

Richieste di Servizi di Base



12/06/2025 – Michela Greco
Consiglio di Sezione, INFN Torino

on behalf the BESIII /FEST group

...and a bit of 



ISTITUTO NAZIONALE
DI FISICA NUCLEARE
Sezione di Torino

BESIII REMOTE MONITOR

BESIII Overview

BEPCII Status

BESIII GCS

Histogram

Check Record

Help

DAQ

DAQState RUNNING

RUN.NO 85828

Evt Rate 784.2097

SSM

Maget.status

State LoadEnd

Current 3369.533

Luminosity($10^{33}/\text{cm}^2/\text{s}$)

Online Filter Lum 0.043

Integrated Lum(1/pb) 37408.216

HV

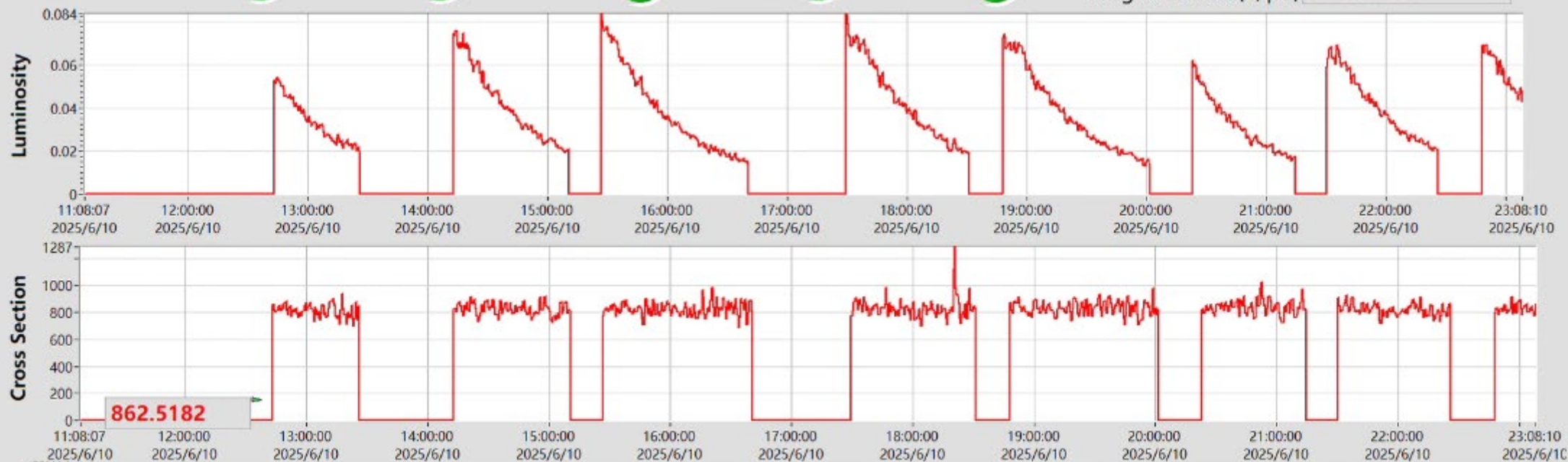
MDCHV

TOFHV

EtofHV

MuonHV

CGEMHV





BEPCL Status

e+

e-

Energy(GeV) 1.8583

1.8582

Current(mA) 192.1

347.3

Life(Hrs) 1.05

1.63

InjRate(mA/min) 0

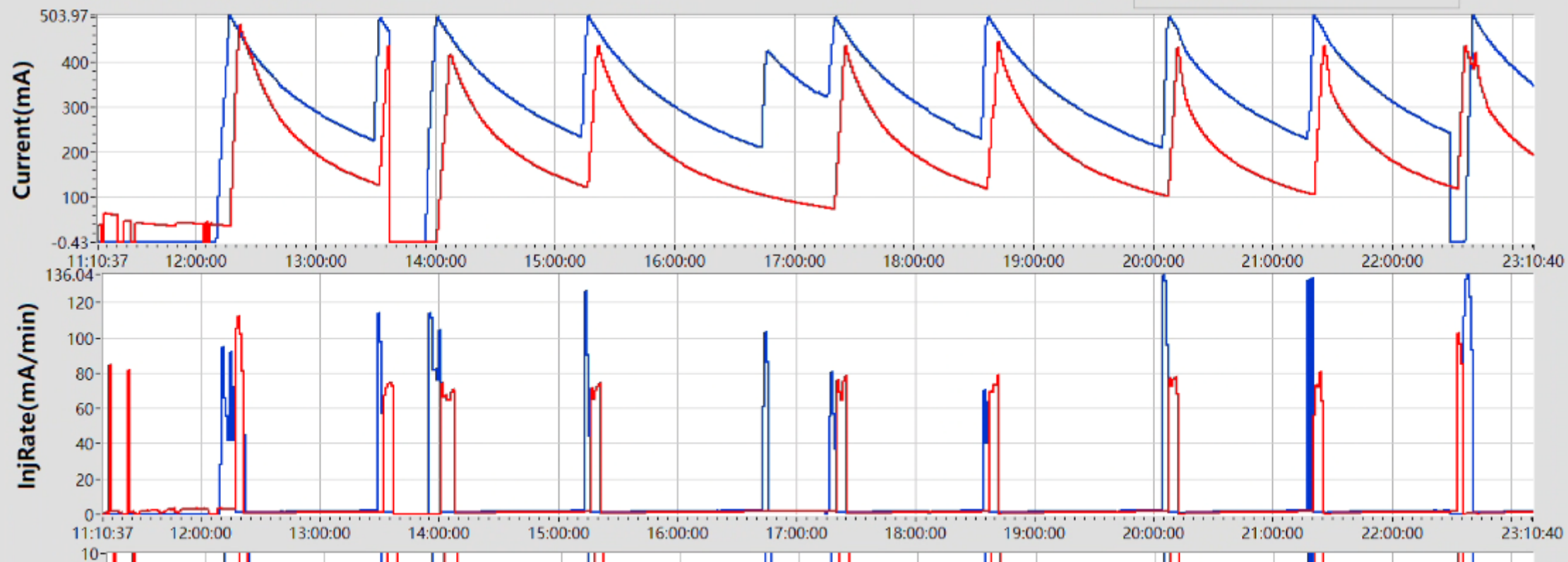
0

TCB1  OFF

Inj.State Waiting

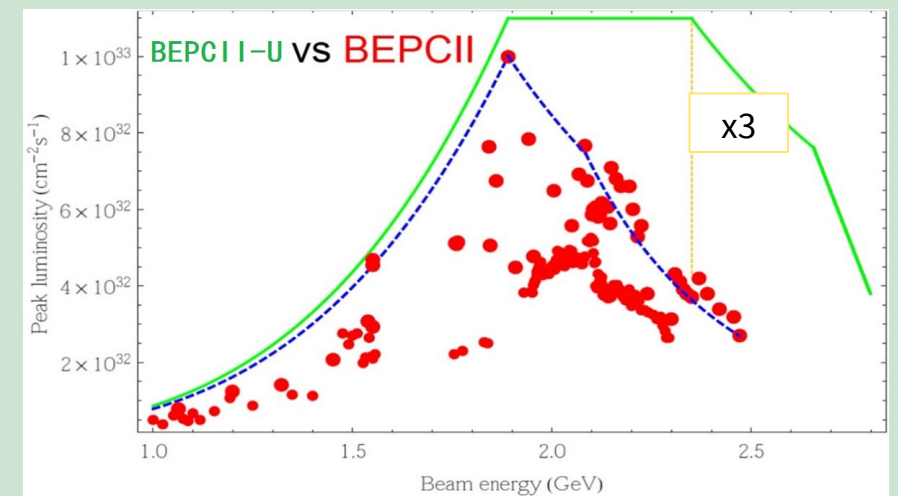
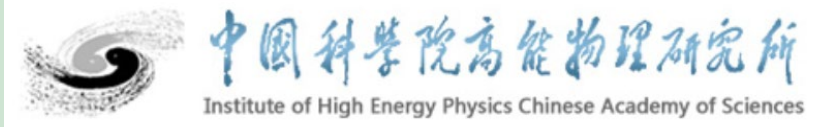
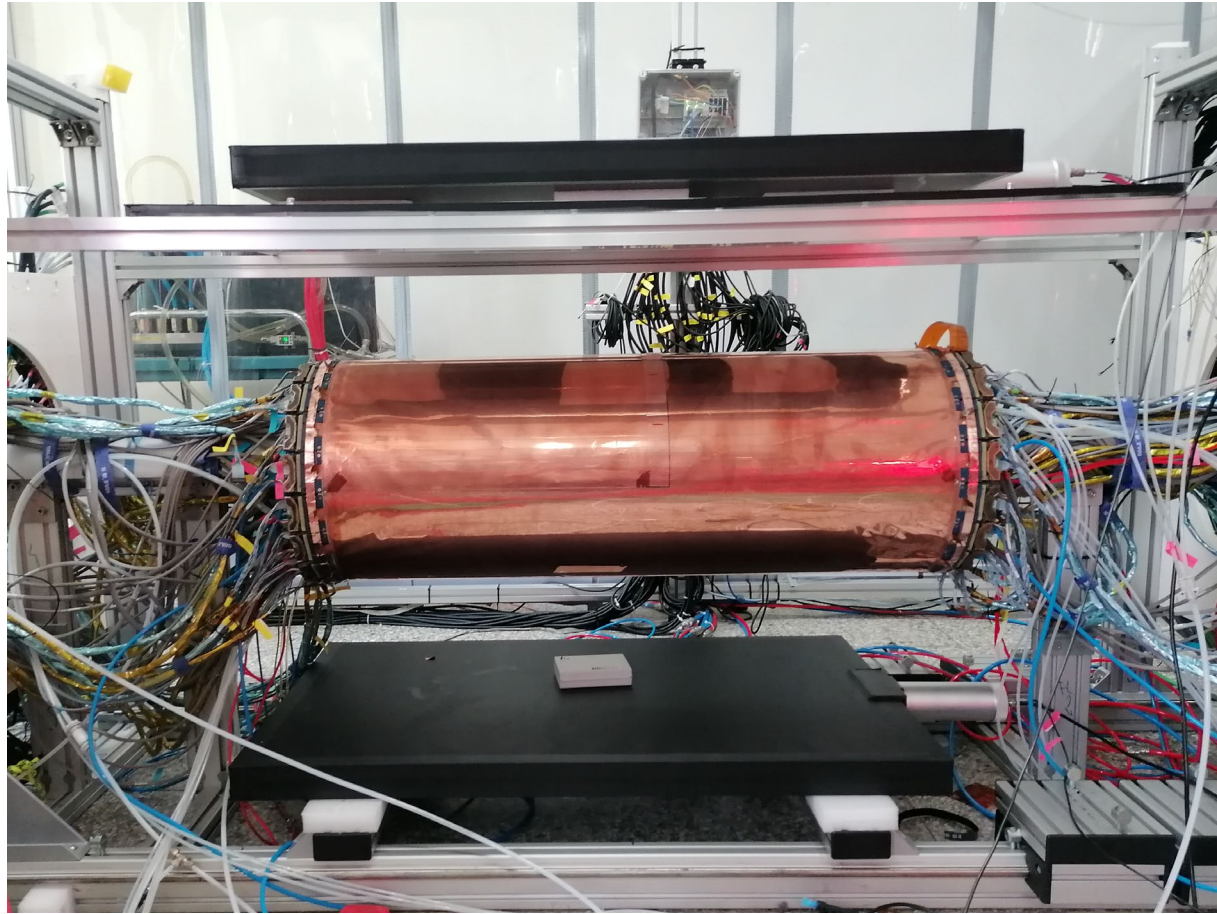
Repetition Rate(Hz) 50

