

# ISB Activities

Jan Harms, Stefan Hild for the ISB

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# ISB co-chairs: update



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Vacuum Department

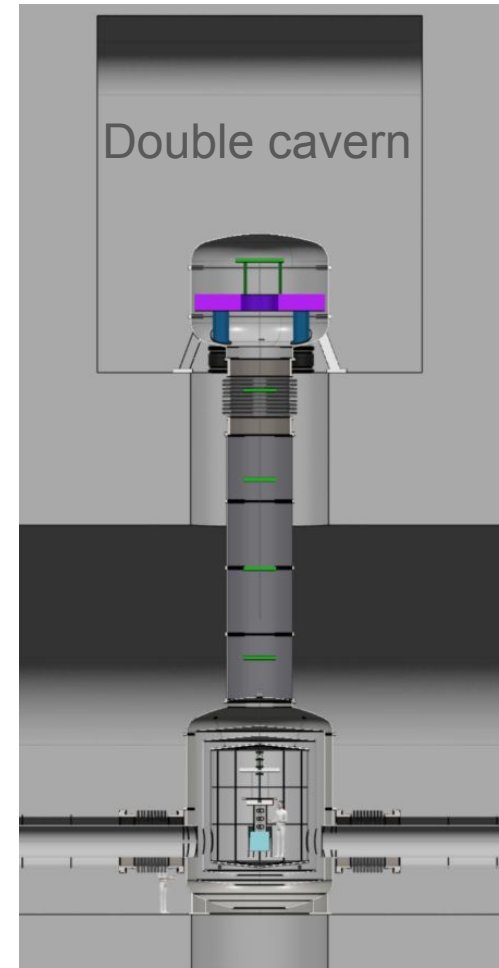
(still needs CB approval)

| <b>Vacuum &amp; Cryogenics Division</b> | <b>Fulvio Ricci</b>                     | <b>Steffen Grohmann</b> |
|---|---|-------------------------|
| WP IV.1 Tower Vacuum                    | Antonio Pasqualetti                     | Philippe Rosier         |
| WP IV.2 Pipe Arm Vacuum                 | Aniello Grado                           | Nick van Remortel       |
| WP IV.3 Cryostats and Cryopumps         | <del>Christian Day</del> → Stefan Hanke | Roberto Cimino          |
| WP IV.4 Cryogenic Infrastructure        | Steffen Grohmann                        |                         |
| WP IV.5 Detector Cooling                | Piero Rapagnani                         | Steffen Grohmann        |
|   |   |                         |

# ET-LF TM tower design concepts

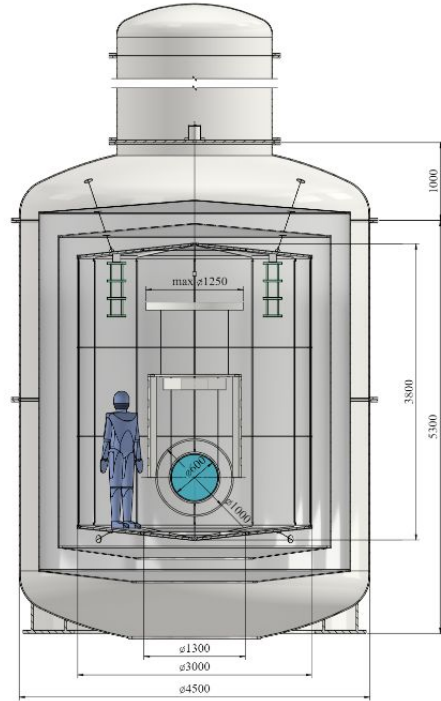
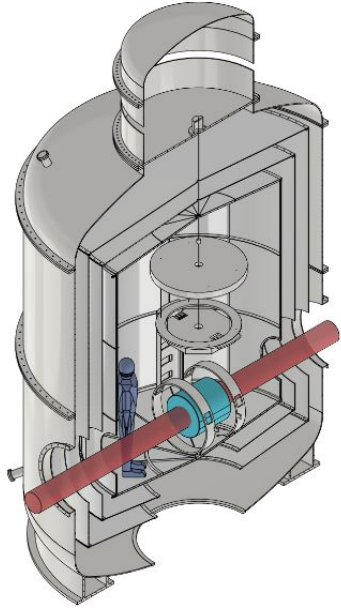
## Questions:

- Where to integrate the active platform and what are its requirements?
- What is the winning concept of the cryostat?
- Can we compactify the suspension chain?
- Can we adopt the KAGRA tower integration (double cavern) for some of the ET towers?



# ET-LF TM tower design concepts

(height: 20m)



Compact double inverted-pendulum configuration (height: 11m)

