martorana	Tecnologo PNRR(S)	0 (100S)
A. Pagano	Ass. senior	100
M. Papa	Primo Ric.	40
S. Pirrone	Dirig. Ric.	87 (7A+6S)
<b>G. Politi</b>	<b>Prof. Ass.</b>	<b>100</b>
L. Quattrocchi	AdR	100
F. Risitano	AdR	100
M. Trimarchi	Prof. Ass.	70

FTE	Missioni	Consumo	Inv	Trasporti	Totale (kE)
<b>9.26</b> <b>+0.07A</b> + <b>3.47S</b>	<b>100</b>	<b>71</b>	<b>18</b>	<b>7</b>	<b>196</b>

Missioni + Materiali per esperimenti programmati

Servizio	Mesi persona
Calcolo e Reti	3.6
Elettronica	9
Tecnologie Avanzate	3

A=PRIN ANCHISE

S=PNRR SAMOTHRACE

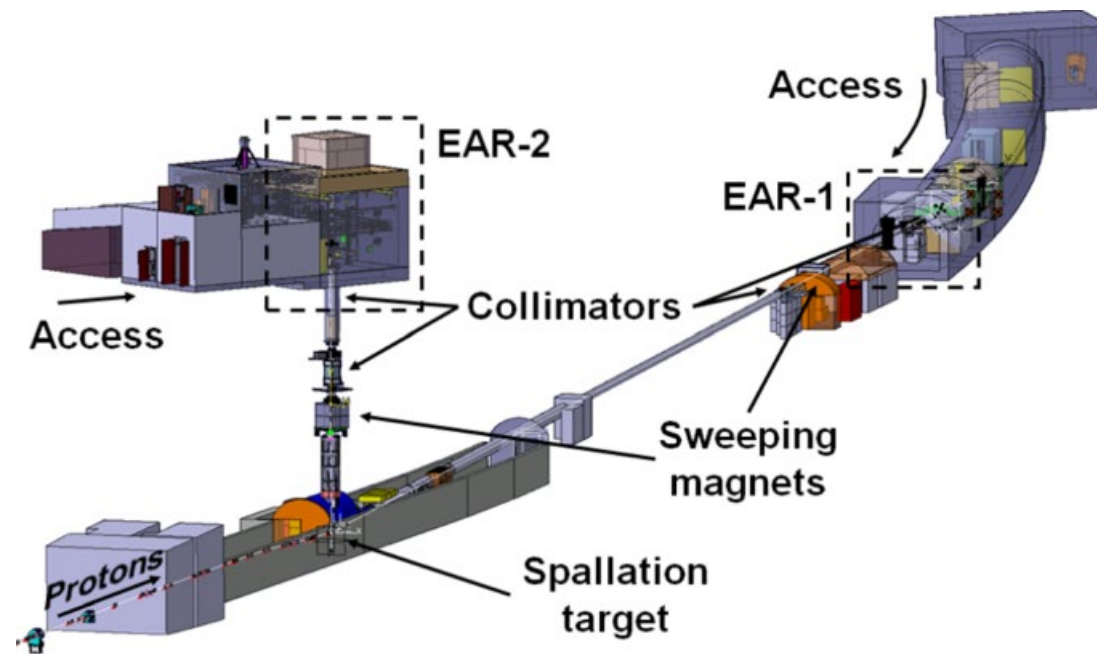


# n-TOF

- The *n\_TOF* facility@CERN
- Experimental activities:
  - A new experimental approach for replacing the  $C_6D_6$  for  $n-\gamma$  capture reactions:

## stilbene detectors development

- Moving further to  $n-n$  and  $n-n'$  elastic and inelastic scattering measurements
- The new stilbene detector array



**n\_TOF** is a **spallation** neutron source based on **20 GeV/c protons** from the CERN PS hitting a **Pb block** (~360 neutrons per proton).  
Experimental area at **185 m**.

# Stilbene detectors development

LoI for stilbene detector development @ n\_TOF

- April 2023 CERN-INTC-2023-034 / INTC-I-254

Spokespersons: J. Balibrea-Correa & A. Musumarra

Studied the performance of regular and deuterated stilbene (stilbene-d12) scintillation crystals with respect to state-of-the-art C6D6 (Deuterated Benzene) liquid scintillators and segmented Total Energy Detectors (sTED).

