

BTF

E. Diociaiuti and L. Foggetta on behalf of

BTF Group (3,8 FTE: external user, PADME, ASIF2 & EUROLABS)

3,2 Beam Line scientist, activities for BTF Beam Availability (typical 240 over 320), every week:

- 1 Main Beam scientist 24/7 (a là DAΦNE)
- 1 Assistance Beam scientist (setup and on call)
- 1,2 Beam scientist pre-post assistance (for respective previous and following weeks slots) call procedure, plus 0.8 unit for further setupmaintenance-project-upgrade development (both HW and SW)

New BTF Setup: B. Buonomo (Tech Coord.), E. Diociaiuti(BTF Staff), L. Foggetta (Scient. Coord.), C. Taruggi (PNRR, BTF Staff),	Shared
New Setup LINAC: C. Di Giulio (LINAC serv. Coord.), D. Di Giovenale (LINAC staff)	FTE

BTF STATUS







BTFEH1 – BTF1 (2 lines) BTF EXP. HALL 1 (BTFEH1) Hall operational, system revamped and upgraded for PADME (mechanics, vacuum, gas safety and delivering, logistics, magnet services, DCS) Experiments • FLASH-VHEE detector community interest, two run slot requested for 2025 Q4. Area requested for FIREBALL@LNF, EUROLABS, ASIF-2 BTF1 BTF2 bend BTFEH2 – BTF2 (1 line) $12m^2$ 20m² BTF1 straight Hall stand by $1m^2$ **BTFEH2** Requested from 11 experiment, out of call, waiting Needs one week to be put in run for external user (DAQ and diagnostic) **BTFs Booking Software GUI upgrade Involved in EUROLABS Project BTF-common** Involved in ASIF-2 Project, primary beam at 150MeV (also for VHEE) line Upgrading DCS and Logging with EPIX8/Phoebus at production level

LINAC serves only BTF, 50 Hz dedicated mode





Jan. 2025 - Dec. 2027

- Bruno Buonomo (Technical Coord.) INFN-LNF
- Luca Foggetta (Scientific Coord.) INFN-LNF
- Michela Marafini CREF
- Nicola Mori INFN-FI
- Lina Quintieri (Chairperson)- RAL, STFC-UKRI



We warmly welcome the new committee and extend our heartfelt thanks to the previous one: Michela Prest (Uni.dS. Insubria), Florian Burkart (DESY), and Vincenzo Patera (Uni.dS. Roma Sapienza).

Your exceptional skills and wise guidance have been invaluable on our BTF journey. We are deeply grateful for your dedication and contributions

14-15/05/2025



CALLS FOR USERS

- 2024 Q1-Q2, Q3, Q4calls
 - Calls fully booked and committed, from startup to shutdown
 - 232/236 days as beam availability
- 2024 Q4 mixed call
 - All 24/7 operations except PADME Q4 and maintenance weeks, LINAC needed longer conditioning
 - Maintenance respawn on 2025 shutdowns
- Withdrawal
 - Remained 3, no further withdrawals
- 2025/2026
 - 2025 Q4 open call for external users not executed for giving more beam time to PADME
 - PADME expected to run up to half of November
 - Then 1 week for LINAC and BTF conversion to EXT. USERS mode, then 4 weeks
 - 2026 External user call, PADME or mixed period



NEXT DUMMY CALENDAR





BTF USERS









Beam Availability Days (up today)



2024 Beam availability days = 232 (done)/236 (foreseen) Shift average time = 6,5d Average team member number = 7



LNF – BTF NUMBERS

2022-2024 Involved Institutions









- Good Regional Equalization Between IT
 Institutions
- Increased prevalence of non IT University and more INFN sites

INFN BTF1S HI RANGE SCANS W PRIM. BEAM



tituto Nazionale di Fisica Nucleare Laboratori Nazionali di Frascati

FLASHDC (Beam characterization via Air Fluorescence) SiPM (A. Trigilio et al.)

This experiment aims to measure pulsed beam charge and centroid position by means of SiPM array in a cylindrical darkroom. This setup is calibrated to read-out part of the fluorescence spectrum emission in air induced by the passage of 510 MeV primary electron beam. The charge measurements have been compared with those of the BTF ICT's, with single pulse charge tuning from 10 pC (lower ICT sensitivity range) up to around 1 nC range.

The experiment demonstrated the detector's performances in terms of linearity, centroid sensitivity and the understanding of the detector's capabilities.





BTFEH1 EXPERIMENT

The centroid measurements was performed by steering the single set beam inside the detector itself, multiplicity scan with ICT



High intensity beam multiplicity scan and steering 510MeV, 10^10 down to 10^7 e/pulse



2025 DISSEMINATION



High numbers of involved people, mostly due to E. Diociaiuti, C. Taruggi and D. Di Giovenale

Event Type	Target	Number of students/people involved
PhD tutoring	PhD Students/BTF users	10
LNF visit guide	University and Secondary school	<mark>2380</mark>
Childhood/Teenager tutoring at school	Primary and Lower Secondary school students	<mark>696</mark>
Lab events	(INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE, Open day, INSPYRE)	132

Congratulations to S. Bertelli and her team for their dedicated efforts in accelerating the dissemination of scientific knowledge both within Italy and internationally

BTF restart



BTF MANAGEMENT AND RESTART



To help LNF PMO and LNF services in the next years, BTF:

- with BTF and LNF services private meetings, standardize each LNF service planning timing and contingency, for their specific activities in BTF restart
- Production of the LNF services ready-to-go date in a related follow-back automated GANTT with just one milestone: first day of user beam on
- Production of BTF activities GANTT, steered on these milestones (as in the past years)
- Gathering of all the show stopper activities during runtime year long (mostly scheduled via defined intervals) from all the DA and DT services (as in the past years)
- 6 subGANTT in a main one
- Tested in this restart: OK

