**Taskforce Weekly Plenary Meeting**   
***Minutes and actions, 3 February 2025***

**Meeting time:** 14:30 – 16:00 CET

**Zoom meeting room:**

<https://cern.zoom.us/j/64071474060?pwd=ZjZSaGJwVUZJSjU0b1p3WHllU3Nudz09>

Attendees: All task force members

Chair: Fiodor Sorentino

Key Takeaways

- Bottom access preferred for cryogenic towers due to thermal/cryogenic considerations

- Two main options identified for relocating LF filter cavities to arm tunnels

- Need to prepare background info and optical layouts for in-person meeting options

- Working to minimize cavern volumes by optimizing tower placement/grouping

* **Vacuum tower access**

***14:30-15:15 CET***

**Point presented by:** Antonio Pasqualetti and Julien Gargiulo

**Point submitted for:** information

The overall envelope of the detector layout will be partly influenced by the structure and shape of the vacuum vessels and by the technical infrastructure around them. One aspect of the envelope is the choice on whether access to the main chamber to mount and handle the corresponding payload should be achieved from the bottom or rather from the side of the tank. We will discuss the trade-off of risks, flexibility and volume cost for the two main available options and try to identify the best choice depending on the type of tower.

**Summary of discussion:**

* Lateral vs bottom access debated for different tower types
* Bottom access strongly preferred for cryostats:
  + Allows permanent thermal connections on shield sides
  + Easier payload insertion/balancing given large size (~1 ton, 2.5-3m tall)
  + Compatible with superfluid helium cooling designs
  + Lateral access more feasible for smaller towers (e.g. filter cavities)

**Action:**

Create shared list of pros/cons for each tower category

* **Configuration brainstorming continued**

***15:15-15:35 CET***

**Point presented by:** Fiodor Sorrentino

**Point submitted for:** discussion

A few global configurations should be identified to be studied in detail during the in-person meeting. The first meeting in Pisa should focus on one or two configurations for 2L and start some preliminary work towards other configuration options with lower readiness, to be then studied in detail during the second in-person meeting in Amsterdam. We will discuss the configurations to be studied during the Pisa meeting, and the mandatory background information to produce before the meeting.

**Summary of discussion:**

**Filter Cavity Relocation Options**

* Two main options identified to move LF filter cavities to arm tunnels:
  + Same plane as LF interferometer, HF interferometer 2m lower
    - Requires beam crossings but no periscopes
  + Filter cavities on separate plane
    - No interferometer changes but requires periscopes
* Preliminary preference for option 1, but both to be studied further
* Possibility of also moving HF filter cavity to another arm tunnel

**Cavern Volume Minimization**

* Explore adapting cavern shape to minimum size around towers
* Group/align towers in "tower caverns"
* Choose access methods to minimize volume
* Requires updated detector layout and tower categorization

* **Next steps**

***15:35-15:45 CET***

**Point presented by:** Fiodor Sorrentino

**Point submitted for:** information anddiscussion

Risk analysis from technology options will be carried out by separate interviews with expert groups; a mixed group will analyze risks related to the global configuration. A similar task will be set up to evaluate the flexibility gain of global configurations.

**Summary of discussion and actions:**

* Prepare optical layouts for filter cavity relocation options
* Update detector layout based on tower categorization
* Continue populating background info document
* Volunteers needed for risk analysis and flexibility evaluation groups
* Improve meeting security to prevent disruptions
* Reconvene next Monday to continue planning
* **Schedule of Pisa Meeting**

***15:45-15:55 CET***

**Point presented by:** Fiodor Sorrentino

**Point submitted for:** information

The first in-person meeting will focus on the detailed design of the two global design options with better readiness, as well as carrying out a first analysis of risk and performance. We will discuss the detailed agenda of the meeting.

**Summary of discussion and actions:**

* Prepare background info: optical layouts, tower access choices, etc.
* Study 1-2 configuration options in detail
* Parallel working sessions with plenary discussions
* Form cross-disciplinary groups for risk analysis and flexibility evaluation
* **A.O.B**

***15:55-16:00 CET***

**Actions:**

* Add cryostat-specific considerations for tower access options to shared Google Doc/table
* Contribute pros/cons for tower access options to shared Google Doc/table, focusing on technical layout considerations
* Create & share Google Doc/table on wiki to collect pros/cons of tower access options for different tower categories
* Consult vacuum team about constraints for beam crossings in filter cavity placement options
* Prepare course optical layouts for both filter cavity placement options (same plane vs different plane)
* Organize meeting with optical team to discuss merging secondary optics
* Update Indico page and GitLab with draft agenda for first in-person meeting, solicit feedback
* Assemble cross-expertise group for global configuration risk analysis, invite volunteers via WBS tasks