Op.Mode Colliding



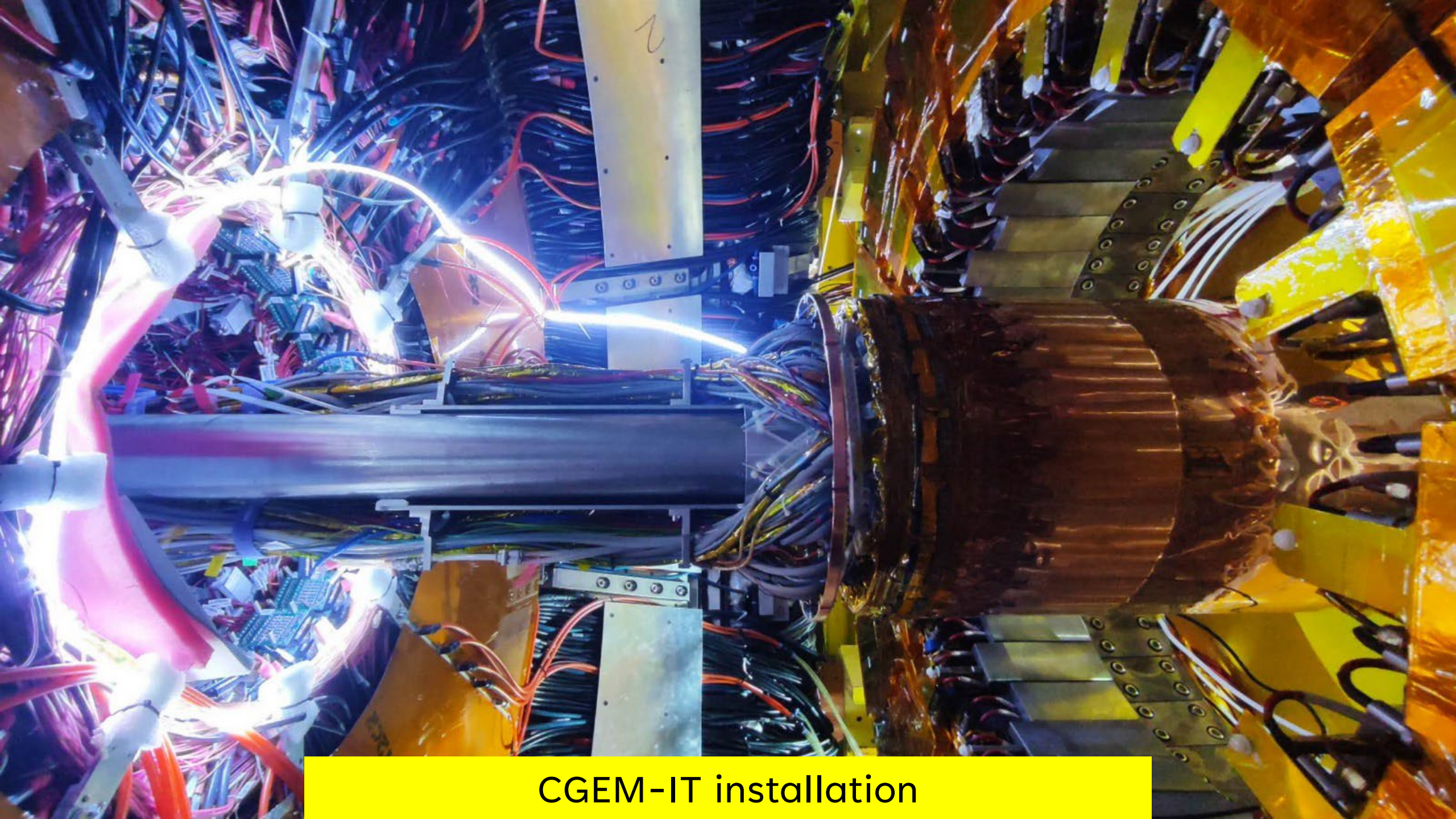
BES II > 2024/2025 UPGRADE

CGEM-IT



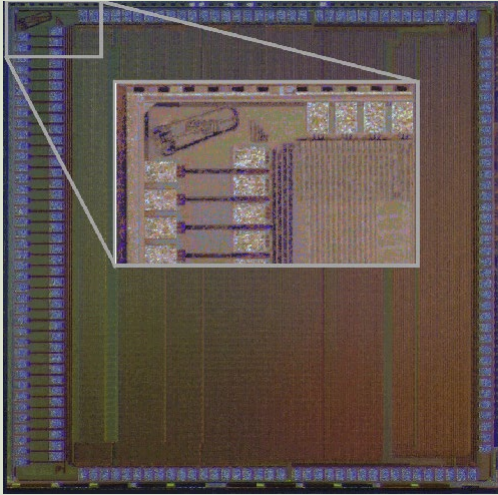
✓ Phase I: @ 2.35GeV, Luminosity tripled to $11 \times 10^{32} \text{cm}^{-2}\text{s}^{-1}$

✓ Phase II: Push higher energy, 2.47GeV >> 2.80GeV



CGEM-IT installation

CGEM: Torino contribution



ER designers

F. Cossio, A. Rivetti, M. Rolo
J. Chai, W.Cheng

Asic Bonding:

Flori Dumitrache,
Barbara Pini

Installation & Maintenance:

Antonio Zampieri

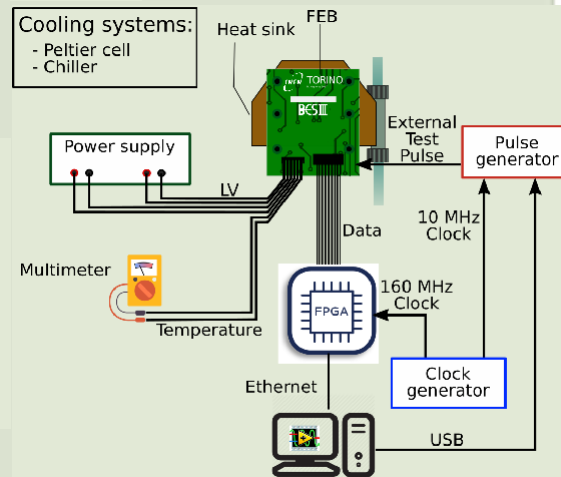
FE electronics: TIGER



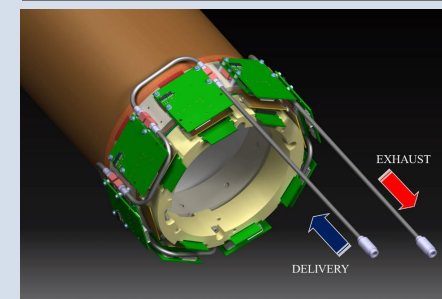
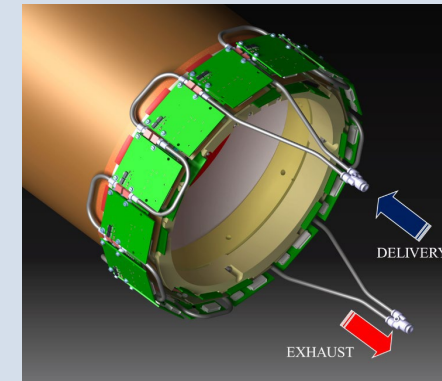
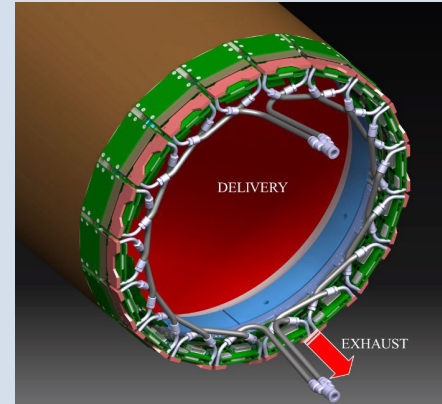
FEB

Design:
Marco Mignone

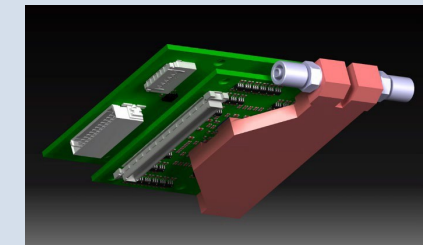
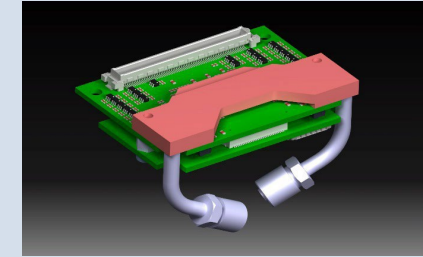
DAQ



R. Wheadon



Cooling



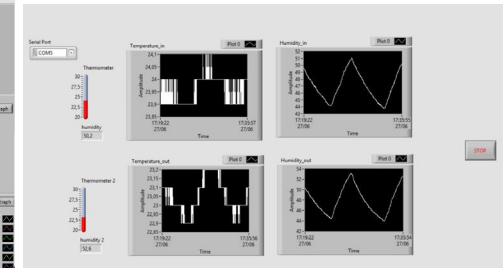
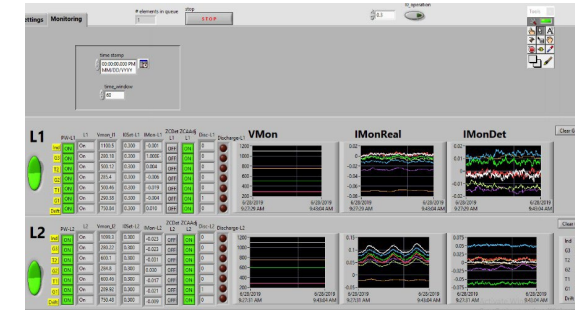
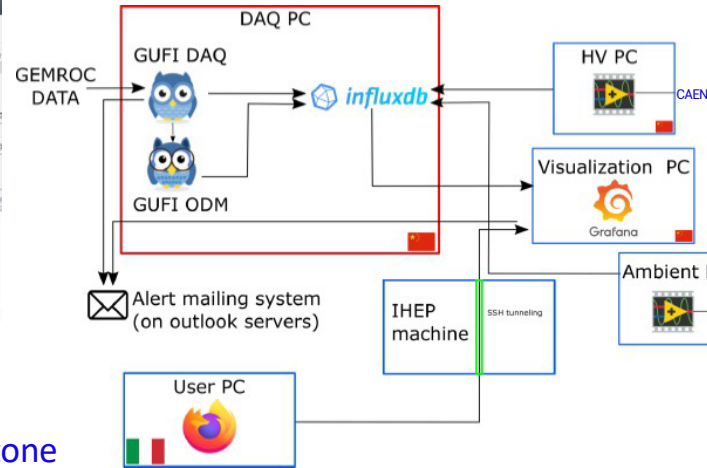
G. Giraudo, F. Borotto
P. Mereu, C. Mingioni

CGEM: Torino contribution

CGEM stand-alone /Online monitoring/remote control/DAQ→ INTEGRATION into BESIII DAQ