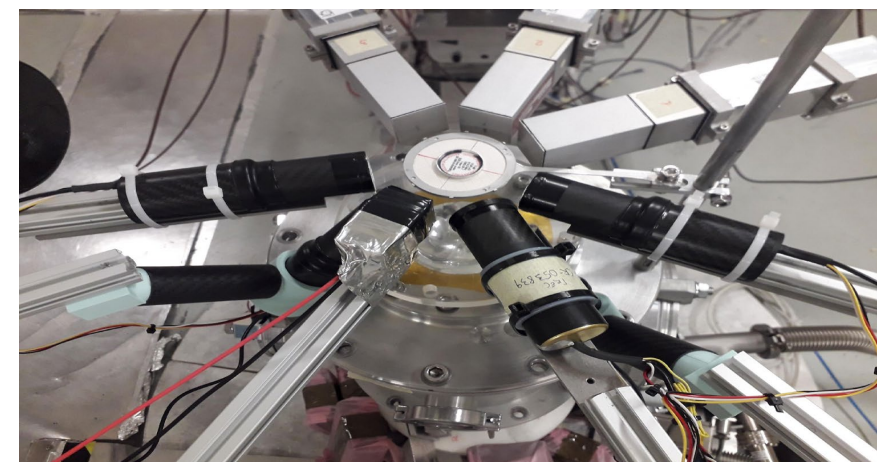
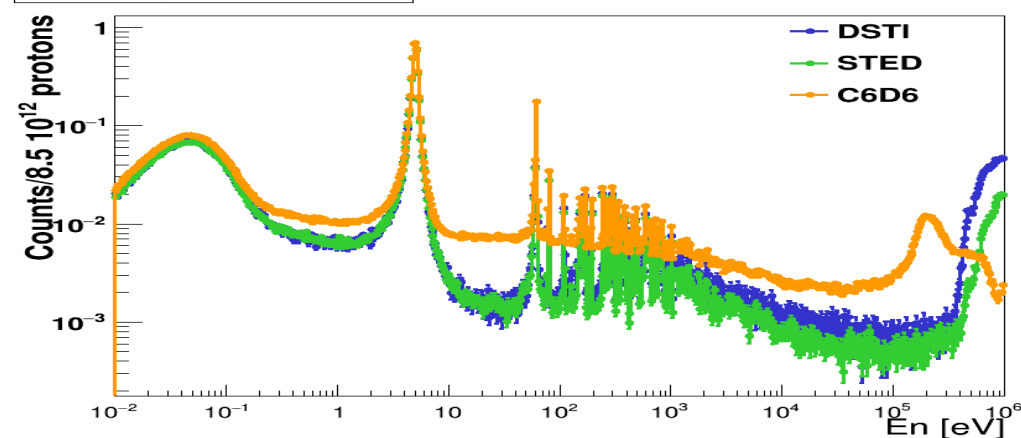
LoI for elastic and inelastic measurements

EAR1@n\_TOF - April 2024 CERN-INTC-2024-028 / INTC-I-274

Spokesperson: M. G. Pellegriti & S. Rudra Narayan

Proposed to study the performances of an array of 8 stilbene scintillators in a n+12C experiment at EAR1, with the aim of proving that the setup is suitable for (n,n) and (n,n') measurements.

0.2 < E<sub>dep</sub> [MeV] < 20.0



Approved on 23/05/2024 -> need for an eight detectors cluster

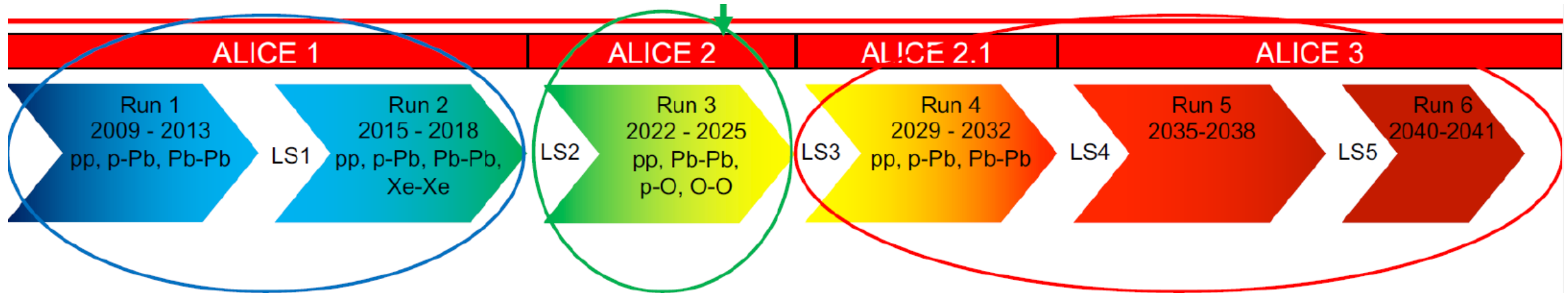
# nTOF Richieste Sezione di Catania 2025

