
KLOE-to-SAND and ECAL WG: introduction

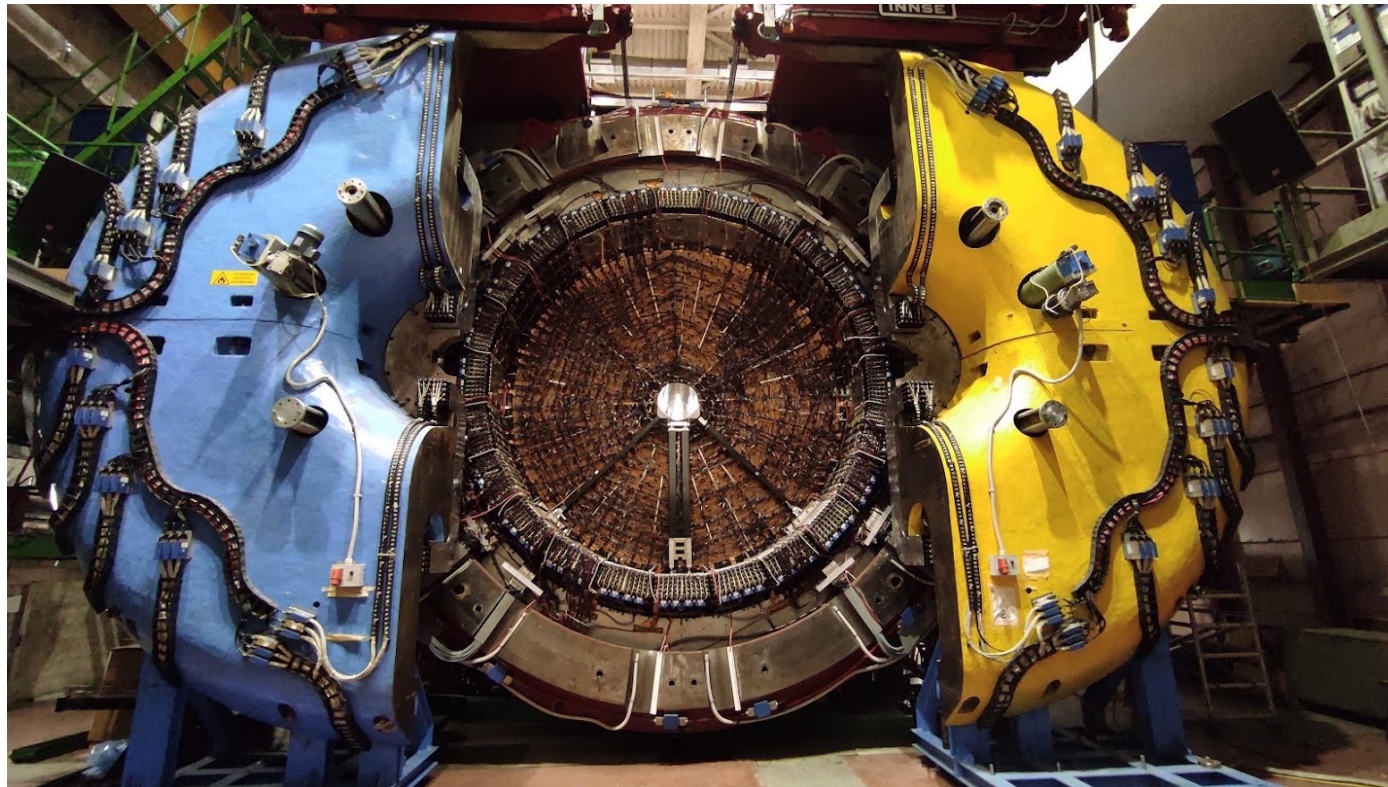
Antonio Di Domenico

Dipartimento di Fisica, Sapienza Università di Roma
and INFN-Roma, Italy



Daniilo Domenici

INFN-LNF, Frascati, Italy



Meeting DUNE-Italia – Lecce, 6 Novembre 2023

- Activities related to the extraction of the electromagnetic calorimeter (ECAL) from KLOE detector, ECAL refurbishment, transportation to FNAL, installation and commissioning at the DUNE ND cavern.
- In general, the activities at LNF of the whole KLOE-to-SAND project are followed and discussed inside the ECAL WG, including the SAND/MAGNET WG activities due to the high correlation of operation and planning of the two WGs.
- WG chairs: A. Di Domenico, D. Domenici
- Dedicated mailing list DUNE-ND-SAND-ECAL@LISTSERV.FNAL.GOV
- Regular weekly meeting every Monday 2:15 PM (CET) – 7:15 AM (CT)
- Material presented and discussed during WG meeting available on Indico:
<https://agenda.infn.it/category/1684/> (from 7-FEB to 26-APR-2022)
<https://indico.fnal.gov/category/1413/> (since 2-MAY-2022)