	dic 24	gen 25 deb 25 mar 25 japr 25 mag 25	giu 25 lug i	15 jago 25 jae	t 25 ott 25 n	ov 25 dic 25 gen 26	feb 26 mar 26 japr 26 mag 26 glu 26 jlug 26 jago 26 jset 26 jott 26 jnov 26
1/24				Aggiun	gere attività coi	n date alla sequenz	mporale
n	Modali	Nome attività	Durata	- Initio	- Eine	- Predecerrori	wio 2025 marzo 2025 04 07 10 13 16 19 27 25 28 03 06 09 17 15 10 21 24 27
ì	attrita •	 A RipartenzaserviziBTF2025Q123 	34 g?	11/02/25	30/03/25	• Predecessori	
	*	BTF Beam ON for users	08	30/03/25	30/03/25		
		* LINAC	10 g	05/03/25	19/03/25		
		LINAC ready for safety check, no beam	78	05/03/25	14/03/25	31;5IF	· · · · · · · · · · · · · · · · · · ·
		contingency	38	14/03/25	19/03/25	5510	19/03
		< Vuoto	78	19/02/25	28/02/25	550	• • • • • • • • • • • • • • • • • • • •
		BTF Pumps, vacmeters, valves ready	18	19/02/25	20/02/25	91F	
		Vacuum Settling	1 g	20/02/25	21/02/25	10IF	<u>6</u>
		contingency	5 g	21/02/25	28/02/25	11/F	
		Vacuum ready	0 g	28/02/25	28/02/25	461F	a 28/02
		* FISMEL	3 g	14/03/25	19/03/25		
		Safety checks LINAC+BTF ready	28	14/03/25	18/03/25	511;151F	
		Safety check done	15 0g	19/03/25	19/03/25	SSIF	19/03
		 Servizio Diagnostica 	58	07/03/25	14/03/25	330	
		Timing Ready	1 g	07/03/25	10/03/25	19IF	
		Diagnostics ready	1 g	10/03/25	11/03/25	201F	
		Cams ready	18	11/03/25	12/03/25	211F	
		contingency	2 g	12/03/25	14/03/25	221F	
	4	Diagnostic ready	0.8	14/03/25	14/03/25	531F	La 14/03
		- Servizio Elettrico	48	19/02/25	25/02/25	2610	
		Restart Mains power supply and tests ready	1 g	19/02/25	20/02/25	2511	
		PLC restart and test ready	1 g	20/02/25	21/02/25	261F	
	-	contingency	2 g	21/02/25	25/02/25	271F	
	4	Mains and PLC ready	0.8	25/02/25	25/02/25	291F	25/02
	-	4 Servizio Fluidi	6 g	25/02/25	05/03/25		
		Cooling tower and fluids service ready	1 g	25/02/25	26/02/25	301F	
		contingency	58	26/02/25	05/03/25	311F	ar 103
		Huids ready	22.0	05/03/25	05/03/25	3411	4 03/03
		PS restart and PS local test	15 0	12/02/25	05/03/25	341F	
		PS and magnets full power test	28	05/03/25	07/03/25	351F	G
	-	contingency	58	07/03/25	14/03/25	36IF	
	-	Magnets ready	0 g	14/03/25	14/03/25	53IF	14/03
۵.		- Controlli	19 g?	11/02/25	10/03/25		
	-123	 IT HW Ready 	9 8?	11/02/25	24/02/25		
		IT HW restart and test	4 8?	11/02/25	17/02/25	401F	
		contingency CONTINUE DOE SHI Beardy	587	17/02/25	24/02/25	4211	
-		IT SW restart and test	50	24/02/25	03/03/25	431F	
		contingency	58	03/03/25	10/03/25	441F	
	-	Controls ready	08	10/03/25	10/03/25	19IF	G 10/03
		≠ BTF	10 g	28/02/25	14/03/25		
	-	BTF startup	58	28/02/25	07/03/25	491F	
		contingency	58	07/03/25	14/03/25	501F	
		BTF ready for beam	0 g	14/03/25	14/03/25	531F	G 14/03
		Performance lest MAGNET remote control test + RTE DCE	11 g	14/03/25	30/03/25	5515	Alessandro Vann
	***	software test + contingency	~6	14/03/25	100120	350	
		LINAC beam test + contingency	3 g	19/03/25	24/03/25	571F	Claudio
	-	BTF beam test (no user) + contingency	5 R	24/03/25	30/03/25	11F	<u> </u>
5		DAFNE Ready for test beam	0.8	30/03/25	30/03/25	53;57;55	
0		RipartenzaserviziBTF2025Q4	33 g?	06/08/25	22/09/25		
		* BTF_calendar_2025	520 g?	25/11/24	20/11/26	CALI	- 05/03
		A DATALE NEEDED Service 2025 C122	~ g	14/02/25	14/02/25	C:\Users\Luca\(14/02
		- DATHE NEEDED SERVICE 2025 Q123	0.0	14/03/25	14/03/25	CALIFORNAL MARK	14/03
		Operators shift start	~ 8 0 e	14/03/25	14/03/25	6	a 14/03
		4 LINAC for Q1 Q2 Q3 2025	× 5 85 g	25/11/24	24/03/25	·	
		Maintenance	85 g	25/11/24	24/03/25	11/F	
		LINAC beam ready	0.0	24/03/25	24/03/25	C:\Users\Luca\r	24/03
		* BTF for Q1 Q2 Q3 2025	- 5 147 g?	08/01/25	31/07/25	e. foreistenca (r	
		+ BTF1&BTF2 power on	87 g?	08/01/25	08/05/25		
	*	SHUDOWN BTF end	0 g	08/01/25	08/01/25		
	*	maintenance	Sg	08/01/25	14/01/25	15	
í.	*	maintenance	5 g	15/01/25	21/01/25	16	
i.	*	BTF preparation	33 g	22/01/25	07/03/25	17	
		BTF ready for startup tests	0 g	14/03/25	14/03/25	C:\Users\Luca\t	# 14/03
	-	BTF beam trials ready	12 g	14/03/25	31/03/25	C:\Users\Luca\(
		4 PADME RUN IV	29 g?	31/03/25	08/05/25		
	*	beam availability	15 g?	31/03/25	18/04/25		
,	*	shutdown	3 8?	19/04/25	22/04/25		
	\$	shutdown	5 g?	22/04/25	26/04/25		
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i.	*						



MAINTENANCE AND UPGRADES



Maintenance/upgrade 2025 for getting prepared for PADME (BTF effort shared with named LNF services) Done during the longer shutdown period (20 Dec 2024 -10 Mar 2025) due to LINAC building unavailability

BTFEH1 GAS

- pipeline installation for PADME TPC
- Extended certification range for freeing ops up to July 2025 end

VACUUM

- BTF1S pumping restoring
- BTF1B end of line and reset design for vacuum link to PADME
- PADME link

MAGNETS

- Added two Hall probes with readout to DHRTB102 and DHSTB002, with related readout and DCS logging (both EPIC8S and MC)
- DHRTB102 zeroed and shorted
- DHPTB101 stability test and readout problem fixing

ELECTRICAL PLANT

- PLC readout fixing for PADME magnet

FLUIDS

- BTF water plant flowmeters fixing

FISMEL

- Safety test for clearance up to July end

CONTROLS&SICR

- BTF upgraded EPIK8S with Grafana storage (see last part)
- OLOG
- Effort in stabilize DAONE DCS HW problems
- Testing of EPIK8S (especially snapshots setup and save e restore)



MAINTENANCE AND UPGRADES



Maintenance/upgrade 2025 for getting prepared for OTHER project (BTF effort shared with named LNF services)

- Despite a very good level of PIC analysis and debugging, no TT agreement arose (45K€/2MM)
- FIREBALL related upgrade:
 - Refactoring of BTF space to host
 - LASER HEAD stored in BTFEH1 (LASER Serv, A. Ghigo e M.P. Anania)
 - BTF and surrounding areas simulations Fluka (FISMEL, F. Chiarelli)
 - FC simulation both from OPERA and FLUKA (MAGNET Serv, A.Vannozzi, A. Trigilio)

Vacuum

- New design and positive test of vacuum exit windows (120->80µm Aluminum thickness)
- (BTF+Vacuum Serv., 6K€/0,5MM)
- BTFEH1/2 end of line pre-vacuum and fast user joint design





x [mm]

1 50-40-30-20-10 0 10 20



MAINTENANCE AND UPGRADES



Upgrades foreseen next months:

- A 100 kW mains power line upgrade for BTFEH1. This upgrade increases electrical capacity to support future experiments and services in the BTFEH1 area. (Elect. Plant Serv. DT, 20K€/0,5MM)
- Vacuum layout upgrades at the end-of-line windows: a remotely controlled gating valve, a compact pre-vacuum pumping line, and exit windows. This configuration will simplify operations for setting up and linking users' vacuum chambers. (Vacuum serv. DA, 30K€ /0,5MM)
- Variation in the vacuum PLC layout that hosts the controlled vacuum pumps status read-back, the gating valves status readouts and actions, and the vacuum gauges related safety actions. (Elect. Plant Serv. DT, 20K€ /0,5MM)
- **BTF secondary fluid plant maintenance** is needed for overhauling the flow meter of the BTF1 and BTF2 lines. (Fluids Serv. DT, **10K€**)
- Consolidation of the gaussmeter readback test system to COM readout (BTF+Magnet Serv., 20K€/1MM)

NEXT YEARS:

- **DOUBLE Pulsed Magnet** for upgrade both DHPTB101/DHPTS001 -> Magnet Serv. DA, **180K€/5MM/15M(TD+DD)**
- Air conditioning systems for both halls, ensuring backup units. -> Fluids Serv. DT, 300K€/2MM/12M (TD+DD)



STARTUP FOR PADME/X17



Restart problems to be noted in the previous months, (GANTT is not a magical crystal sphere)

- Networking was problematic, spending different days for upgrade LNF/DAΦNE network switches and related compatibility DCS problems, before and after:
 - BTF2 magnet ETH comms
 - BTF magnet PLC stability
 - DCS data providing stabilities
- BTFEH1 **temperature** stability
- BTFEH1 DAQ
- PADME required more support and BTFEH1 occupancy than expected
 - Vacuum closed on 20/03,
 - Implementing of Gas feeding, Setup, Magnet, Detector availability
- No furtherly defined DA IT support for LINAC, BTF, SPARC
- New EPIK8S orchestrator CPU and storage **space strongly limited**

Currently leveling efforts with SICR and SATC service to solve future problems

Despite these problems, planning BTF beam ready for injection on 30/03 -> we got beam on 31/03



PADME/X17 SCHEDULE



Up to now, we tested on beam and got feedback from:

