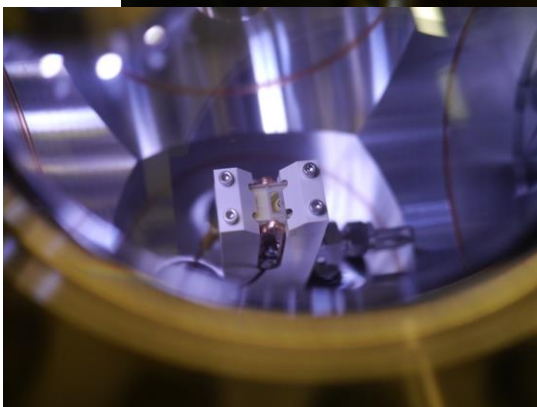
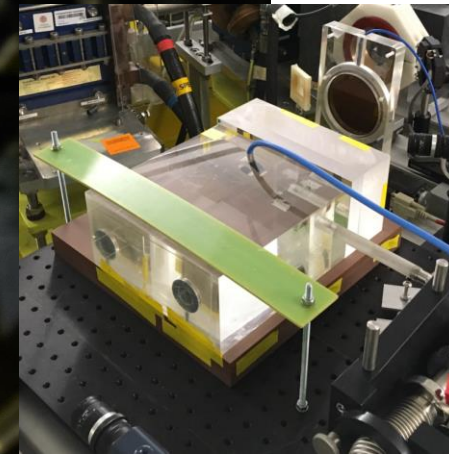


R. Corsini



CERN Linear
Electron
Accelerator
for Research

The CLEAR Scientific Board (CSB) periodically reviews the progress of the experimental program, steers the experimental program and gives recommendations on proposed experiments and activities on the basis of their scientific interest and the availability of the facility. The Scientific Board members participate to the formal approval process of the beam time requests.

This meeting is focused on the specific charge:

- Review and assess the past CLEAR experimental programme, with particular focus on the one executed last year.
- Review the 2024 experimental program, as defined by the user proposals received so far and the extrapolation of past experiments, and give recommendations on most relevant directions or activities to be followed.
- Assess the present consolidation and upgrade plan of the facility and give indications on the potential contribution of the CLEAR facility to the future accelerator program at CERN, e.g., on its relevance for possible test facilities needed in FCC-ee pre-injector era.

09:30 → 10:00	Coffee	30m
10:00 → 10:15	Introduction Speaker: Roberto Corsini (CERN)	15m
10:15 → 10:35	CLEAR Facility Status and 2023 Experimental Program Speaker: Avni Aksoy (CERN)	20m
10:35 → 10:45	Discussion	10m
10:45 → 11:05	CLEAR Plans and Experimental Program in 2024 Speaker: Wilfrid Farabolini (CERN)	20m
11:05 → 11:15	Discussion	10m
11:15 → 11:45	Coffee Break	30m
11:45 → 12:05	Review of Medical Application Studies in CLEAR Speaker: Pierre Korysko (University of Oxford (GB))	20m
12:05 → 12:15	Discussion	10m
12:15 → 12:35	CLEAR beyond 2025 and Scenarios for e- Future Test Facilities at CERN Speaker: Roberto Corsini (CERN)	20m
12:35 → 13:00	Discussion and Closing of Open Session	25m
13:00 → 14:30	Lunch	1h 30m
14:30 → 15:30	Scientific Board Closed Session	
15:30 → 15:50	Coffee Break	20m
15:50 → 16:45	Scientific Board Closed Session	
16:45 → 17:45	Visit to CLEAR	1h

- CLEAR was initially approved as a **2 + 2 years program**, operating since **August 2017**.
- CERN reviews were held in **2019** and **2021** to confirm and further extend its operation.
- CLEAR is a standalone installation, running also during Long Shutdowns. In a typical year **30-40 weeks** of beam operation are provided, between March and December.
- The operation team comprises on average **1 staff, 1 fellow and 1 associate**, plus contributions of some students and part-time associates. A total of about **3.5 staff FTE/year** is allocated to the facility, including technical support.
- The CLEAR **material budget** is of the order of **800 kCHF/year** (including M to P)
- CLEAR operation is currently approved **until end 2025**.
- A CLEAR **budget line** (M+P) is present in the current MTP **beyond 2025**.
- A **review** is planned in **2024**, in order to approve (or not) its operation beyond 2025.

Draft MTP2023

Accelerator technologies and R&D	Total 2023-2028 M+P [MCHF]
RF technologies R&D	55.2
High-field superconducting accelerator magnets R&D	136.3
Proton-driven plasma wakefield acceleration (AWAKE)	33.5
CERN Linear Electron Accelerator for Research (CLEAR)	9.2
Other accelerator R&D	18.9

M. Lamont, 329th IEFC meeting

Following previous discussions with the management (Mike and Rhodri in particular) we will request in **spring 2024** a **CERN internal review** on the potential extension of CLEAR operation beyond 2025.

- Date: **April 2024**.
- Aim: extend operation for a period of about **5 years**.
- Format: similar to the last one, held in 2021 (<https://indico.cern.ch/event/1015632/>)
- In preparation of the review, the next meeting of the **CLEAR Scientific Board** (to be held in February 2024) will have the mandate to assess the **scientific case** for an extension.

A **decision in mid 2024** would allow to better organize and possibly anticipate the long-term consolidation of the infrastructure (substitution of obsolete material, restock of spares), as well as to prepare the manpower plan.

No major upgrades to the infrastructure are foreseen in case of long-term approval, but rather a continuation of the present operation with a similar resource envelope.

At present the potential improvements/upgrades considered are:

- Build a new beam line in CLEX by re-adapting and using part of the old TBL, to provide additional test areas to users - this is short-term, relatively limited and we should be able to complete it using the existing resources within 2024, for operation in 2025 and possibly beyond.
- Improve the present laser system with a new front-end, for added reliability and flexibility. Also this activity should be possible with existing resources and may be completed within 2024, being available for operation from 2025.
- Put in operation for users the new electron source jointly developed by CLIC/AWAKE/CLEAR and being commissioned now in CTF2 - without moving it to the CLEX area. User operation is possible after the source commissioning is completed and before its installation in AWAKE. This is optional, most likely happening mainly beyond 2025, and depends on the actual timelines and on the potential user interest. This will require some (limited) additional resources, particularly in manpower.

- In the past 1-2 years, a **campaign** was carried out to **consolidate equipment** and ensure we have enough spares at least **until end 2025**. In particular, the situation for the most expensive items (e.g., klystrons) is now OK, with some margin.
- A proposal to further consolidate (and improve) the laser system has been recently discussed. This requires about **100 kCHF** over **2023-2024** (see later slide).
- Beyond 2025, several systems may need further consolidation (e.g., obsolete electronics/controls) – a **full evaluation** of the needs and a costing will be prepared for the review in **spring 2024**.

Preliminary cost evaluation ~ 160 kCHF

- 42 kCHF are available from EURO-LABS funds
- Fund the rest from CLEAR operational budget in the period 2023 – 2024
- This is possible due to: 1) main consolidation/spares items until 2025 already covered, and 2) additional contributions to manpower (M to P) from external sources (DEFT, KT-CIPEA, Oxford University)

Goal: at least one year of operation before potential CLEAR extension

- Aiming at installation of as many components as possible during YETS 2023-2024
- Further window to complete installation: July-August 2024
- Commissioning in fall 2024
- Start of operation for users beginning 2025

*Thanks for
your attention!*