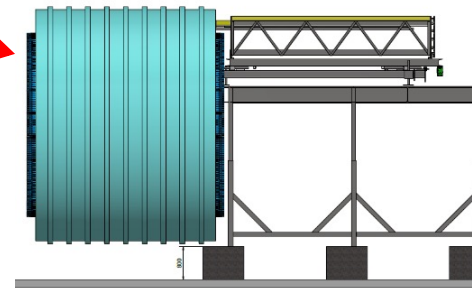
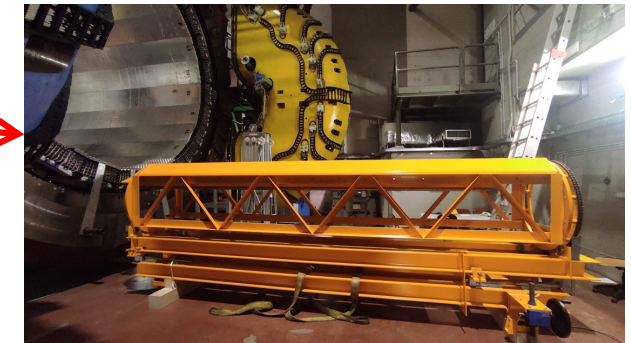
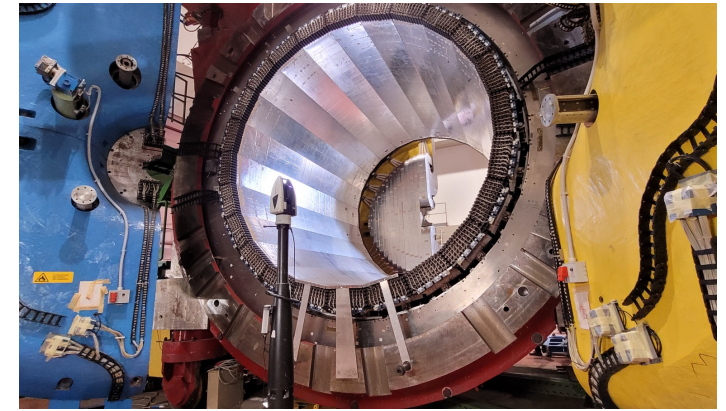
KLOE-to-SAND activities at LNF

Plan of operations:

- ✓ Removal of all cables and the FEE+HV racks
- ✓ Extraction of the Drift Chamber

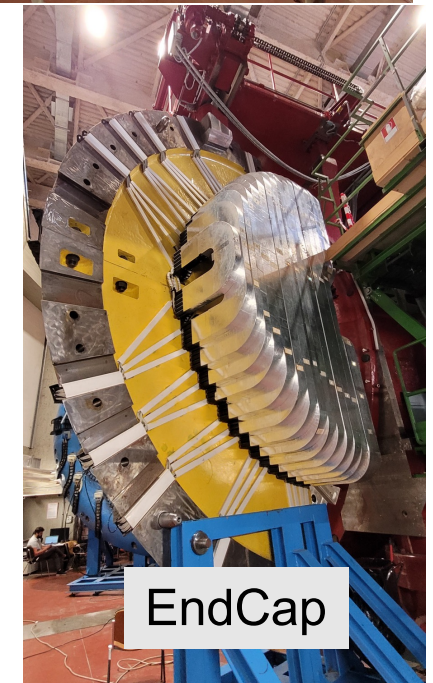
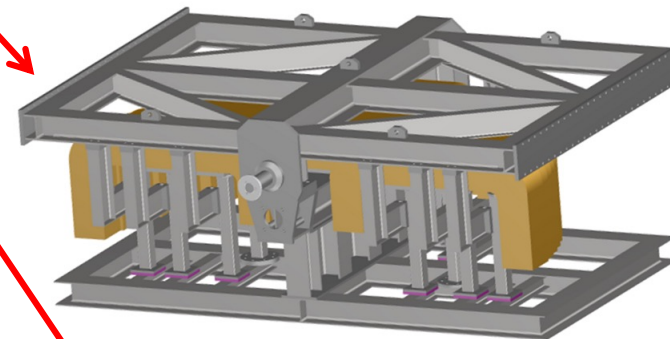
Calorimeter