- **MMTPC detector** from 31/03 -> now
- **ECal detector** from 15/04 -> now
 - Both Single particle beam, secondary different energy beams, primary beam, steering and focusing, multiplicity scan
- **Diamond Target** from 05/05 -> now
 - Primary beam, steering and focusing, multiplicity scan
- Lead Glass from 13/05
 - Primary beam test
- Up to now, **beam availability** is cut for:
 - PADME needed short (hours) beam injections for detector/DAQ developing
 - Beam development (overall 3 days)
 - 1 week of LINAC unavailability during requested beam time (HVPS, GUN power supply, LINAC QUAD PS)
- Injection Problems
 - Current drop in three hours from inj startup, after ok (may due to energy drop) -> yesterday (seem) solved
 - Shot to Shot Instabilities in current, undergoing analysis (BTF and TL done, LINAC ongoing, coupling long vs tran) -> too

On May, PADME team express the need for more time for scientific run in Q4 2025 BTF external users open call has been cancelled to save beamtime to PADME in Q4 2025



BTF Projects







• ASIF-2

- 150Mev Beam explored, simulation for secondary particle contamination in air to DUT
- BTTB13 conference on related upgrades ongoing
- New designed BTF exit windows

• EUROLABS

- 86k, up to 2026
- Good levelling in 2024, 4 over 7 week slotted, foreseen 3 in 2025
- Periodic Report Part B first review on 16 May

TPX4 development agreement

- With ENEA collaborator
- BTF take responsibility, interested in first test on new TPX4 Katherine readout



BOOKING SOFTWARE STATUS



Laboratori Nazionan di Frascati

CURRENT ONLINE Version

Beam Test Facility(LNF)

- More than three years of continuous developing
- Almost Two years of continuous operation with users
- Around 200 managed users per year, from proposal to territorial access

DA\phiNE-L Facility(LNF)

- Software released one year ago
- Final release for "Call" and "on demand" types

PLC/UTA remote control(LNF)

- For Conference room booking related automation control
- Developed for LNF Technical Division

INFN-LABEC developing(FI)

- **Released** one year month ago, 48 slots managed
- Collaboration born on INFN-A

FISMEL (LNF)

- Reservation for radioactive sources
- Final test reached, in production next two weeks

Discussed Development

CHNET(Cultural Heritage Network)

- Use booking software for booking facilities and resource for CHNET
- Proposal under evaluation

<u>ASIF-2</u>

Needs BTF like or extended version

SPARCLAB-EUPRAXIA(LNF)

Needs BTF like or extended version

ILUCE — Facility (LNS)

- Many beam type
- External and internal users
- Internal PAC approval
- Typical developing time ~3 person-month(full customization, designdevel-test-debug)
- Definitely simple to use, as reported by users
- IT infrastructure seems reliable

Tech note

https://www.openaccessrepository.it/record/143679



BOOKING SOFTWARE VERSIONS



	Facility Booking Software version	User Type	Booking type	Workflow type	Auth Management workflow	Calendar management	User Management	Reports and Documents Management	Booking period
	BTF	External, internal, (GODIVA LoA2)	 External user Call On demand 	BTF like	SecretariatManagement	Users' selection, management allocation	Secretariat explicit approval (automatic role creation for new no-INFN users, dynamic)	In the call proposals	Weekly
14-15/C	DAФNE Light	External, internal, (GODIVA LoA1 LoA2)	 External user Call, On demand, Sample mailing (no team) 	BTF like extended	 Management Beamline scientist PAC 	Management allocation	Implicit (no automatic role creation, user already associated)	At experiment ends	Daily/Weekly
	LABEC	Internal (GODIVA LoA2)	Internal Management	Linear	Management	Management allocation	None	At experiment ends	Daily
	FISMEL	Internal (GODIVA LoA2)	Internal User	Linear	Management	Users' selection	Internal (GODIVA LoA2)	At experiment ends	Open up to 30 days



From April in Standby due to our PADME commitments in BTF and Oxford in the HIRADMAT68 run, people of both groups highly committed



• TDR delayed to 2026, after these duties

- FIREBALL-III Collaboration Meeting at CERN with BTF talk (thanks to G. Gregori and N. Charitonidis)
- FLUKA Simulation of BTF areas and surrounding (FISMEL, F. Chiarelli)

FIREBALL

- Flux Concentrator studies and simulation (Magnet Group, A. Vannozzi, A. Trigilio)
- Cost estimation for ERC Sinergy Grant proposal (C. Curceanu, G. Gregori et al.)





- The Flux Concentrator (FC) is a pulsed solenoid designed to amplify magnetic fields.
- **Structure**: **Based on LNF FC**, made of 12 solid coils with a conical bore and constant outer diameter.
 - Powered in pulsed mode at 100 kHz.
- Generates eddy currents, leading to magnetic field amplification up to ~6 T.
- SLAC/LNF FC peak field meets Fireball experiment needs
 - Pulse duration of several microseconds is compatible
 - Initial 2D Opera simulations started, including power circuit modeling



	SLAC	FRASCATI
No. of Turns	12	12
Core Length	3.846 in. (~ 10 cm)	3.846 in.(~ 10 cm)
Outside Radius	1.685 in. (4.3 cm)	2.079 in.(5.3 cm)
Inside Radius	0.138 in. (3.5 mm)	0.138 in. (3.5 mm)
	to	to
	1.035 in. (2.6 cm)	1.035 in. (2.6 cm)
Turn-to-Turn Gap	0.008 in. (0.2 mm)	0.008 in. (0.2 mm)
Field	58 kG	58 kG
Resonant Frequency	49 Hz	33 Hz ^[1]
	47 II-[1]	17 A

POSITRON CONVERTER BO MECHANICAL HARDWARE



TTAN/PULSE SCIENCES, I





Design study:

- Pulsed FC is feasible, Map of current density qualitatively showing the skin e

- Axial magnetic field (T) along the FC z axis (m). Max. value at z=0, Bz=5.58 T.

- Pulse duration of several microseconds is compatible

- Initial 2D Opera simulations started, including power circuit modeling



Fig. 4. Current density distribution J (z,r) for the first three turns showing the eddy current loops circulating at the skin depth δ in opposite directions (red and blue arrows) and superimposed to the transport current (green arrow) at a time corresponding to the maximum current (t=2.5 μ s).

H. Bajas et al., «Flux Concentrator Optimization for Future Positron Sources», IEEE Trans. Appl. Supercond. (2022) 32:6.



FLUKA INFN - Copper magnetic structure with cooling water in concrete environment

- No further shielding,
- Bare interaction with
- 10^10 e- pulse and target+FC











BTF upgrade





EPIK8S-TEST STATUS



All the tests on the new EPIK8s interface have been successfully performed:

ITEM	TEST PHASE	PROD PHASE	Note
Magnet system	V	80%	Not possible to complete the migration now for BTF activities
Motors – Scraper	\checkmark	In use	
Triggered Cams	\checkmark	In use	
HV crate control	\checkmark	30%	Final design not ready
PTH sensors in EH1-2	\checkmark	In use	
Vacuum monitor	\checkmark	In use	
Dipoles hall probes	\checkmark	In use	
DAQ data	\checkmark	In use	
OLOG	V	In use, 70%	AAI authentication under development



BTF INFO – AN OVERVIEW





INFN BTF EPIK8S GUI - UPGRADES

Phoebus GUI interface organized in different tabs : one synoptic + N specific tab for the implemented subsystem



QUATM002

CHHTM002

CVVTM002

- •

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TGTTB001 3076923 ustep 3076923 ustep

Control

59.999998 mm 60 mm







- OLOG (Online LOGbook) is a web-accessible electronic logbook, based on the EPICS controls system.
- It supports image attachments, time-stamped entries, and metadata tags.
- These tools enhance the reproducibility and efficiency of experimental operations, offering an essential resource for both users and facility staff.
- Based on feedback from the BTF team, the system has been gradually adapted by the Control Service (A. Michelotti) and the SICR (G. L. Napoleoni), to meet the facility's specific operational needs.
- It supports saving sets of operational parameters (e.g., magnet currents, scraper apertures), which can be easily restored.
- Right now, INFN-wide LDAP-based authentication is used.
- An OAuth2 plus OIDC-based authentication is currently
 <u>under development*</u> within the Phoebus framework.

