

Preliminary CFD analysis of the airflow inside base tower

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Preserving the cleanliness of the main optics during installation and maintenance in the tower is a critical objective in ET. This requirement has an impact on the design of the clean air injection paths, which should aim to minimize the contamination induced by the operator working in the tower and prevent the transport of contaminating particles from unclean areas to the critical optical surfaces.

In order to predict the air fluxes inside the tower, a preliminary CFD (Computational Fluid Dynamics) analysis was carried out in a VIRGO-like base tower chamber. This paper shows the process of a CFD analysis starting from the simplification of the geometry and the meshing of the volume domain. Different scenarios of air inflow and outflow are compared in terms of mass flow rates and outflow boundaries. The proposed study will be a useful tool for the design of ET towers.

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