Contribution ID: **11** Type: **poster**

The ‘1500W Cryostat’as a Testbed for ET Cryogenic Studies

The ET cryogenic tower will host the test mass (TM) operating at 10–20 K, where key challenges are attaining the exceptionally low vacuum level (normally the lowest in the entire ET system) and realizing the cryostat with ultra-low noise technology.Large-scale prototype initiatives have been launched by major laboratories to investigate cryostat design and cooling strategies, and dedicated prototypes are now at an advanced construction stage.
Beyond cryostat development, a number of GW instrumentation elements remains to be adapted or validated for operation at cryogenic temperatures.
Here we present an existing cryostat located at the Virgo site, known as the ‘1500 W’facility, recently refurbished and operated with cryocoolers providing a combined cooling power of ~2 W at 4 K.
The system employs undamped pulse-tube refrigeration, which introduces significant mechanical vibrations. Nevertheless this is not a limitation for many applications, where the mechanical stability of the device under test is not required.
We report the size, key characteristics and latest achieved performance of the cryostat, demonstrating stable operation < 7 K and confirming its capability as a platform for selected ET cryogenic studies.

Authors: ERBANNI, A.; PASQUALETTI, A.; PIFFRE, B.; GARGIULO, G.; FRANCESCON, L. (EGO); ZELENOVA, T.

Presenters: ERBANNI, A.; PASQUALETTI, A.; PIFFRE, B.; GARGIULO, G.; FRANCESCON, L. (EGO); ZELENOVA, T.

Session Classification: Poster Session

Track Classification: ISB: Vacuum and Cryogenics