

11-14 November 2025
Opatija, Croatia



Contribution ID: 43

Type: **poster**

Preliminary design of the basement for the ET vacuum towers

The ET layout provides space for the vacuum towers of the LF and HF interferometers. The towers will be housed in caverns designed to facilitate manoeuvring operations and ensure correct spacing between the components of the interferometers. Both LF and HF towers will need to be installed on a basement to make use of the space underneath them for manoeuvring. Furthermore, the cryogenic towers will have bottom access, which the cavern design must facilitate.

Within this framework, the towers can be positioned on top of basements of the correct height to allow all the operation from below. The stiffness of the system is a critical parameter affecting the mirror's seismic attenuation system. Thus, the basement design plays a crucial role. This is based on a study of the transfer function from ground displacement to displacement and tilt of the inverted pendulum base flange on the tower, which is significantly impacted by the basement's material and shape.

Authors: BIANCHI, Francesco; CHESSA, Piero (University of Perugia); SORRENTINO, Fiodor

Presenter: BIANCHI, Francesco

Session Classification: Poster Session

Track Classification: ISB: Vacuum and Cryogenics