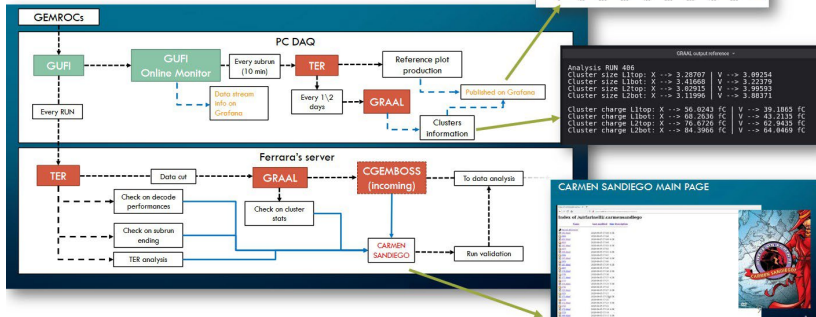


A. Bortone
F. Cossio



M. Greco
G. Cotto

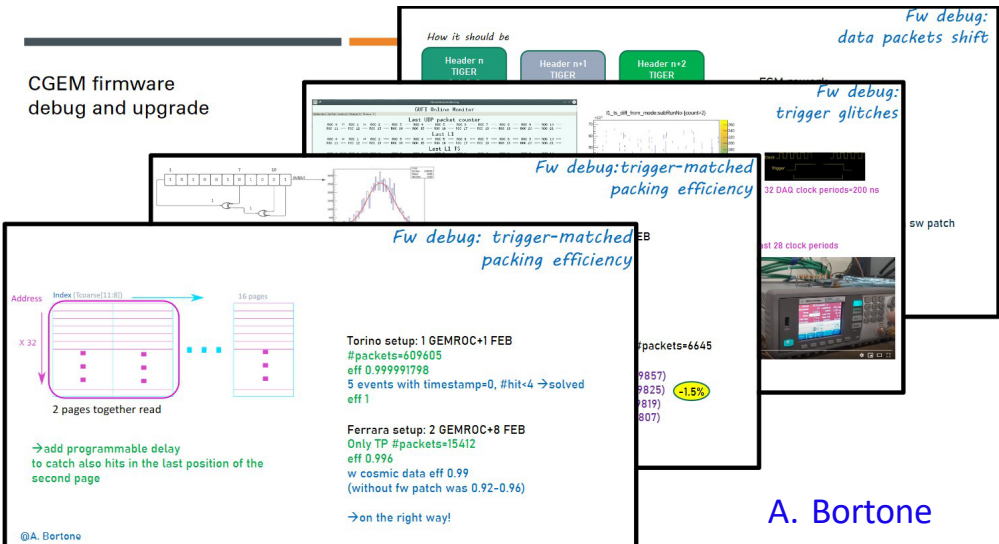
CGEM data quality



M.GRECO

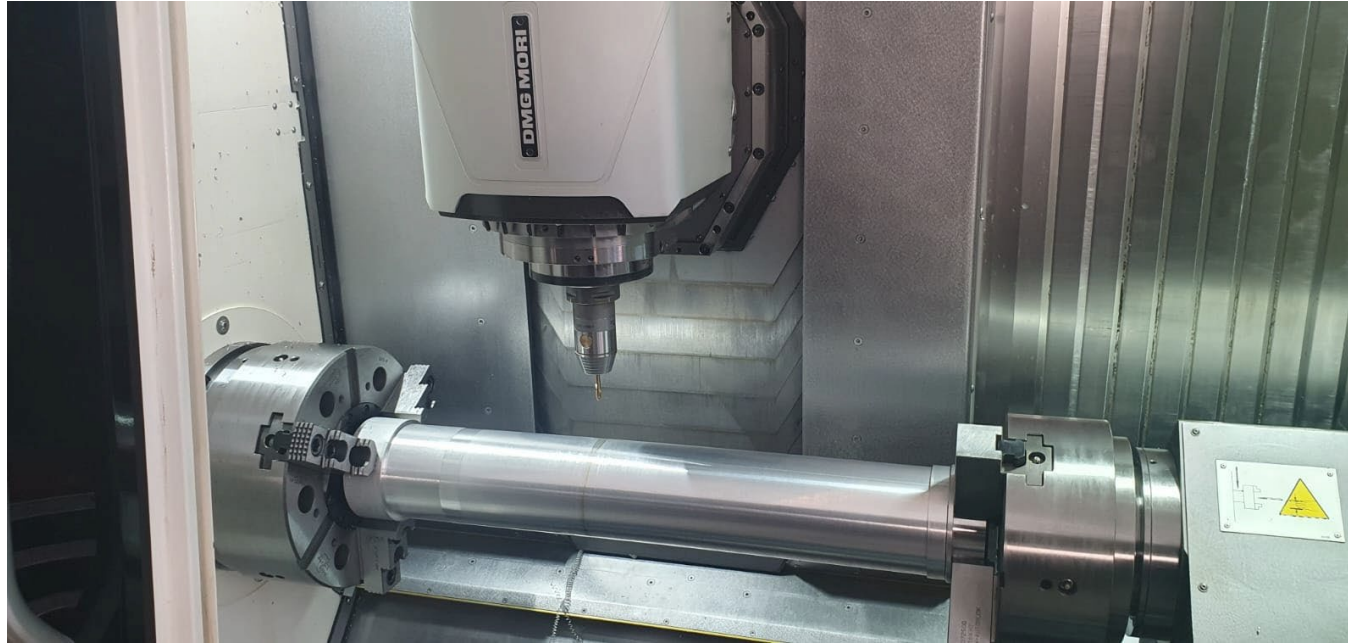
L. Lavezzi

GEMROC fw debugging/commissioning



A. Bortone

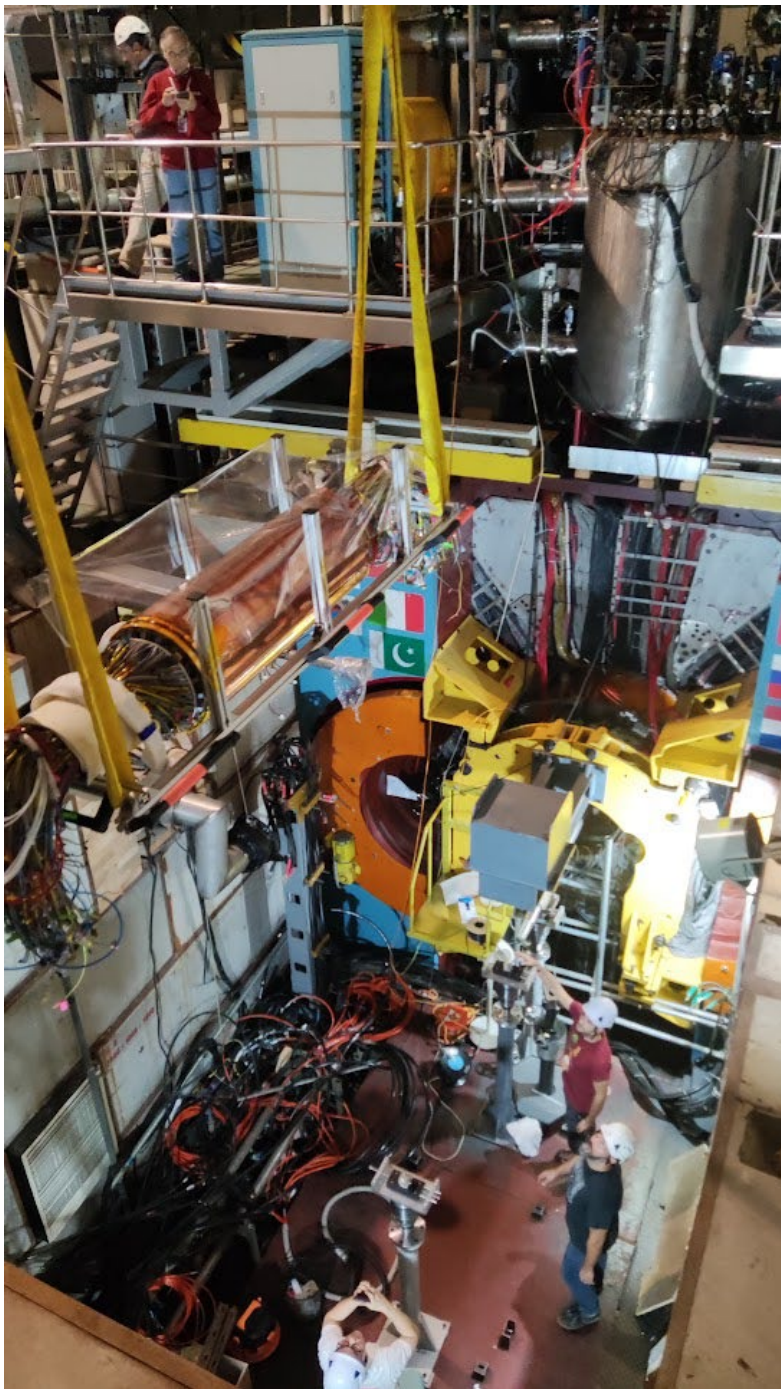
CGEM: Torino contribution Construction->Installation