FTE	Missioni	Consumo	Trasp	Inv	App	Totale (kE)
1.7	12	2	-	13	13	40

Materiale e missioni per  
Misura 12C(n,n)12C in EAR1 - Spokes M.G.Pellegriti, S. Rudra Narayan

R&T	Qualifica	Percentuale
A. Musumarra	Prof. Associato	100
M.G. Pellegriti	Ricercatore	70

# LHC Roadmap and ALICE evolution



Original ALICE layout  
Pb-Pb and small systems

Major upgrade, O2

- Higher readout rate
- Higher performance (ITS2)

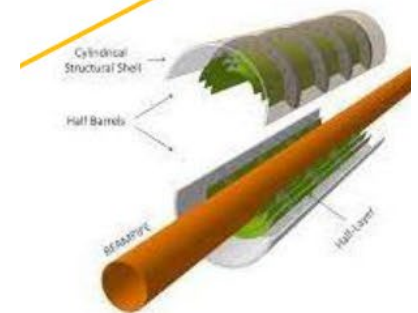
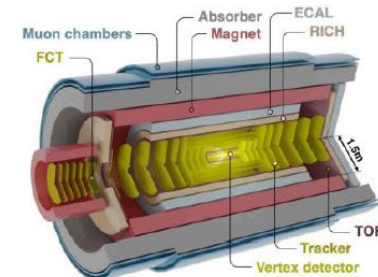
Upgrade projects:

- ALICE 2.1: ITS3 and Focal
- ALICE3 (LOI)
  - Upgraded ITS (ITS3)
  - Focal

CT-ME contribution:

- Characterization of the sensor prototypes
- Construction (ITS2)

- New detector layout, based on advanced silicon sensors





# ALICE Data taking

RUN 1 + RUN 2  
(2010 -2018)

<b>pp</b>	0.9, 2.76, 5.02, 7, 8, 13 TeV
<b>p-Pb</b>	5.02, 8.16 TeV
<b>Pb-Pb</b>	2.76, 5.02 TeV
<b>Xe-Xe</b>	5.44 TeV

RUN 3 + RUN 4  
(2025 -2032)

<b>pp</b>	0.9, 13.6 TeV, 5.5, 8.8, 14 TeV
<b>p-Pb</b>	8.8 TeV
<b>Pb-Pb</b>	5.38 TeV, 5.5 TeV
<b>O-O</b>	7 TeV
<b>p-O</b>	9.9 TeV

RUN 5 + RUN 6  
(2035 -2038)

<b>pp</b>	13.6, 14 TeV
<b>Ligher AA (O, Ar, Ca, Kr, In, Xe...)</b>	?

No officially approved heavy-ion program yet, but could well change

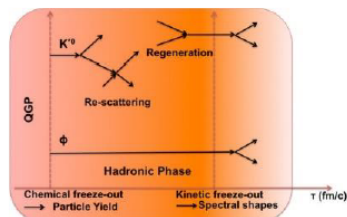
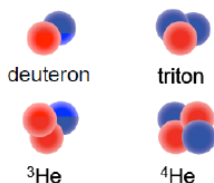
- Usually, LHC operated 1 month per year with heavy-ion collisions
- No HI run in 2022, HI in 2023/2024/2025 → number of physics days increases due to reduced setup & ramp-up time
- pp run extended by 4 weeks in 2024 (shortened by 4 weeks in 2025 as well)

Catania T2 infrastructure is ready and operational (responsibility: Monforte, Platania)

# Attività Catania - Messina

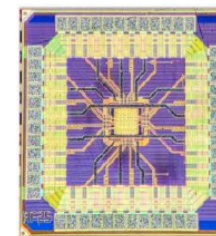
## Data analyses

- Light (anti)nuclei production
- Study of short-lived resonances



## Experimental activities

- ITS2 commissioning and performance studies
  - Chip characterization for ITS3 upgrade
    - Service work