- Laser tracker survey before ECAL dismounting
- Extraction of Barrel (24 modules)
 - original insertion/extraction machine completely refurbished and operational
 - platform construction is being completed
- Dismounting of EndCaps
 - original insertion/extraction/rotation machine is being refurbished and modified
- Operational test of ECAL modules



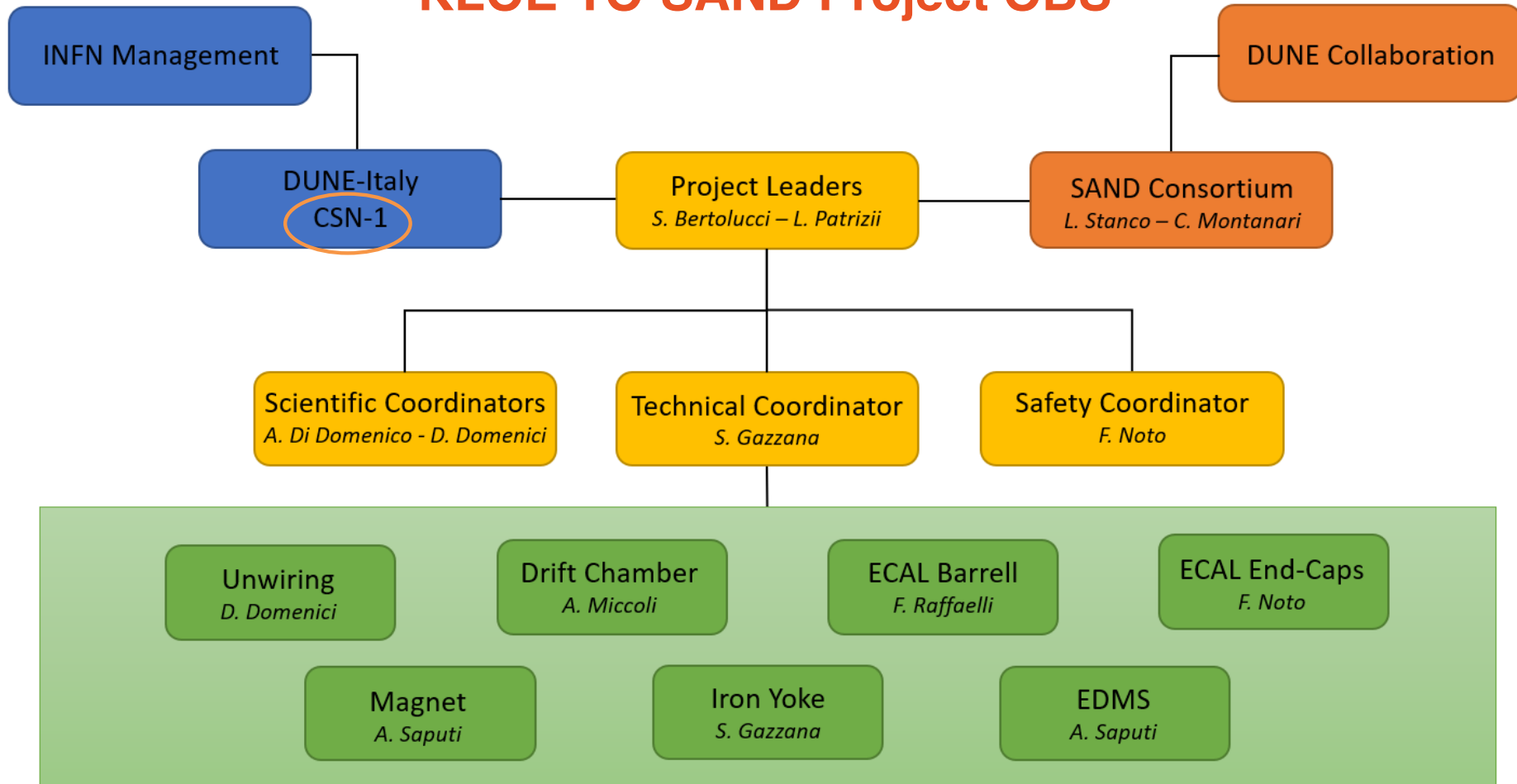
Magnet and Yoke

- Installation of new Power Supply
 - new Power supply is being purchased (CAENels)
 - Power Electronics is being revamped (OCEM)
 - Control system and full support for magnet test/dismount/remount by ANSALDO ASG
- Cooling of coil
- Operational test of magnet
 - in preparation
- Extraction of Magnet
- Dismounting of Iron Yoke