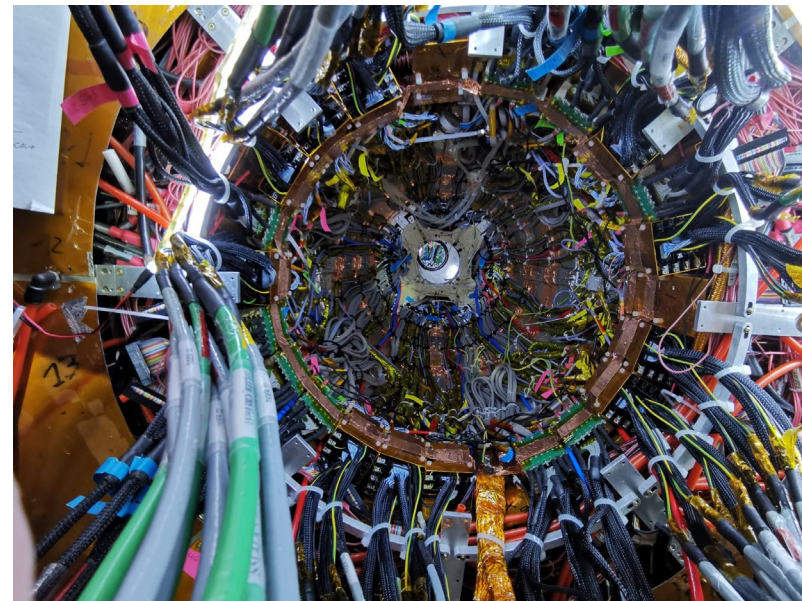
Ufficio acquisti
INFN-TO

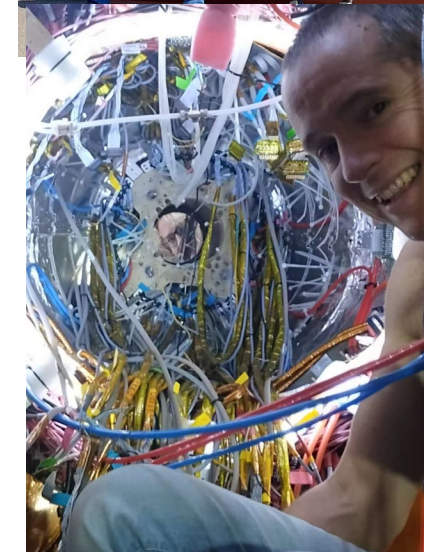
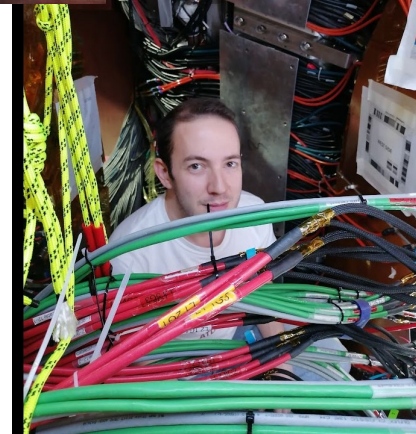
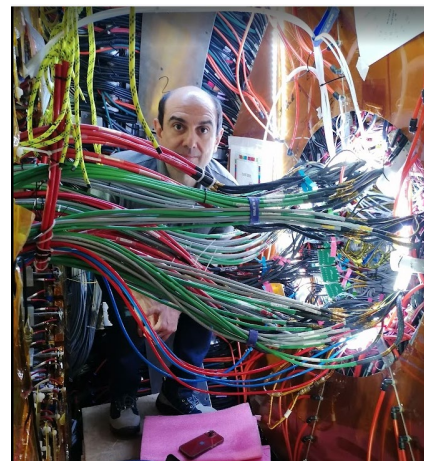
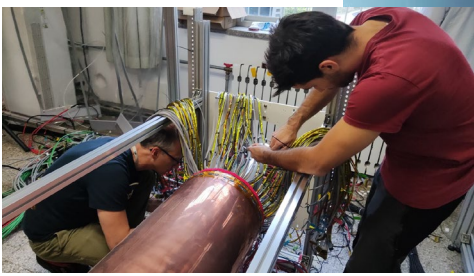
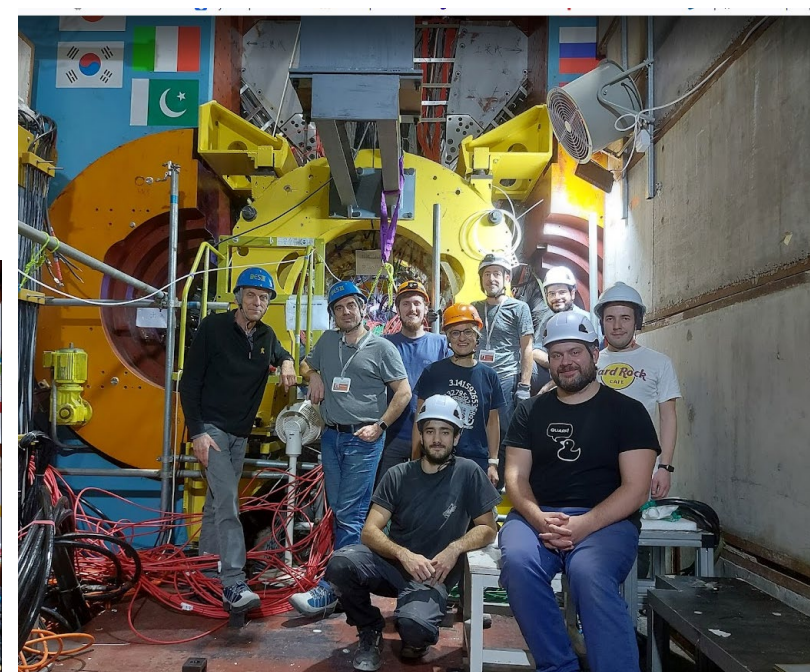
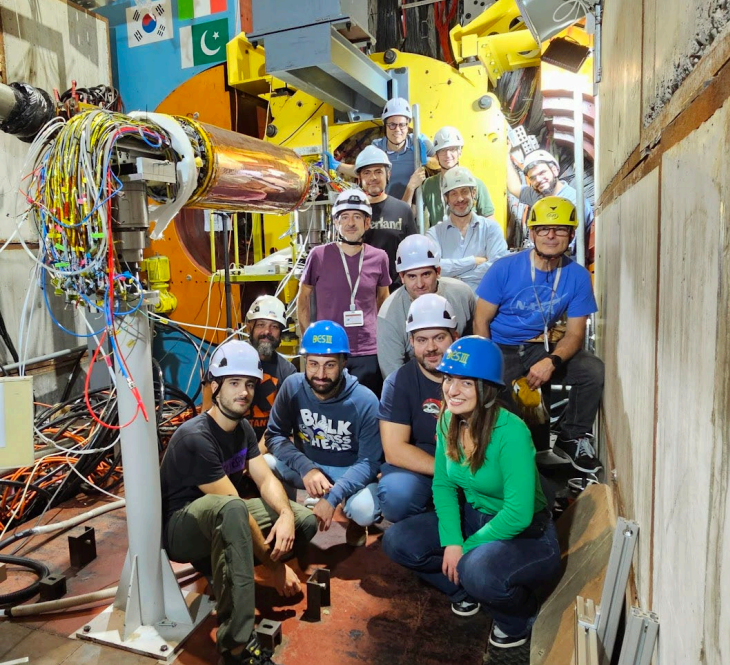


F. Borotto
P. Mereu,
I. Valinotto