**SHIFT**

### CT Tasks:

- Data Quality Team (QC and Reco checks)
- Data Quality Team (async QC)
- ITS2 expert on-call
- ITS2 performance study (TBD)

**Marika Rasà:** Deuteron and p production in jets and UE in p-Pb collisions + Study of the  $3\text{H}/3\text{He}$  ratio in pp collisions at 13.6 TeV: **Similfellow Project**

**Alessandro Sturniolo:** Charged  $K^*$  in pp collisions at 13.6 TeV (RUN3 data) + ITS3

**Andrea Sofia Triolo:** research activity on ITS2 at CERN

**Giuseppe Gallo:** PNRR HPC Excited  $\Omega$ -Baryon with standard and ML algorithms

# Caratterizzazione chip ITS3

- Different test structures under test (analog, digital, ...)
- Strong effort from several INFN institutes (CA, CT, BO, TO, TS) for chip characterization

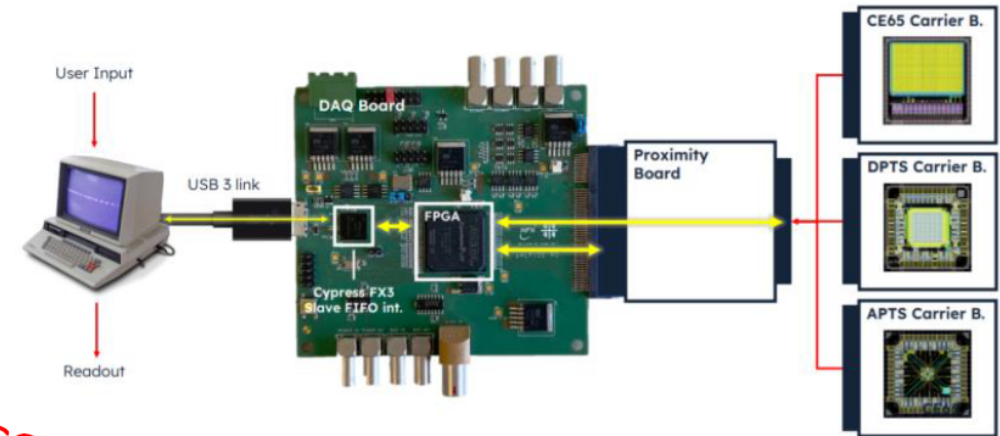
## Local activities:

- Test setup fully operational from January 2022
- Optimization of the working point
- Development of analysis code
- Electrical characterization of different chips
- Radioactive source measurements ongoing (@ LNS)
- Participation to test beam
- Chip bonding
- Tests with laser

[PhD Marika Rasà- CT, Alessandro Sturniolo – ME]