Packaging & Shipping at Fermilab

KLOE-TO-SAND Project OBS



we are setting up a detailed WBS trying to:

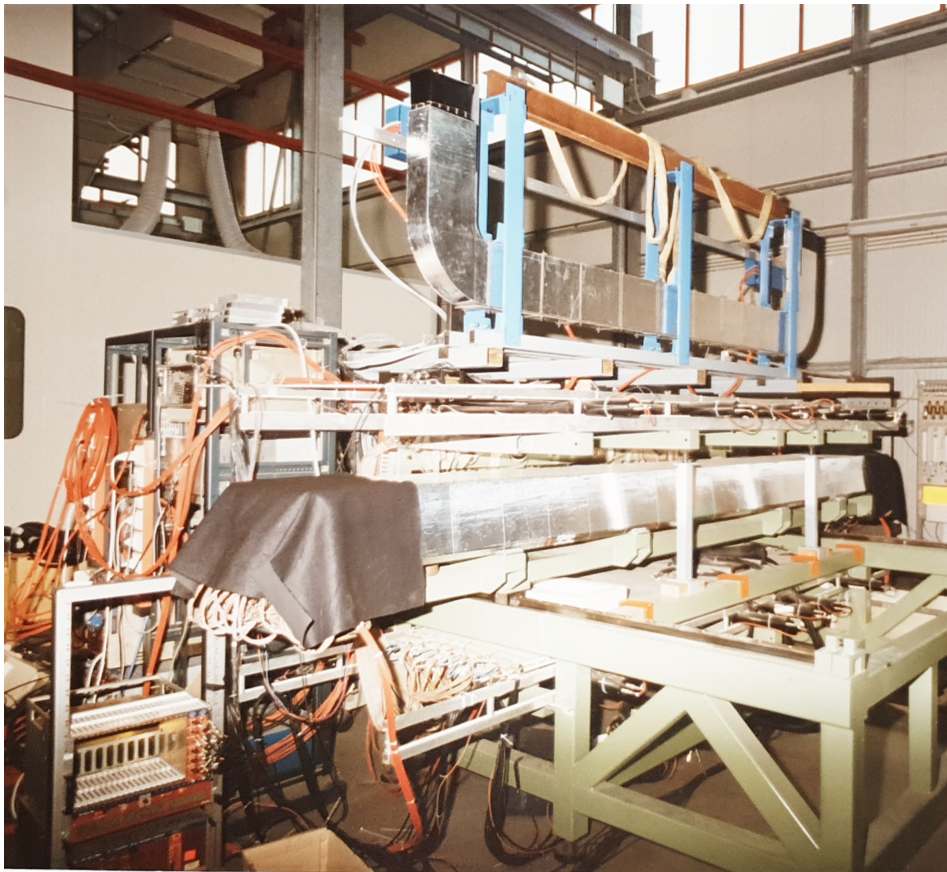
- have a better control of each operation and task
- improve their integration and have a more effective coordination
- ease the finance management and the control of the spending profile