* Work presented @ 2025 EPICS collaboration Meeting

		CS-Studio
File Applications Window Help		
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Welcome × Launcher × [Edit] Launcher × Display	× Logbook ×	
desc=*&start=30 days&end=now	▼ Help	RUNBOOK April 11
	Open Advanced Search	Eleonora. Diociaiuti@inf.infn.it 2025-04-11 15:57:48
RUNBOOK 1-2 May 2025 Luca.Foggetta@Inf.infn.it	2025-05-02 17:23:14	ULI BTP Operation 54
RUNBOOK 1-2 May 2025 Luca.Foggetta@Inf.infn.it	\$ 2025-05-02 17:23:11	Now Pup Configuration
RUNBOOK 1-2 May 2025 Luca.Foggetta@Inf.infn.it	• 2025-05-02 17:22:54	
RUNBOOK 1-2 May 2025 Luca.Foggetta@Inf.infn.it	4 2025-05-02 14:35:40	Run Details
Runbook 30April 2025 Luca.Foggetta@Inf.infn.it	2025-04-30 18:24:35	Pulse Frequency 50] Number of BTF Pulses 49] Line BTFEH1] Beam Type (e+/e-) secondary electrons] Beam
Runbook 29 April 2025 Luca.Foggetta@Inf.infn.it	2025-04-30 18:21:09	Energy 263.9 [] Multiplicity m1 [] Bunch Length 150
Runbook 28 April 2025 Luca.Foggetta@Inf.infn.it	2025-04-30 18:19:57	Delectors
runbook 28 April Luca.Foggetta@Inf.infn.it	2025-04-30 18:18:21	Out of the DAQ: - List detectors here
Runbook 27 April 2025 Luca.Foggetta@Inf.infn.it	2025-04-27 21:25:51	beam on from 13:30 Needed single particle beam to check sinchronization between ECAL and MM.INo changes in the LINAC parameters/TGT on + electron
RUNBOOK 17 April Luca.Foggetta@Inf.infn.it	2025-04-18 09:07:32	selection.
Snapshot PADME_RUN_298.5MeV_longf	2025-04-17 19:07:55	© 1500 ECAL 1 board is back but other 2 still off.
RUNBOOK 16 April 2025 Luca.Foggetta@Inf.infn.it	2025-04-16 17:54:40	The sinchronization check will be performed next week. Today only check on amplification and response of the MM with single particle
Snapshot PADMERUN_232MeV_pos_15 Luca.Foggetta@Inf.infn.it	2025-04-16 16:24:06	@1600 beam off
RunBook april 15 Eleonora.Diociaiuti@Inf.infn.it	2025-04-15 14:14:14	▼ Altschmontr
RUNBOOK April 11 Eleonora.Diociaiuti@Inf.infn.it	0 2025-04-11 15:57:48	364a338e.35fc-4e0a-a508-35f5b6a1fac9.png
Snapshot scraper PADME_RUN_263.9 Eleonora.Diociaiuti@Inf.infn.it	2025-04-11 15:30:10	PADME_RUN_263.9 m1 20240411.dat
Snapshot scraper PADMERUN_298.5Me Eleonora.Diociaiuti@Inf.infn.it	2025-04-11 11:13:44	PADME_TL_298.5MeV_20250411.dat
Runbook April 10 Eleonora.Diociaiuti@Inf.infn.it	2025-04-10 18:42:13 ~	
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- Continuing with this hybrid development to include all the BTF controls services to users
- LV impact will be reduced after demonstrating the stability of the overall system
- Include
 - E-Log
 - Post run data sharing
 - High level routine implementation commonly used software and IDE (python3, Jupiter, root,...) using real time machine PV



INFN BTF NEW DCS DEVELOPING – EPIK8S





Our Develop success has to be shared with

- Control service
- Magnet service
- SICR (IT infrastructure service)



Discussion





DISCUSSIONS & CONCLUSIONS



- 2024 BTF calls and beamtime closed successfully
- 2025 Q1,2,3 already booked for PADME/X17 INJECTIONS, ongoing
 - Now engineering run
 - 2025 Q4 open call for external users not executed for giving more beamtime to PADME
 - Few weeks for closed call may possible
 - 2026?

• Wide scientific area covered by external users

- VHEE FLASH community interest, medical physics
- HEP is the highest beamtime allocation
- Space related project are present
- But our main goal is new detector developing (PADME, BeER, ThickSDD, Nanocrystal...)
- BTF team mainly involved in:
 - BTF operations,
 - Rome Technopole
 - ASIF2 and EUROLABS Projects
 - FIREBALL experiment

LINAC/BTF results have to be shared with all the LNF people involved

- DT and DA services, secretariats and administrations
- Especially the DA OPERATORS

And, why not, also to users that share knowledge about the cutting edge detector physics and technology

SPARE SLIDE



ENZA TE			dic 24	01/02/25 04/04/25 0ggi gen 25 feb 25 mar 25 apr 25 mag 25	giu 25 Ilu	g 25 jago 25 jset	t 25 ott 25	nov 25 dic 25 gen	i 26 feb 26 mar 26 apr 26 mag 26 giu 26 lug 26 ago 26 set 26 ott 26 nov 26
GUE	25	Inizio 5/11/24				Aggiung	gere attività	con date alla sequer	nza temporale Fine 20/11/26
S			Madalii						febbraio 2025 marzo 2025 aprili
		(attività 🔻	Nome attività	- Durata	Inizio	➡ Fine	 Predecessori 	01 04 07 10 13 16 19 22 25 28 03 06 09 12 15 18 21 24 27 30 07
	1	PE	□ →	RipartenzaserviziBTF2025Q123	34 g?	11/02/25	30/03/25		
	1		Ŕ	BTF Beam ON for users	0 g	30/03/25	30/03/25		<u>◆</u> 30/03
	3		- →	▲ LINAC	10 g	05/03/25	19/03/25		
	4		- →	LINAC ready for safety check, no beam	7 g	05/03/25	14/03/25	31;5IF	
	5		- →	contingency	3 g	14/03/25	19/03/25	6IF	
	6		$ \rightarrow $	LINAC ready for beam on	0 g	19/03/25	19/03/25	55IF	L ₄ , 19/03
	7		$ \rightarrow $	₄ Vuoto	7 g	19/02/25	28/02/25		
	8		\square	BTF Pumps, vacmeters, valves ready	1 g	19/02/25	20/02/25	91F	
	9		□	Vacuum Settling	1 g	20/02/25	21/02/25	10IF	
	10		□ →	contingency	5 g	21/02/25	28/02/25	11IF	
Ę	11		□ →	Vacuum ready	0 g	28/02/25	28/02/25	46IF	28/02
GAI	12		□ →	▲ FISMEL	3 g	14/03/25	19/03/25		
ō	13		□ →	Safety checks LINAC+BTF ready	2 g	14/03/25	18/03/25	511;151F	
MM	15		- ⇒	contingency	1 g	18/03/25	19/03/25	16IF	
AM	16		□ →	Safety check done	0 g	19/03/25	19/03/25	55IF	4 19/03
AGR	17		□ →	Servizio Diagnostica	5 g	07/03/25	14/03/25		
D	18		□ →	Timing Ready	1 g	07/03/25	10/03/25	19IF	
	19		□ →	Diagnostics ready	1 g	10/03/25	11/03/25	20IF	
	20		□ →	Cams ready	1 g	11/03/25	12/03/25	21IF	
	21		□ →	contingency	2 g	12/03/25	14/03/25	22IF	
	22		□ >	Diagnostic ready	0 g	14/03/25	14/03/25	53IF	4/03
	23		□ →	▲ Servizio Elettrico	4 g	19/02/25	25/02/25		
	24		- >	Restart Mains power supply and tests ready	1 g	19/02/25	20/02/25	25IF	
	25		- →	PLC restart and test ready	1 g	20/02/25	21/02/25	26IF	
	26		□ →	contingency	2 g	21/02/25	25/02/25	27IF	
	27		□ →	Mains and PLC ready	0 g	25/02/25	25/02/25	29IF	4 25/02
	28		-	▲ Servizio Fluidi	6 g	25/02/25	05/03/25		
Pro	nto		Nuove attività ⊥+-⊥-	: Programmazione automatica	_			LIVI - JC UJ	