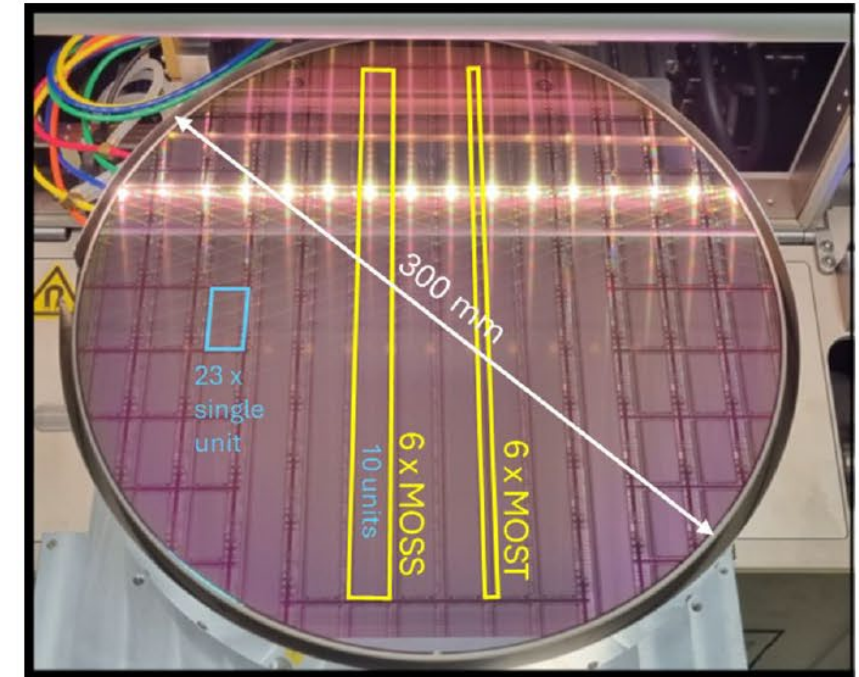
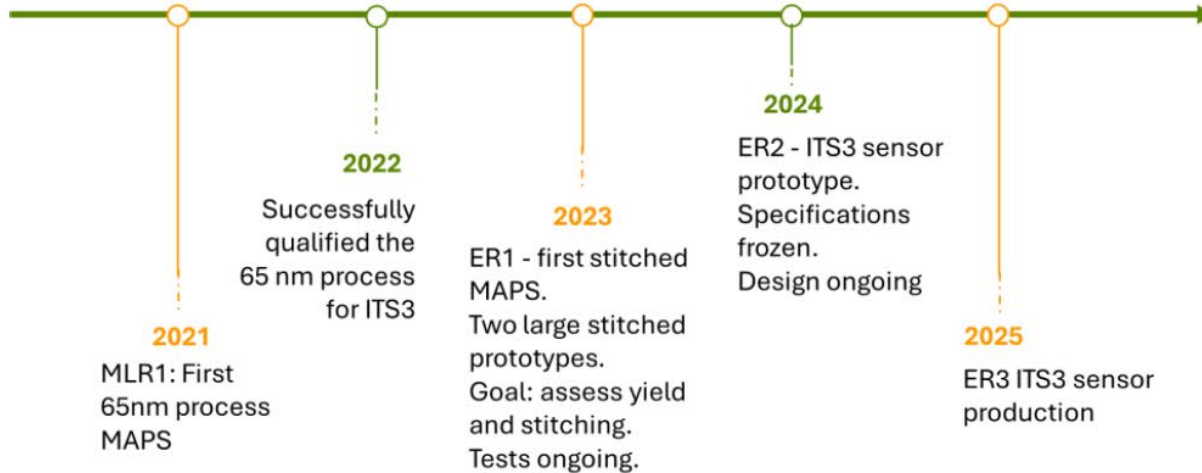
## Support from:

- Servizio elettronica (Gaspare, Filippo)
- Servizio tecnologie avanzate (Francesco, Antonio, Nunzio, Domenico...)
- Progettazione meccanica (Antonio)



ACTIVITY COMPLETED

TDR for the ALICE Inner Tracking System 3  
- ITS3 CERN-LHCC-2024-003



## CHARACTERIZATION OF STITCHED SENSORS

### Goals:

- Show feasibility of stitching process
- Understand stitching 'rules', redundancy, fault tolerance

Involvement of the CT team in the test of small stitched sensors (baby-MOSS)



# ALICE Richieste Sezione di Catania 2025

R&T	Qualifica	Percentuale
G. Andronico	Primo Tecnologo	20
A. Badalà	Primo Ricercatore	100
G. Gallo	RtdA PNRR	0
P. La Rocca	Prof. Associato	80
G. Mandaglio	Prof. Associato	70
S. Monforte	Tecnologo	30
M. Rasà	PhD	100
F. Riggi	Ass. Senior	0
A. Sturniolo	PhD Me	100
A. Trifirò	Prof. Associato	70
A. S. Triolo	PhD Me	100

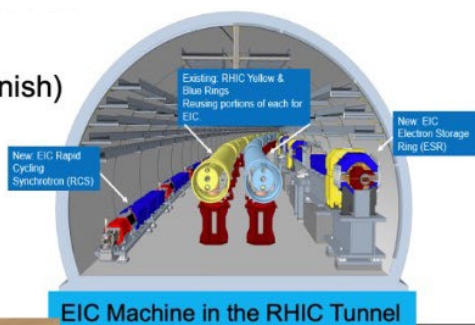
FTE	Missioni	Consumo	Totale (kE)
6.70	46	6.5	52.5

Presenza dati e riunioni collaborazione

Servizio	Mesi persona
Calcolo e Reti	3.6
Elettronica	2
Progettazione meccanica	2
Tecnologie Avanzate	5

Alla riunione di CSN3 del 18-19 Giugno 2024 è stata ufficialmente approvata l'apertura della sigla EPIC