Ottobre 2024-Gennaio 2025





Richieste 2026

Elettronica

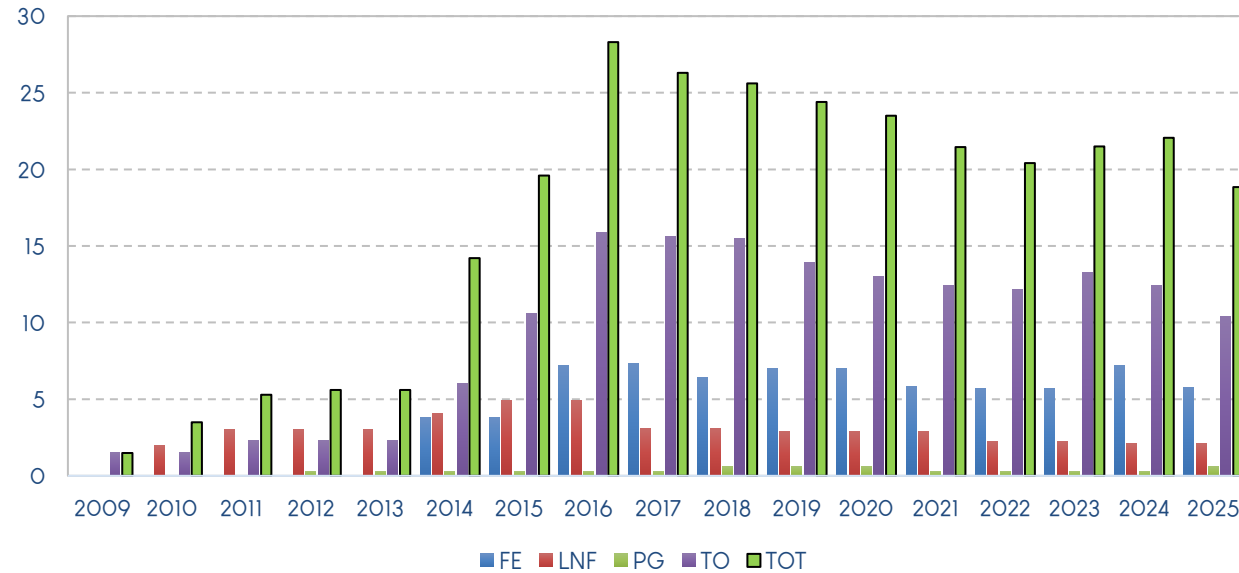
- Follow up supporto tecnologico alla catena di lettura (on detector (TIGER)- off detector, FPGA based) (1+1+1+1 settimane e viaggi)
- Supporto tecnico per eventuali interventi su catena distribuzione LV durante shut down estivo 2026 (1 settimana+1 settimana+viaggi)