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SEQU	25	5/11/24										Agg	iunger	re attività	con dat	e alla sequ	uenza	tempo	rale										20/11/26
0,			Modalit		1		-										fe	bbraio 202	5				marz	o 2025					aprile ; 🔺
		(attività 🔻	Nome atti	ività				 Dura 	ita	-	Inizio	I	Fine	-	Predecessori	i 0	01 04	07 10	13 1	6 19	22 25	28	03 06	09 1	2 15	18 21	24 27	30 02
	26		□ →	cor	ntingency				2 g			21/02/2	5 2	25/02/25		27IF						<u>س</u>							
	27		□ →	Ma	ains and Pl	LC ready			0 g			25/02/2	5 2	25/02/25		29IF						<u> </u>	5/02						
	28		□ →	⊿ Servi	izio Fluidi				6 g			25/02/2	5 0	05/03/25								- r							
	29		□ →	Co	oling towe	er and flui	ds service	e ready	1 g			25/02/2	5 2	26/02/25		30IF						- G							
	30		□ →	cor	ntingency				5 g			26/02/2	5 0	05/03/25		31IF						E C		-					
	31		□ →	Flui	iids ready				0 g			05/03/2	5 0	05/03/25		34IF								4 05/0	03				
	32		□ →	⊿ Magr	neti				22 g			12/02/2	5 1	L4/03/25					I							1			
	33		⊑ ⇒	PS	restart an	nd PS local	test		15 g			12/02/2	5 0	05/03/25		34IF								•					
	34		□ →	PS	and magn	ets full po	wer test		2 g			05/03/2	5 0	07/03/25		35IF													
	35		□ →	cor	ntingency				5 g			07/03/2	5 1	14/03/25		36IF										4			
Ę	36		⊑ ⇒	Ma	agnets rea	idy			0 g			14/03/2	5 1	14/03/25		53IF									0	a 14/03	;		
GAI	37	2	□ →	⊿ Conti	rolli				19 g	?		11/02/2	5 1	LO/03/25					Г										
D	38		□ →	 ▲ IT I 	HW Ready	v			9 g?			11/02/2	5 2	24/02/25					Г										
IMA	39		□ →	ľ	IT HW rest	tart and te	st		4 g?			11/02/2	5 1	17/02/25		401F					h								
MM	40		□ →	с	contingen	су			5 g?			17/02/2	5 2	24/02/25		421F				G	-								
AGF	41	2	⊑ ⇒	⊿ DA	FNE DCS	SW Ready	,		10 g			24/02/2	5 1	LO/03/25								r							
D	42		□ →	Г	T SW rest	art and te	st		5 g			24/02/2	5 0	03/03/25		43IF						Ę.							
	43		□ →	с	contingend	су			5 g			03/03/2	5 1	10/03/25		44IF									•				
	44		□ →	Contr	rols ready	r			0 g			10/03/2	5 1	10/03/25		19IF									🖵 10/0)3			
	45		□ →	⊿ BTF					10 g			28/02/2	5 1	L4/03/25									r			1			
	46		□ →	BT	F startup				5 g			28/02/2	5 0	07/03/25		49IF							[]	h					
	49		□ →	cor	ntingency				5 g			07/03/2	5 1	14/03/25		50IF								\neg		4			
	50		□ →	BT	F ready fo	or beam			0 g			14/03/2	5 1	14/03/25		53IF									C	• 14/03	5		
	52		□ →	⊿ Perfo	ormance T	Test			11 g			14/03/2	5 3	30/03/25												r			I
	53		- ⇒	MA sof	AGNET ren ftware tes	note conti st + contin	rol test + gency	BTF DCS	6 3 g			14/03/2	5 1	19/03/25		55IF									ſ		Alessan	dro Vann	ozzi, Anc
	55		□ →	LIN	NAC beam	test + cor	ntingency		3 g			19/03/2	5 2	24/03/25		57IF												Claudio I	Di Giulio
	57		-	BTI	F beam te	st (no use	r) + conti	ngency	5 g			24/03/2	5 3	30/03/25		1IF						_					Ģ		Luca Fo
Pro	nto		uove attività	: Programma	azione auton	natica																		5					+ + + +
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JENZA T E	In	dic 24	01/03/25 gen 25 feb 25 mar 25 apr 25 mag 25	giu 25	lug 25 ago 25 set 2	20/09/25 25 ott 25	nov 25 dic 25 gen 26 feb i	26 jn	mar	r 26	apr 26	mag 26	6	giu 26	lug	26	ago 26	set	26	ott 26	nov	26 Ein	
SEQ	25/11	/24			Aggiung	ere attività	con date alla sequenza tem	poral	е													20/	/11/26
		Modalit									Tri 2, 20	25						Tri 3, 202	25				4
		■ attività ▼	Nome attività	 Durata 	✓ Inizio ✓	Fine		m	har		a	pr		nag		giu		lu	g	6	ago		set
	49	\rightarrow	contingency	5 g	07/03/25	14/03/25	50IF	· ` ←															
	50	$ \rightarrow $	BTF ready for beam	0 g	14/03/25	14/03/25	53IF	4	14	4/03													
	52	□ →	Performance Test	11 g	14/03/25	30/03/25			Л														
	53	→	MAGNET remote control test + BTF DCS software test + contingency	3 g	14/03/25	19/03/25	55IF			Aless	andro	Vannozzi	i, An	drea	Michel	otti							
	55	□ →	LINAC beam test + contingency	3 g	19/03/25	24/03/25	57IF		4	Cla	audio I	Di Giulio											1
	57	$ \rightarrow $	BTF beam test (no user) + contingency	5 g	24/03/25	30/03/25	1IF				Luca F	oggetta											
	58	□ →	DAFNE Ready for test beam	0 g	30/03/25	30/03/25	53;57;55				30/03												
	2] □	A RipartenzaserviziBTF2025Q4	33 g?	30/07/25	15/09/25													ſ	1			\neg
	1	*	BTF Beam ON per Utenti	0 g	15/09/25	15/09/25																	rt i
E	3	□ →	▲ LINAC	10 g	20/08/25	03/09/25															—		
BAN	4	$ \rightarrow $	LINAC pronto per sicurezze, no beam	7 g	20/08/25	29/08/25	31;5IF														+	5	
	5	□ →	Contingenza	3 g	29/08/25	03/09/25	6IF															-	
MA	6	□ →	LINAC Pronto per Fascio	0 g	03/09/25	03/09/25	55IF															L_	03/09
MM	7	$ \rightarrow $	⊿ Vuoto	7 g?	11/08/25	20/08/25														Г			
GR	8	$ \rightarrow $	Pompe, vacuometri e valvole BTF pronte	1 g?	11/08/25	12/08/25	9IF													K)		
DIA	9	$ \rightarrow $	Altro	1 g?	12/08/25	13/08/25	10IF													4	5		
	10	□ →	Contingenza	5 g?	13/08/25	20/08/25	11IF													կ	-		
	11	□ →	Vuoto Pronto	0 g	20/08/25	20/08/25	46IF														୍ୟ 2	0/08	
	12	$ \rightarrow $	▲ FISMEL	6 g	02/09/25	09/09/25																	٦
	14	□ →	Sicurezze LINAC+BTF	2 g	08/09/25	09/09/25	5II;15IF;C:\Users\Luca'															4	2
	15	□ →	Contingenza	1 g	02/09/25	03/09/25	16IF															4	
	16	$ \rightarrow $	Sicurezze pronte	0 g	03/09/25	03/09/25	55IF															_ ل م (03/09
	17	$ \rightarrow $	₄ Servizio Diagnostica	5 g?	27/08/25	03/09/25																	
	18	$ \rightarrow $	Timing Pronto	1 g?	27/08/25	28/08/25	19IF															M	
	19	□ →	Altro	1 g?	28/08/25	29/08/25	20IF															•	
	20	\square	Telecamere Pronte	1 g?	29/08/25	01/09/25	21IF															b	
	21	\square	Contingenza	2 g?	01/09/25	03/09/25	22IF															G.	
•								4											m	-			Þ
Pront	0	L4-T⊃	: Programmazione automatica / リン/ としとつ				LINE - JC 09								B	3 E	80	Eãq	tάq	└ _ +<	5		