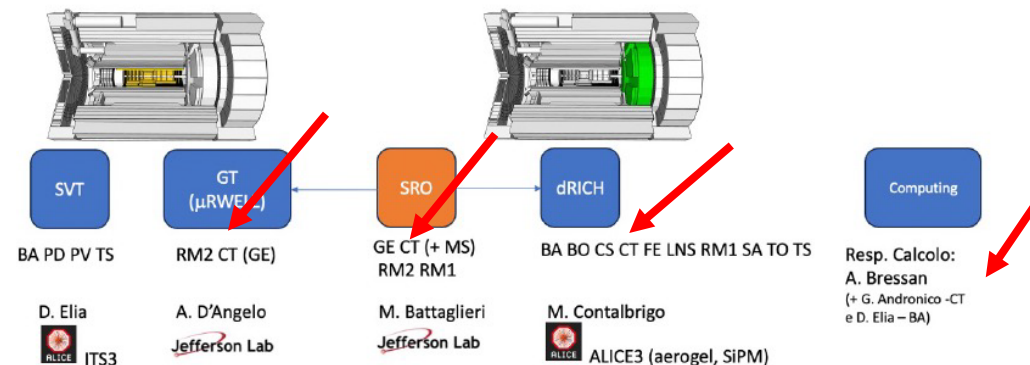
- 2026 CD-3 Start of Construction
- 2033 CD-4 Start of Operations (Early Finish)
- 2035 CD-4 Start of Operations



## ePIC organization and INFN contribution



- dRICH team leaders (all INFN + Duke + Niser) indicated **Marco Contalbrigo** as DSSL (I acted as facilitator/some how convener in the process) ( TO GE TS FE BO BA RM1 RM2 CT LNS CS SA are members of dRICH DSSC )
- EIC Silicon Consortium morphed in Silicon Vertex Tracker DSC → **Ernst Sichtermann** as DSSL (LBNL) (PD BA TS PV are members of SVT DSSC)
- Gaseous Trackers (MPGD) → **Kondo Gnavno** (JLab) is DSSL (RM2 + GE/CT)



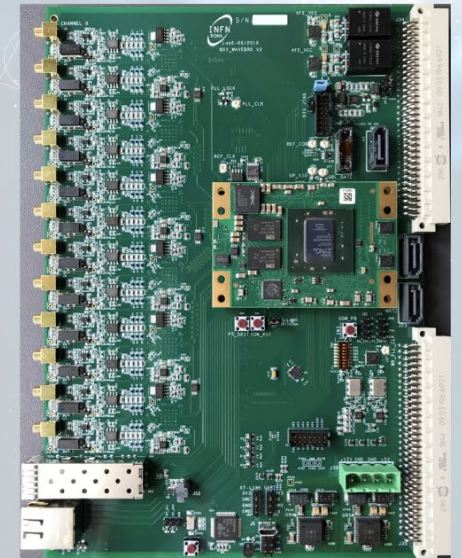
- Responsabile nazionale role is changing: less "coalescence" work, more "pure INFN coordination" work
- Detector sub-system oriented presentations towards our referees last 31<sup>st</sup> August

# Catania activity in ePIC

- Participation at test beam and a quality assurance SiPM for dRICH (C. Tuvè + Catania student)
- MC simulation of EndCap MPGD Disks geometry (M. Bondi)
- SciGLASS characterization (I. Calì thesis)
- Preparation of a large-area cosmic-ray telescope at Uni-Messina (G. Mandaglio, M. Bondi, A. Riggio)

Preparazione di un cosmic-ray telescope di larga area sfruttando le camera di EEE installate presso Uni-Messina:

- Facility per caratterizzazione di cristalli / glass scintillator: il campione da caratterizzare (DUT) e' collocato tra le camere di EEE
- Setup di un sistema di acquisizione dati parallelo a quello di EEE, basato su tecnologia streaming-readout (sviluppo in sinergia con il JLAB).
- FEE basato su Wavebaord (ciascuna scheda acquisisce 12 canali indipendenti, con una frequenza di campionamento di 250 MHz, dinamica 14 bit, ampiezza massima 2V. La scheda contiene, al suo interno per ciascun canale, un front-end analogico per i SiPM che amplifica il segnale degli stessi. La scheda contiene anche la parte di alimentazione di ciascun SiPM.)
- Correlazione offline degli eventi per caratterizzare la risposta del campione.



# ePIC Richieste Sezione di Catania 2025

FTE	Missioni	Consumo	Inv	Totale (kE)
1.5	11.0+7.0 s.j	1.0	-	12+7.0 s.j.