Example: End-cap dismounting

Activity ID	Activity Name	Start	Finish	Predecessors	Item responsible	Manpower	Note
DUNE		1-Oct-21	2-Nov-26				
WBS: WG KLOEtoSAND		1-May-22	17/12/2022				
A400	Smontaggio Calorimetri EndCap - durata totale	1-Nov-22	10-May-24				
A401	Definizione Procedure e progetto nuovi tools	1-Nov-22	10-Oct-23		F. Noto		
A402	Approvazione progetto d'assieme	11-Oct-23	19-Oct-23		F. Noto		
A403	Scrittura procedure e verifica sicurezza con SPP LNF	20-Oct-23	1-Dec-23		F. Noto		
A404	Ordine refurbishment vecchi tools	10-Nov-23	15-Jan-24		F. Noto		Primo ordine recupero vecchi tools
A405	Procurement vecchi tools	15-Jan-23	15-Mar-23		F. Noto		
A406	Disegno e realizzazione supportino per moduli piccoli End-Cap - in parallelo al resto	20-Oct-23	1-Dec-23		F. Noto		
A407	Redazione capitolato	1-Sep-23	30-Oct-23		F. Noto		
A408	Approvazione capitolato	30-Oct-23	15-Nov-23		F. Noto		
A409	Check certificazioni US	20-Oct-23	15-Nov-23		C. Montanari		
A410	Procedura gara e Ordine per Costruzioni Tools smontaggio e Certificazioni CE - Revisione capitolato	30-Oct-23	30-Nov-23		F. Noto		
A411	Iter amministrativo procedura	1-Dec-23	15-Jan-24		F. Noto		
A412	Procurement - 12 weeks	15-Jan-24	8-Apr-24		F. Noto		
A413	Smontaggio blue box EndCaps e predisposizione e posizionamento cavi per smontaggio	1-Nov-23	15-Dec-23		A. Di Domenico F. Noto, Gazzana, Domenici, Di Domenico ??? (troppi! tbd)	2-3 tecnici INFN + Carmelo Polacchi + tecnici CT + Carmelo	
A414	Installazione tools in sala KLOE e commissioning	8-Apr-24	15-Apr-24		F. Noto, Gazzana, Domenici, Di Domenico ??? (troppi! tbd)	Polacchi + tecnici CT + Carmelo	dove? definire spazi disponibili
A415	Smontaggio Calorimetri EndCap e movimentazione in area stoccaggio e test	15-Apr-24	24-Apr-24		F. Noto, Gazzana, Domenici, Di Domenico ??? (troppi! tbd)	Polacchi + tecnici CT + Carmelo	dove? definire spazi disponibili
A416	Smontaggio e stoccaggio tools ENDCaps	6-May-24	10-May-24		Domenici, Di Domenico ??? (troppi! tbd)	Polacchi + tecnici CT + Carmelo	dove? definire spazi disponibili

ECAL module refurbishment and test

- After dismounting operation, the special protective adhesive tape of all barrel modules has to be replaced
- light tightness to be checked
- test basic performance with cosmic rays
- test FEE prototypes



n.5 A8030P boards 48 ch. 3 kV/1 mA
n.1 SY4527B mainframe
n. 1 A2551 board 8 V / 12 A (to be purchased)

Expected contribution (shifts) from
ad-hoc trained technicians and
physicists of involved INFN
institutions