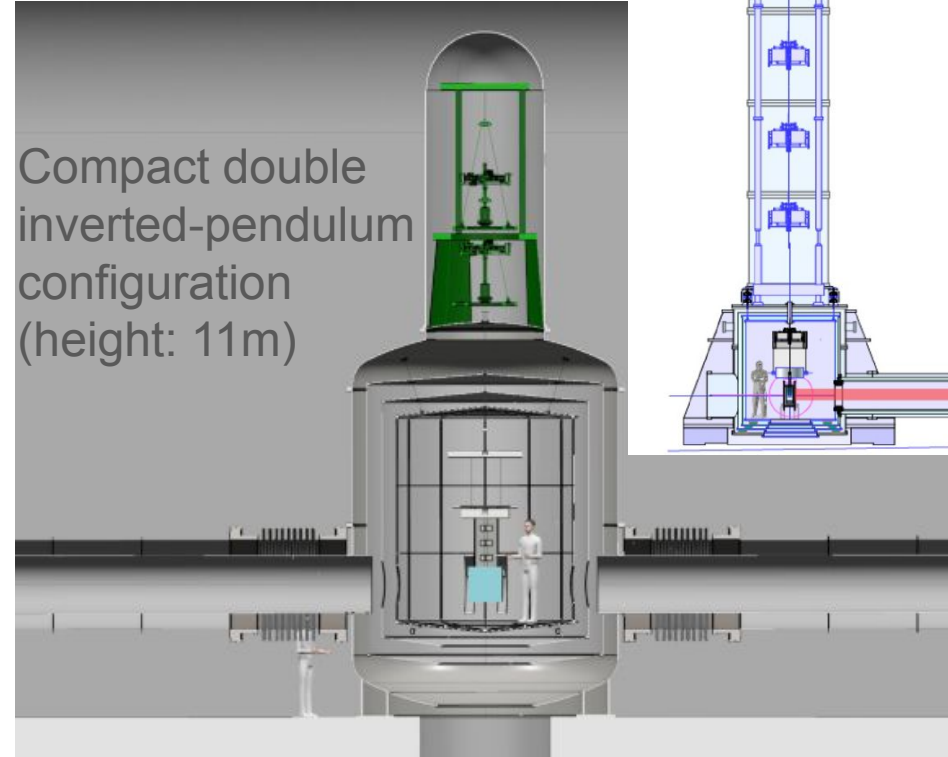


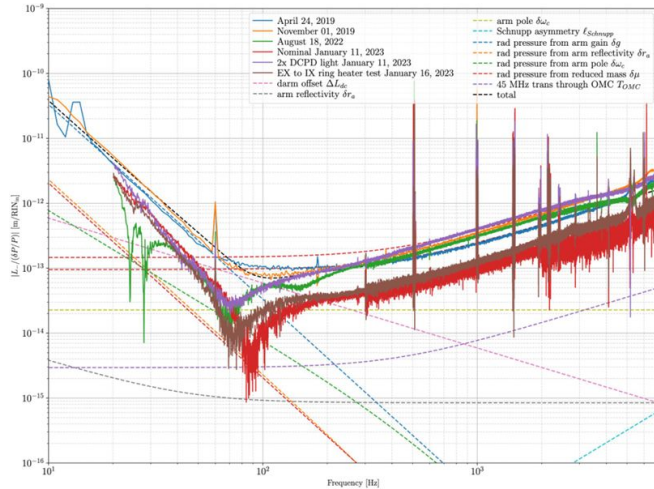
Figure 5: Conceptual design of the ET-LF cryostat.

# ET-Delta optical layout

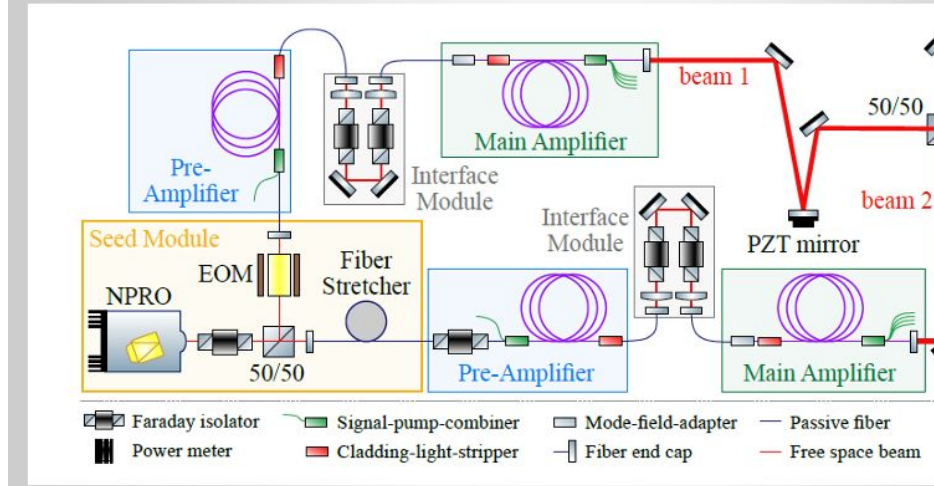
- The Delta optical design was completed providing a functional layout, and the layout is currently being optimized based on flexibility measures to reduce complexity.
- The review has started (Matteo Barsuglia, Matteo Tacca, Stefan Ballmer) with deadline on September 15, 2024.
- The version under review can be downloaded from the TDS: <https://apps.et-gw.eu/tds/ql/?c=17461>
- The analysis is continuing with focus on the L-configuration (the most important difference is the arm length requiring other adjustments of the optical layout).
- A workshop focussing on the L-layout will be at EGO on July 8-12, 2024: <https://indico.ego-gw.it/event/733/>

# NeXt Generation Collaborative Design (XGCD)

- June 24, 2024: Lasers and laser-noise coupling (Benno Willke, Craig Cahillane, Michal Was, Teng Zhang)
- Next XGCD meeting probably in September
- We have a list of topics to go through, but your suggestions are always welcome



## Coherent Combination of two Fiber Amplifier



# Vacuum beam pipe requirements

- Following the review of the beam-pipe requirements document, the Executive Board approved the beam-pipe requirements document on June 10, 2024.
- The approved version is available on the TDS: <https://apps.et-gw.eu/tds/ql/?c=17403>
- The work on the beam-pipe requirements is not finished. Some models can and must be improved, and the team will continue the studies.