ENZA TE			dic 24	01/03/25 gen 25feb 25mar 25apr 25mag 25	giu 25 lug 2	25 ago 25 se	20/09/25 t 25 ott 25	nov 25 dic 25 gen 26 fr	eb 26 mar 26	6 _l apr 26 _l mag 26	giu 26 Jug 26	ago 26 set 26	ott 26 Inov 26
EQU	25/	Inizio /11/24				Aggiun	ger e attività	con date alla sequenza te	mporale		· · ·		Fine 20/11/26
N		i	Modalit attività 🔻	Nome attività	🗸 Durata	✓ Inizio	✓ Fine	✓ Predecessori	mar	Tri 2, 2025 apr	mag g	Tri 3, 2025 iu lug	ago set
	16		-	Sicurezze pronte	0 g	03/09/25	03/09/25	55IF					L e 03/09
	17		□ →	▲ Servizio Diagnostica	5 g?	27/08/25	03/09/25						
	18		- →	Timing Pronto	1 g?	27/08/25	28/08/25	19IF					ĸ
	19		- →	Altro	1 g?	28/08/25	29/08/25	20IF					
	20		□ →	Telecamere Pronte	1 g?	29/08/25	01/09/25	21IF					
	21		□ →	Contingenza	2 g?	01/09/25	03/09/25	22IF					
	22		□ →	Diagnostica pronta	0 g	03/09/25	03/09/25	55IF					4 03/09
	23		□ →		4 g	06/08/25	12/08/25						
	24		□ →	Riaccensione Alimentazioni e Test	1 g	06/08/25	07/08/25	25IF					M .
	25		□ →	Riaccensione PLC e Test	1 g	07/08/25	08/08/25	26IF					G
Ę	26		□ →	Contingenza	2 g	08/08/25	12/08/25	27IF					
GAI	27		□ →	Elettrico pronto	0 g	12/08/25	12/08/25	29IF					4 12/08
Ō	28		□ →	₄ Servizio Fluidi	6 g	12/08/25	20/08/25						
MA	29		□ →	Riaccensione Torre e servizi	1 g	12/08/25	13/08/25	30IF					· · · · · · · · · · · · · · · · · · ·
MM	30		⊑ ⇒	Contingenza	5 g	13/08/25	20/08/25	31IF					
AGF	31		□ →	Fluidi Pronti	0 g	20/08/25	20/08/25	34IF					20/08
D	32		□ →	₄ Magneti	22 g	30/07/25	29/08/25						
	33		□ →	Accensione PS e test locali	15 g	30/07/25	20/08/25	34IF					•
	34		⊑ ⇒	Prove in potenza locali	2 g	20/08/25	22/08/25	35IF					
	35		□ →	Contingenza	5 g	22/08/25	29/08/25	36IF					
	36		□ →	Magneti Pronti	0 g	29/08/25	29/08/25	53IF					4 29/08
	37	å –	□ →	₄ Controlli	19 g?	04/08/25	29/08/25						
	38		→	▲ HW Ready	9 g?	04/08/25	15/08/25						
	39		- →	Accensione HW e test Locali	4 g?	04/08/25	08/08/25	40IF					
	40		□ →	Contingenza	5 g?	08/08/25	15/08/25	421F					
	41	å –	□ →	⊿ SW Ready	10 g	15/08/25	29/08/25						
	42		- →	Accensione software e test locali	5 g	15/08/25	22/08/25	43IF					
	43			Contingenza	50	22/08/25	29/08/25	441F					
Pro	nto	G.v	luove attività エムーエン	: Programmazione automatica D/UD/ZUZD				LINF - SC 09					+ 49

Pronto Suove attività : Programmazione automatica

ENZA TE		01/12/2	4 dic 24	Oggi Jgen 25 Jfeb 25 Jmar 25 Japr 25 Jmag 25	ıgiu 25 jlug 25	Jago 25 jset	19/09/25	Inov 25 Idic 25 Igen 26	feb 26	mar 26	5 Japr 26	ımag 26	giu 26	lug 26	ago 26	jset 26	ott 26	nov 26		
EQU	25/	Inizio 11/24				Aggiun	gere attività c	on date alla sequenza t	tempoi	rale				I		1		Fir 20	ne 1/11/26	
0			Modalit							1	Tri 1, 2025			Tri 2, 2025			Tri 3, 2025			
		()	attività 🔻	Nome attività	- Durata	Inizio	▼ Fine	 Predecessori 	•	dic	gen	feb	mar	apr	mag	giu	lug	ago	se	4
	37	.	□ →	4 Controlli	19 g?	04/08/25	29/08/25		_											
	38		□ →	⊿ HW Ready	9 g?	04/08/25	15/08/25		_											
	39		□ →	Accensione HW e test Locali	4 g?	04/08/25	08/08/25	40IF	_									5		
	40		□ →	Contingenza	5 g?	08/08/25	15/08/25	421F	_									- -		
	41	.	□ →	⊿ SW Ready	10 g	15/08/25	29/08/25		_									ூ		
	42		□ →	Accensione software e test locali	5 g	15/08/25	22/08/25	43IF	_									- -		
	43		□ →	Contingenza	5 g	22/08/25	29/08/25	44IF											+	
	44		□ →	Controlli pronti	Оg	29/08/25	29/08/25	53IF	_									4	29/0	1
	45		□ →	⊿ BTF	7 g	20/08/25	29/08/25													
	46		□ →	Startup BTF	2 g	20/08/25	22/08/25	49IF										<u>b</u>		
Ę	49		□ →	Contingenza	5 g	22/08/25	29/08/25	50IF											ŀ	
GAI	50		□ →	BTF Pronta	0 g	29/08/25	29/08/25	53IF										L.	29/0	1
D	52		□ →	▲ Test	11 g	29/08/25	15/09/25											r		
MA	53		□ →	Test Controllo Magneti + BTF + contingenz	za 3 g	29/08/25	03/09/25	551F										G	Ales	5
AM	55		□ →	Test fascio LINAC + contingenza	3 g	03/09/25	08/09/25	57IF											G CI	i U
AGR	57		□ →	Test BTF Beam no user + contingenza	5 g	08/09/25	15/09/25	1IF												4
D	59		□ →	Test Fatti	Оg	15/09/25	15/09/25	53;57;55											*	1
	3	P =	□ →	⊿ BTF_calendar_2025	520 g?	25/11/24	20/11/26													-
	3		□ →	LINAC ON	0 g	05/03/25	05/03/25	C:\Users\Luca\One[Driv			•	05/03							
	4		□ →	A DAFNE NEEDED Service 2025 Q123	0 g	14/03/25	14/03/25						14/0	3						
	6		□ →	DAFNE service HW SW ready	0 g	14/03/25	14/03/25	C:\Users\Luca\One[Driv				↓	3						
	7		□ →	Operators shift start	0 g	14/03/25	14/03/25	6					4 14/0	3						
	8		-	LINAC for Q1 Q2 Q3 2025	85 g	25/11/24	24/03/25													
	9		⊑ ⇒	Maintenance	85 g	25/11/24	24/03/25	11IF					•							
	11		-	LINAC beam ready	0 g	24/03/25	24/03/25	C:\Users\Luca\One[Driv				 ↓ 2	4/03						
	12		⊑ ⇒	4 BTF for Q1 Q2 Q3 2025	147 g?	08/01/25	31/07/25				· · · · ·							п –		
	13		□ →	# BTF1&BTF2 power on	87 g?	08/01/25	08/05/25				· · · · ·									
	15		<	SHUDOWN BTF end	0 e	08/01/25	08/01/25				08/01									•
Drot	to		uovo attività	· Drogrammazione automatica					P 4					F			f –		•	+
FIO		-→ N	L4-T2	/ U3/ 2U23			LI	אר - אר סא						Him		ta ⁴	ti su	,		1