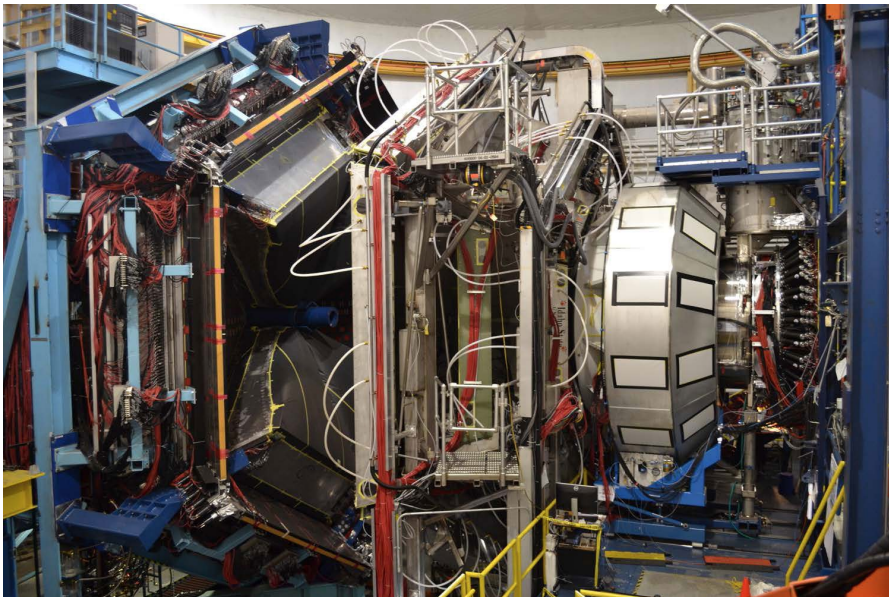
Missioni per test beam +  
riunioni collaborazione

R&T		Percentuale
G. Andronico	Primo Tecnologo	20
M.A. Bondì	Tecnologo	10
P. La Rocca	Prof. Associato	20
G. Mandaglio	Prof. Associato	20
A. Riggio	PhD	20
C. Sutera	Ass. Senior	0
C. Tuvè	Prof. Associato	50
G. Verde	Primo Ricercatore	10



Activity in 2025:

- Hadronic physics
- Light dark matter searches



**HALL B** - understanding the 3D nucleon structure, hadron spectroscopy and nuclear effects. Dark photon search.



**HALL A** - form factors and PDFs, hyper nuclear physics, Physics BSM

**BDX** - searching for light Dark Matter **Spokespersons:** M. Bondi and M. De Napoli





## Catania group involved on many fronts:

- Contribution at MesonEX program
- Luminosity upgrade: Proposal about **Double Deeply Virtual Compton Scattering (DDVCS)** measurement (to be submitted in 2025) to be realized in  $\mu$ CLAS12 in the phase-II **M. Bondi Co-Spokesperson**

– Development of the physics case for future Jlab upgrades (positron beam @ "22" GeV)

**XYZ spectroscopy @ JLAB22** (Pilloni - Foti)

## Activity for 2025:

- Data taking on hydrogen and nuclear targets
- Analysis of newly processed "pass2" data
  - R&D on tracking detector and readout electronics for the luminosity upgrade
  - Studies of the physics case and new detector components for the future JLab upgrade
- AiDAPT project - AI for Data analysis and Preservation

## Catania contribution 2024:

- Simulation studies for detector design
- R&D uRWELL technology in collaboration with INFN-ROMA2
- Test Beam @ Cern in Nov24
- R&D readout electronics (APV25 readout and new VMM3) in collaboration with INFN-Genova

## Catania contribution 2024:

- Studying generative algorithms to extract amplitudes and resonance information from data in a model-independent way
- Closure test on MC  $2\pi$  photoproduction data completed

**Heavy Photon Search - HPS** (M. De Napoli) e- fixed target experiment installed in HALL B searching for dark photon visible decay