Meccanica

- -Follow-up sistema di cooling CGEM-IT a Pechino
- Supporto tecnico per eventuali interventi di maintenance CGEM-IT a Pechino nello shutdown estivo 2026

(1+ 1 settimane+ viaggi, non continuative)

BESIII – Italy Collaboration



- **M. Maggiora:** Director of IHEP-INFN Joint Laboratory, Member of BESIII Executive Board, RISE FEST Coordinator;
- **M. Bertani, G. Mezzadri, M. Maggiora,** Members of BESIII Institutional Board
- **M. Greco:**, Convener of BESIII CGEM and FEST electronics, Convener of BESIII CGEM Integration
- **F. Bianchi:** Chair of BESIII Speakers' Bureau
- **F. De Mori:** Coordinator working group on phase
- **M. Rolo:** Convener of BESIII CGEM microelectronics, Convener of FEST microelectronics and medical applications
- **S. Spataro:** Convener SW BESIII CGEM, Publication Committee Standing Member
- **G. Cibinetto,** SM BESIII CGEM-IT Project, Member of Technical Board
- **I. Garzia:** Convener Light Hadron WG

The Italian Collaboration (FE, LNF, PG and TO)

- ~40 authors (~7% of the total)
- ~55 physicists + technologists

Activities of the group

- data analysis
- analysis internal referral
- support computing production
- data taking shifts
- **CGEM-IT**

Il supporto dei servizi è di vitale importanza per l'impegno che la collaborazione italiana ha assunto nel progetto CGEM-IT e nel computing



BESIII CGEM

Two European
RISE projects

FEST

Richiesta 2026, BESIII-BELLEII

**INFN-TO fornisce un contributo
essenziale a BESIII e IHEP, Belle2 e KEK**

**Le infrastrutture di produzione e di test
come i tool di R&D sono interfacciati
dinamicamente con i due esperimenti**

Centro di Calcolo

- manutenzione WN e storage infrastruttura cloud ONE condivisa
- integrazione dei tools per il cloud bursting ed il monitoring di infrastrutture per il calcolo scientifico (VM DIRAC based e non) con i Distributed Computing di BESIII e BELLEII
- manutenzione di farm di calcolo cloud-based

BELLEII/BESIII Computing Activities @ INFN-TO

■ INFN-TO Production Cloud provides to BESIII, since 2014:

- 2kHS06 (~ 200 cores) and 20 TB net reserved for BESIII
- 30 TB added in 2016
- 2kHS06 and 20 TB in 2020
- shared access to 0.7kHS06
- fully transparent Tier-2 Grid Infrastructure, accessible by IHEP
- direct submission to CE, contestualisation via CVMFS
- job/VM submission in VMDIRAC: full elasticity (VM birth & death)
- full interoperability within BESIII distributed computing

■ Fair-share access to ReCas Infrastructure(s) at INFN, since 2015:

- multi-experiment GRID Infrastructure
- 700 cores reserved to BESIII
- 30 TB storage dedicated to BESIII
- fair-share access to more resources

■ Cloud testbed at INFN-TO Computing Center:

- full cloud production infrastructure replicated to perform "wild" R&D on cloud computing
- 64 cores dedicated cores, since 2014; 72 more dedicated cores deployed in 2015
- 12 TB storage dedicated, 20 TB more from local fair-share use
- full access (root privileges) by IHEP-CC Center staff
- **R&D on: IaaS, cloud bursting, monitoring tools, DIRAC, VMDIRAC, ...**

■ INFN proxied IHEP in H2020

- BESIIICGEM has been funded, it includes joint cloud R&D
- working together lead to a real testbed dedicated to cloud R&D
- Looking for new collaborations (Juno, etc..)

■ INFN-TO Production Cloud provides to BELLEII:

- 3kHS06 since 2017
- contestualisation via CVMFS
- job submission in VMDIRAC: full elasticity (VM birth & death)
- interoperability within Belle2 distributed computing
- B2CT: a set of tools for deploying cloud micro-sites, small replica of the TO infrastructure; tools operative and tested (optimized: Belle2 and BESIII)
- cores reserved for Belle2: 4kHS06
- local storage element reserved for Belle2: 350 TB

■ Cloud testbed at INFN-TO Computing Center:

- VMs and templates needed to run Belle2 simulations on the cloud testbed ready, operative and updated
- interfacing of the cloud infrastructure with BELLEDIRAC operative

BESIII-TO

Universita' degli Studi di Torino-INFN

Antonio Amoroso, Marta Baratto, Fabrizio Bianchi, Damiano Cabiati, Giorgio Cotto, Marco Destefanis, Francesca De Mori, Luciano Fava (UPO), Michela Greco, Marco Maggiora, Simonetta Marcello, Stefano Sosio, Stefano Spataro

INFN-TO

Stefano Bagnasco, (Alberto Bortone), Fabio Cossio, Manuel Dionisio Da Rocha Rolo, Luciano Gaido, Sara Garbolino, (Giuseppe Giraudo), Stefano Lusso, Paolo Mereu, Carlo Mingioni, Angelo Rivetti

BELLE-TO

Universita' degli Studi di Torino-INFN

Fabrizio Bianchi, Alessandro Boschetti, Maria Pia Bussa, Sanjeeda Bharati Das, Marco Destefanis, Michela Greco, Marco Maggiora, Simonetta Marcello, Stefano Spataro, Federico Testa

INFN-TO

Shanette De La Motte, Stefano Lusso, Suryanarayan Mondal, Rajesh Maiti, Roberto Mussa, Umberto Tamponi