Visualiz	za	Appun	ti Carattere Гы	Pr	rogrammazione		Attività		Inseri	sci	Proprietà	Collega a	Modifica		~
ς	01/12/2	4	Qaai			19/09/25									
		dic 24	gen 25 feb 25 mar 25 apr 25 mag 25	giu 25 lug	25 ago 25 set	25 ott 25	nov 25 dic 25 gen 26 fé	eb 26 mar 26	apr 26 mag	g 26 giu 2	6 lug 26	ago 26 se	t 26 ott 26	nov 26	
25	Inizio /11/24				Aggiung	gere attività	con date alla sequenza ter	mporale						F 2	ine 20/11/26
5	· L							i Tri 1	2025		Tri 2, 2025		Tri 2, 20	125	
	()	Modalii attività 🔻	Nome attività	 Durata 	🚽 Inizio 🐳	- Fine		dic	gen feb	mar	apr	mag g	jiu lug	ago	set
7		□ →	Operators shift start	0 g	14/03/25	14/03/25	6			at 14,	/03				
8		□ →	LINAC for Q1 Q2 Q3 2025	85 g	25/11/24	24/03/25		1							
9		□ →	Maintenance	85 g	25/11/24	24/03/25	11IF								
11		- →	LINAC beam ready	0 g	24/03/25	24/03/25	C:\Users\Luca\OneDriv				24/03				
12		- →	4 BTF for Q1 Q2 Q3 2025	147 g?	08/01/25	31/07/25		Г							
13		- →	BTF1&BTF2 power on	87 g?	08/01/25	08/05/25		Г							
15		*	SHUDOWN BTF end	0 g	08/01/25	08/01/25		•	08/01						
16	-	*	maintenance	5 g	08/01/25	14/01/25	15	1	N						
17	-	*	maintenance	5 g	15/01/25	21/01/25	16		μ, in the second sec						
18	-	*	BTF preparation	33 g	22/01/25	07/03/25	17		Ť.						
19		□ →	BTF ready for startup tests	0 g	14/03/25	14/03/25	C:\Users\Luca\OneDri	x		at 14,	/03				
20	1	□ →	BTF beam trials ready	12 g	14/03/25	31/03/25	C:\Users\Luca\OneDri	X		+					
21		□ →	A PADME RUN IV	29 g?	31/03/25	08/05/25									
22	7	\checkmark	beam availability	15 g?	31/03/25	18/04/25									
23	٦.	\checkmark	shutdown	3 g?	19/04/25	22/04/25									
24	٦.	\checkmark	shutdown	5 g?	22/04/25	26/04/25									
25	٦.	\checkmark	restart	2 g?	26/04/25	27/04/25									
26	٦	\checkmark	shutdown LINAC	2 g?	28/04/25	29/04/25									
27	٦.	*	shutdown LINAC	3 g?	01/05/25	04/05/25						1			
28		*	beam availabilty	2 g?	05/05/25	06/05/25									
29	٦.	*	shutdown LINAC	1 g	07/05/25	07/05/25						h			
30		*	beam availability	1 g?	08/05/25	08/05/25	29					ĭ			
31		\rightarrow	user call open	0 g	11/11/24	11/11/24	3411-5 mes	1							
32		$ \rightarrow $	BTF PAC calendar settling	0 g	03/03/25	03/03/25	34II-1 mes			+> 03/03					
34		→	beam time user start	85 g	31/03/25	25/07/25	C:\Users\Luca\OneDri	-			*			-	
35		→	Beam stop	4 g	28/07/25	31/07/25	34							1	
36		→	LINAC+BTF SHUTDOWN SUMMER 2025	13 g	31/07/25	20/08/25									
37			LINAC+RTE SHUTDOWN SUMMER 2025	0 ø	31/07/25	31/07/25	35	4						\$ 31/07	
Pronto	L⊒ N	luove attività	: Programmazione automatica							_	5		E E		

14-15/05/2025

QUENZA TE	25/	01/12/2	dic 24	Oggi gen 25 feb 25 mar 25 apr 25 mag 25	giu 25	lug 25 lago 25 Aqqii	19/09/25 Iset 25 Iott 25 Ungere attivi	i _I nov 25 Idic 25 Igen 26 tà con date alla sequenza t	l ^{feb 26}	Imar 26 Japr 2	26 mag 2	26 giu 2	26 lug 26	ago 26	set 26	ott 26	nov 26 Fine	11/26
S	2.5/	11/24								T-: 1 2025			Tri 2, 2025			Tri 2, 2025	20/	1720
		(Modalit attività 🔻	Nome attività	- Durata	👻 Inizio	👻 Fine	 Predecessori 	🚽 dia	gen	feb	mar	apr	mag	giu	lug	ago	set
	34		□ →	beam time user start	85 g	31/03/25	5 25/07/25	C:\Users\Luca\OneD	Driv				+					
	35		□ →	Beam stop	4 g	28/07/25	5 31/07/25	34								- t h		
	36		□ →	LINAC+BTF SHUTDOWN SUMMER 2025	13 g	31/07/25	5 20/08/25									r		
	37		- ⇒	LINAC+BTF SHUTDOWN SUMMER 2025 START	0 g	31/07/25	5 31/07/25	35								*	31/07	
	39		□ →	LINAC+BTF SUMMER SHUTDOWN END	0 g	20/08/25	5 20/08/25	C:\Users\Luca\OneD	Driv								🔹 20,	/08
	40		□ →	A DAFNE NEEDED Service 2025 Q4	1g?	03/09/25	5 03/09/25											
	42		□ →	DAFNE service HW SW ready	0 g	03/09/25	5 03/09/25	C:\Users\Luca\OneD	Driv									03/
	43		□ →	Operators shift start	1 g?	03/09/25	5 03/09/25	42										Ť
	44		□ →	4 LINAC for Q4 2025	27 g	31/07/25	5 08/09/25									Г		
F	45		- →	LINAC Maintenance	27 g	31/07/25	6 08/09/25	47IF										<u>_</u>
BAN	47		□ →	LINAC beam ready	0 g	08/09/25	5 08/09 / 25	C:\Users\Luca\OneD	Driv									(* 01
ă	48		□ →	4 BTF for Q4 2025	165 g	28/04/25	5 15/12/25						Г					
ЧA	49		□ →	BTF1&BTF2 power on	16 g	22/08/25	5 15/09/25										r	
MM	50		□ →	Startup end	0 g	22/08/25	5 22/08/25	C:\Users\Luca\OneD	Driv								a 22	/08
GR	52		□ →	BTF ready for startup test	0 g	29/08/25	5 29/08/25	C:\Users\Luca\OneD	Driv								*	29/0
DIA	54		×	BTF startup beam test ready	0 g	15/09/25	5 15/09/25	C:\Users\Luca\OneD	Driv									₩.
	55		□ →	user call open	0 g	28/04/25	5 28/04/25	5911-5 mes					*	28/04				
	56		□ →	BTF PAC calendar setting	0 g	18/08/25	5 18/08/25	59II-1 mes									<mark>,+</mark> ♦ 18/	08
	58		□ →	▲ Beam time	65 g	15/09/25	5 15/12/25											Г
	59		□ →	beam time user start	0 g	15/09/25	5 15/09/25	C:\Users\Luca\OneD	Driv									-++
	61		□ →	Beam stop	0 g	15/12/25	5 15/12/25	C:\Users\Luca\OneD	Driv									
	62		□ →	LINAC+BTF SHUTDOWN WINTER 2025	15 g	15/12/2	5 02/01/26											
	63		□ →	LINAC+BTF SHUTDOWN WINTER 2025 START	15 g	15/12/25	5 02/01/26	61										
	64		- ⇒	LINAC+BTF SHUTDOWN WINTER 2025 END	0 g	02/01/26	5 02/01/26	63										
	65	PE	□ →	FISMEL_calendar_2025	480 g	20/01/2	25 20/11/2	6										
				· Cantualla naviadiaa Cianuassa	124 -	10/02/20	E 0E /00 /2E		•									
Pror	to	GN	uove attività	: Programmazione automatica				LINI - 3C 03					F		國際	 J2		+