**Prospectives:** Jeopardy 2024 -> Possible next beam time window from 2027.

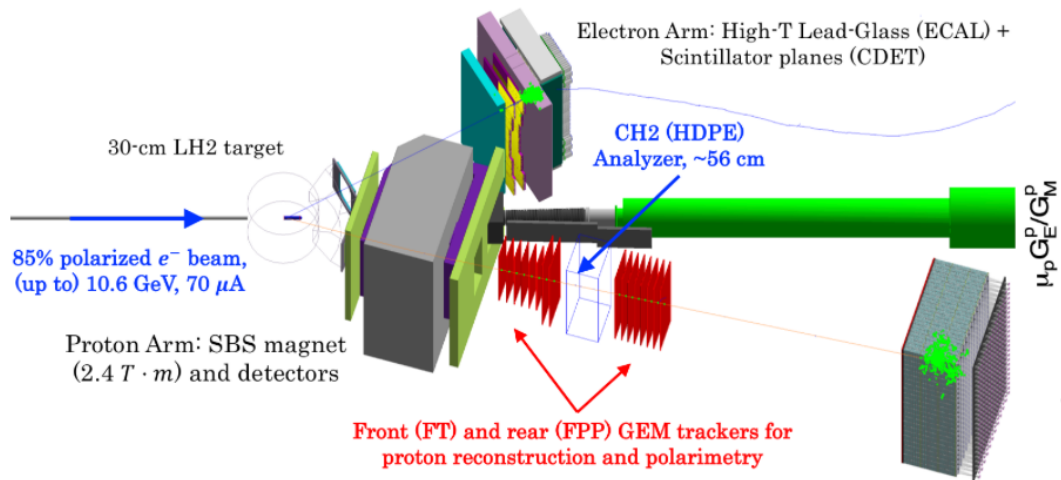
## **Beam Dump eXperiment Status**

- JLab PAC51 re-evaluate the proposal confirming A rate
- Started discussion with JLab-Facility-Management to build BDX infrastructures

## **Activity for 2025:**

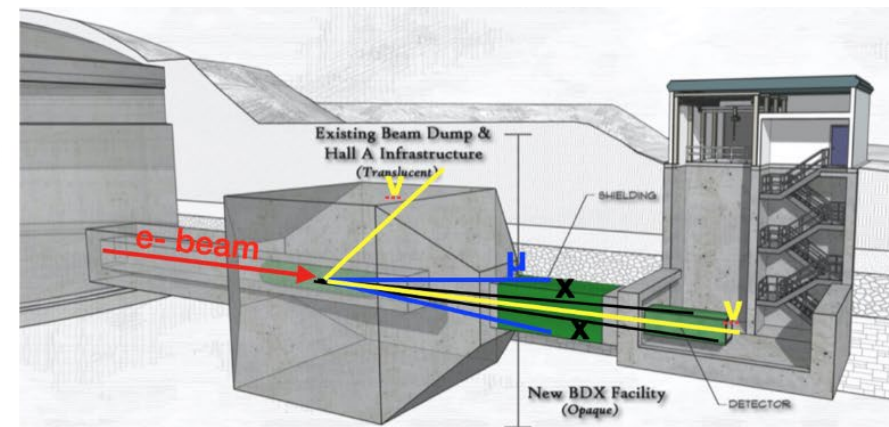
- Construction of first detector modules ( in collaboration with INFN-Ge, INFN-Pavia & JLAB)
- Continue the background simulation study and optimization of the lead shielding
- Work on BDX-DAQ in collaboration with INFN-GE and JLAB
- Organization of workshops

# HALL A & Secondary beam @JLAB



Nell'estate 2024 inizierà l'installazione di tutto SBS per l'esperimento Gep (fattore di forma elettrico del protone) presso HALL A (C. Sutura & V. Bellini)

Secondary beam @ JLAB Co-spokesperson  
M. Bondi  
MC Simulation and study of secondary beams (muons, neutrinos...) PhD thesis A. Fulci



# JLAB12 Richieste Sezione di Catania 2025

R&T	Qualifica	%
G. Arcadi	Prof. Associato	50
M.A. Bondì	Tecnologo	65
P. Castorina	Ass. Senior	0
M. De Napoli	RTdB/Primo Ricercatore	0
G. Foti	PhD PNRR ex DM 118/2023	100
A. Fulci	PhD	100
A. Piloni	Prof. Associato	50
N, Randazzo	Dir. Ric.	30
A. Riggio	PhD	80
C. Sutera	Ass. Senior	0

FTE	Missio ni (kE)	Consumo (kE)	Inv. (kE)	Totale (kE)
4.75	58	51	-	109

Missioni + Consumo/Apparati per esperimenti CLAS12, BDX, HPS

Servizio	Mesi persona
Tecnologie Avanzate	2
Progettazione meccanica	2

**GRAZIE**