ECAL module refurbishment and test

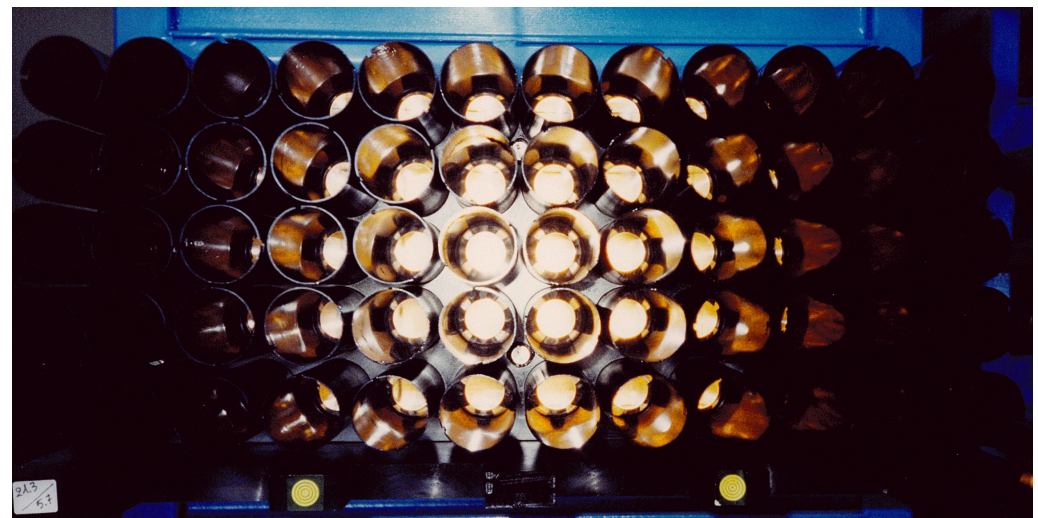
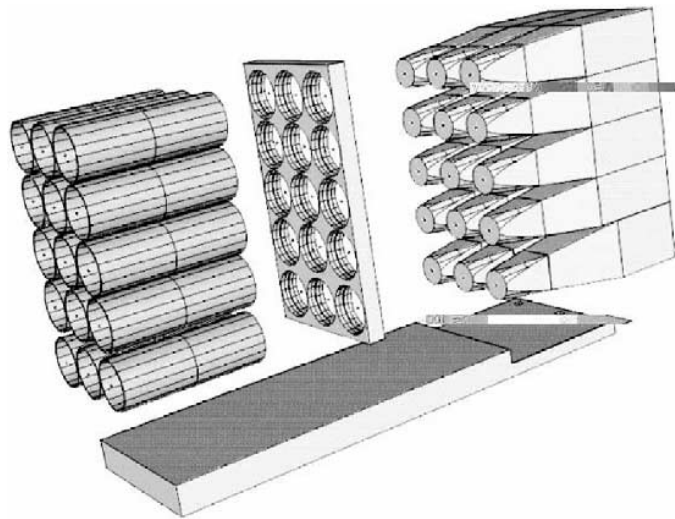
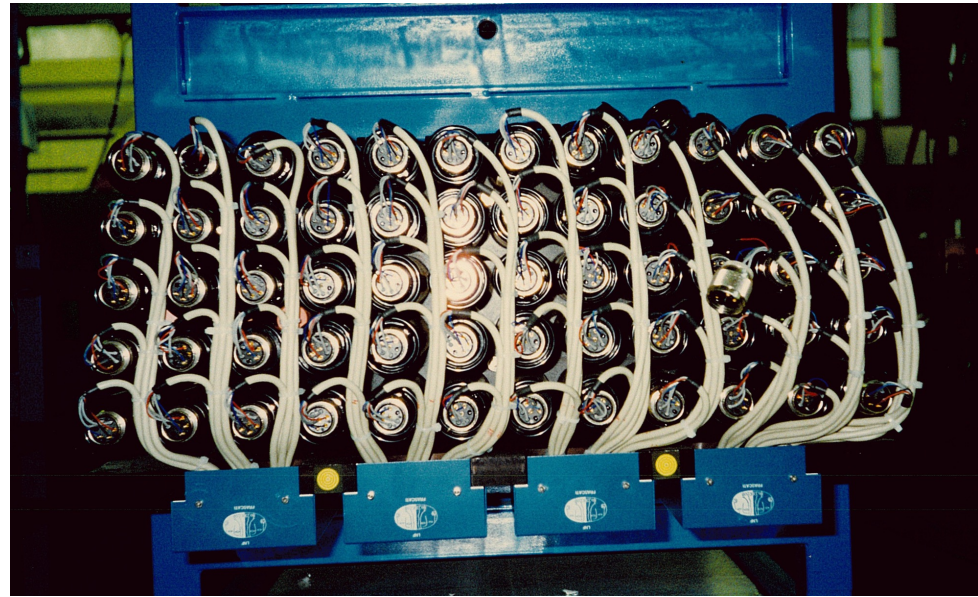


Fig. 4. Exploded view of the PM box.

Agenda of the KLOE-to-SAND session



10:45 → 11:00 **KLOE-to-SAND: Introduction** 📍 Sala Conferenze Ret...

Conveners: Antonio Di Domenico (Istituto Nazionale di Fisica Nucleare), Danilo Domenici (Istituto Nazionale di Fisica Nucleare)

11:00 → 11:20 **Pausa caffè e foto di gruppo** 🕒 20m 📍 Portico Rettorato

11:20 → 12:40 **KLOE-to-SAND: Talks + discussion** 📍 Sala Conferenze Ret...

11:20 **Status of ECAL barrel dismounting** 🕒 15m

Speaker: Fabrizio Raffaelli (Istituto Nazionale di Fisica Nucleare)

11:35 **Status of ECAL end-cap dismounting** 🕒 10m

Speaker: Francesco Noto (Istituto Nazionale di Fisica Nucleare)

11:45 **Status of magnet coil dismounting** 🕒 10m

Speaker: Alessandro Saputi (Istituto Nazionale di Fisica Nucleare)

11:55 **Updates from magnet WG + ECAL geometry survey report** 🕒 15m

Speaker: Danilo Domenici (Istituto Nazionale di Fisica Nucleare)

12:10 **Studies for the optimization of the ECAL working point and FEE** 🕒 10m ✎

Speaker: Antonio Di Domenico (Istituto Nazionale di Fisica Nucleare)

12:20 **Study of SiPMs for calorimetry applications** 🕒 10m

Speaker: Antonio Surdo (Istituto Nazionale di Fisica Nucleare)

12:30 **Discussion** 🕒 10m