	visuai	izza	Appur	nti carattere isi	Programmazione				I	Αττινιτα					inseri	sci i	Proprieta	Colleg	jaa i	моапіса	I.		
A TI		01/12/2	4	0																		28/11/2	5
NZ			dic 24	ugen 25 ufeb 25 umar 25 uanr 25 umar 25	i jaiu 25	dua 25	1200.25	et 25 oft 25	100V 25	dic 25	iden 26	feb 26	mar 26	5 Japr 2	6 mag	26 Juliu 1	26 Jug 26	1200.26	iset 26	ott 26	1007.26		
SUE		Inizio	uic 24		, giù 25	lug 25					Igen 20			o lahiz	io jinag	20 giù	10 10 20	ago 20	Set 20	011 20	1107 20	Fine	
SEC	25	5/11/24					Aggiur	ngere attivita	i con date	e alla se	equenza	lempo	braie									20 /11/26	
		_	Modalit										Semestre	e 1, 2025		Semestre 2,	2025	Semestr	e 1, 2026	S	emestre 2, 2	026	
			attività 🔻	Nome attività	 Durata 	I	▼ Inizio	▼ Fine	•	Predecess	sori	▼ D	G F	M A	M G	LA	S O N	D G F	MA	M G	L A S	O N	-
	65	PE	□ →	FISMEL_calendar_2025	480 g		20/01/25	20/11/26															1
	1		→	 Controllo periodico Sicurezze Radioprotezione 	124 g		18/03/25	05/09/25						1									
	3		$ \rightarrow $	Check First FISMEL LINAC+BTF	2 g		18/03/25	19/03/25		C:\Users	Luca\One	Driv		ң —									
	4		- >	LINAC beam setup	5 g		20/03/25	26/03/25		3				Ť									
	5		□ →	Check Globale+DAFNE L	3 g		20/03/25	24/03/25		3				ţ									
	6		□ →	Check FISMEL LINAC+BTF	2 g		04/09/25	05/09/25		3FI+6 me	s					+							
	8		□ →	Check Globale+DAFNE-L	3 g		09/09/25	11/09/25		5FI+6-me	s;6					+							
	9		□ →	Controllo Buon Funzionamento Sister radiometrico	na 245 g		15/12/25	20/11/26										r					
_	10		\$?	Controllo Buon Funzionamento Siste	ma ı		15/12/25											C					
GANT	11		□ →	Controllo Buon Funzionamento Siste radiometrico	ma 2g		02/06/26	03/06/26		10FI+6 m	es									†			
MA DI	12		□ →	Controllo Buon Funzionamento Siste radiometrico	ma 2g		19/11/26	20/11/26		11FI+6 m	es												
MM	13		□ →	Manutenzione Sistema radiometrico	3 g		20/01/25	22/01/25															
GR	14		-	Manutenzione Sistema radiometrico	3 g		20/01/25	22/01/25					1.1										
DIA	66	P =	-	₄ Fest_calendar_2025	174 g		02/05/25	31/12/25							r								
	1		*	Festivitá	1 g		02/05/25	02/05/25															
	2		*	LNF summer closing	4 g		11/08/25	14/08/25	aho														
	3		*	LNF winter closing	8 g		22/12/25	31/12/25	abo									G 🖌					
	5		□ →	▲ Eventi LNF	0 g		31/05/25	31/05/25							÷ 31	/05							
	6		*	Open day	1 g		31/05/25	31/05/25							1.1								
	7		\$2	notte europea ricercatori																			
	8		\$2	Visite																			
	67	P =		₄ DT0 calendar 2025	200 g		10/03/25	12/12/25										7					ľ
	1			Crane Maintenances	200 g		10/03/25	12/12/25				_						7					
	2	 Image: A start of the start of	*	manutenzione carroponte	3 g		10/03/25	12/03/25						1.1									
	3		*	manutenzione carroponte	3 g		10/06/25	12/06/25							1.1								-
	•						,,					•			. –	•				_		•	
Pro	nto		luove attività	: Programmazione automatica													5	E	动 网			1	- +

ZA TE		01/12/2	4	Oggi															28/11/26
JEN 2			dic 24	gen 25 feb 25 mar 25 apr 25 mag 25	giu 25 lu	g 25 ago 25 set 2	25 ott 25	nov 25 dic 25 gen	26 feb 26	mar 26	apr 26	mag 26	giu 26	lug 26	ago 26	set 26	ott 26	nov 26	
EQU	25	Inizio 5/11/24				Aggiung	ere attività	con date alla sequer	nza tempoi	rale								F 2	ine 20/11/26
S			Modalit	· · · ·						Semestre 1	2025	Seme	estre 2 2025	5	Semestre	1 2026	Se	mestre 2 20	26
		()	attività 🔻	Nome attività	Durata	👻 Inizio 👻	Fine	 Predecessori 	• D	G F N	M A N	M G L	A S		G F	M A	M G L	A S	0 N
	67	₽₽	□ →	₄ DT0_calendar_2025	200 g	10/03/25	12/12/25			Г									
	1		→	4 Crane Maintenances	200 g	10/03/25	12/12/25			Г									
	2	\checkmark	\checkmark	manutenzione carroponte	3 g	10/03/25	12/03/25												
	3		*	manutenzione carroponte	3 g	10/06/25	12/06/25					1.1							
	4		\checkmark	manutenzione carroponte	3 g	10/09/25	12/09/25						- 1 -1						
	5		*	manutenzione carroponte	3 g	10/12/25	12/12/25												
	6		\$?	manutenzione carroponte															
	7		□ →	A Shieding Doors Maintenance	135 g	10/03/25	12/09/25			Г									
	8	\checkmark	*	manutenzione porte schermanti	3 g	10/03/25	12/03/25												
	9		*	manutenzione porte schermanti	3 g	10/09/25	12/09/25						- 1						
Ę	10		- →	▲ LINAC mowing	131 g	16/05/25	15/11/25					· · · · ·							
GAP	11		*	sfalcio erba	1 g	16/05/25	16/05/25					1 - C							
ō	12		*	sfalcio erba	1 g	15/11/25	15/11/25							1.1					
MA	13		- →		133 g	30/04/25	31/10/25				Г								
AM	14	\checkmark	*	Pulizie sala controllo	1 g	30/04/25	30/04/25				1								
AGR	15		*	Pulizie sala controllo	1 g	31/10/25	31/10/25							1.1					
DI	16	\checkmark	- →	FLUIDS Maintenance	5 g	08/09/25	12/09/25						п						
	17	\checkmark	*	manutenzione fluidi LINAC+BTF+DR+MF	R 5 g	08/09/25	12/09/25						н						
	18		- →	beam time user start	91 g	15/09/25	19/01/26	17					+						
	19		\$?	pulizia polline															
	20		\$?	manutenzione fluidi DR+MR															
	21		□ →	Pest control	91 g	16/05/25	19/09/25					· · · · ·							
	22		*	Disinfestazione	1 g	16/05/25	16/05/25					н. — — — — — — — — — — — — — — — — — — —							
	23		*	Disinfestazione	1 g	13/06/25	13/06/25					1.1							
	24		*	Disinfestazione	1 g	18/07/25	18/07/25					- E							
	25		*	Disinfestazione	1 g	19/09/25	19/09/25						1.1						
																		_	
Drop			luovo attività	· Brogrammazione automatica					P 4					F			f] _		•
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- Modular implementation in 3 phases
- Few months/ year for data taking and setup
- Compatible with external users' high intensity operation, fixed installation Needs design, procurement and technician time also from LNF





BTF BEAM – BEAM DIAGNOSTIC



Fast BTF beam diagnostics

- CALOBTF1 (PbWO NA62 like)
- Timepix detectors (65k Pixel TPX,TPX3 detector, ~2cm²)
- Located downstream the straight pipe in the DHSTB002 dipole
- Adsorber in the middle (0.05mm Ti window, 0.7 Si detectors)

Direct measurement (positrons, X17 delivered beam):

- Stop injections to X17
- DHSTB002 switch off
- Injection in the straight DHSTB002 channel

Undirect measurement (secondary photons, run quality monitor)

- Beam steered to X17
- CALOBTF1 and FITPix get Bremsstrahlung photon from mylar window_
- Energy collected is less 0,001 of the total steered charge (12m away)
- Used to monitor delivered PoT and beam length runtime
- Higher measurement errors in respect to PADME RUN(20%)





- Epik8s, or "EPICS on Kubernetes," is a framework designed to facilitate the deployment and management of EPICS (Experimental Physics and Industrial Control System) on Kubernetes clusters.
 - Scalability and Flexibility: Easily scales across facilities, supporting large and distributed systems.
 - **Simplified Deployment**: Automates deployment using ArgoCD, reducing manual setup time.
 - Enhanced Fault Tolerance: Auto-restarts and reallocates services, ensuring consistent system uptime.
 - Efficient Resource Use: Containers provide isolated, resource-efficient environments, enhancing performance.
 - **Standardization**: Creates a common platform, simplifying collaboration between research institutes.