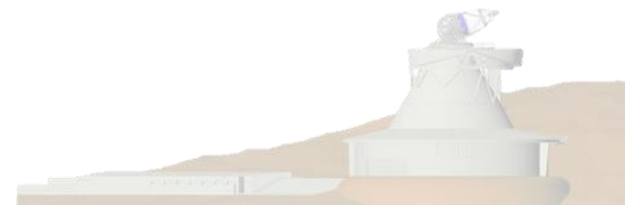


The European Solar Telescope

Hector Socas-Navarro

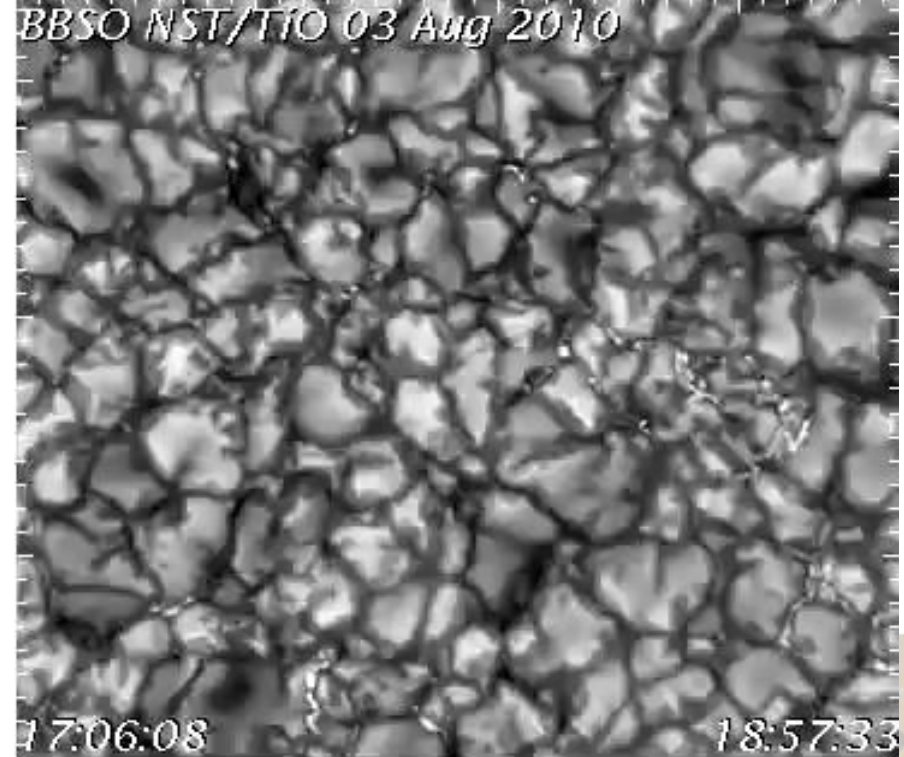
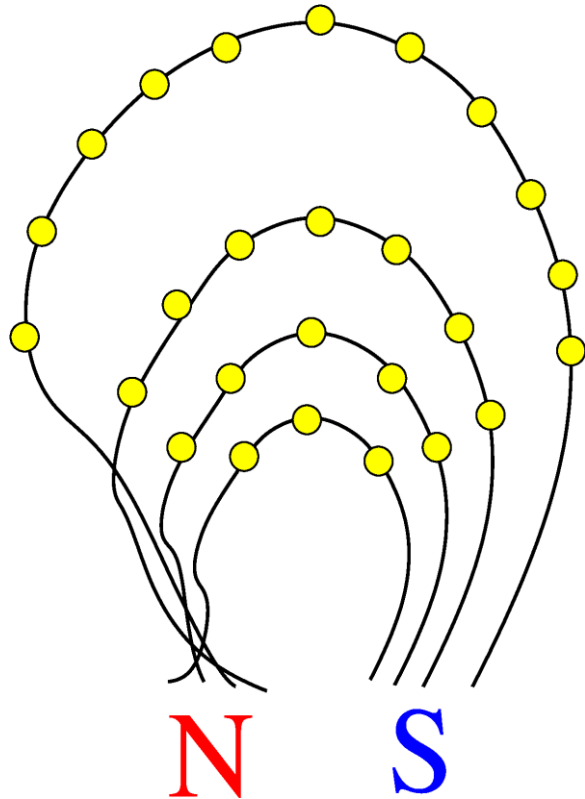


- A next-generation telescope for European solar physics
 - 4.2-m aperture
 - MCAO
 - Multi-height spectro-polarimetry
- ESFRI: European Strategy Forum on Research Infrastructures, Included in 2016
- ASTRONET Roadmap: Network of European funding agencies: EST → high priority for ground-based observations

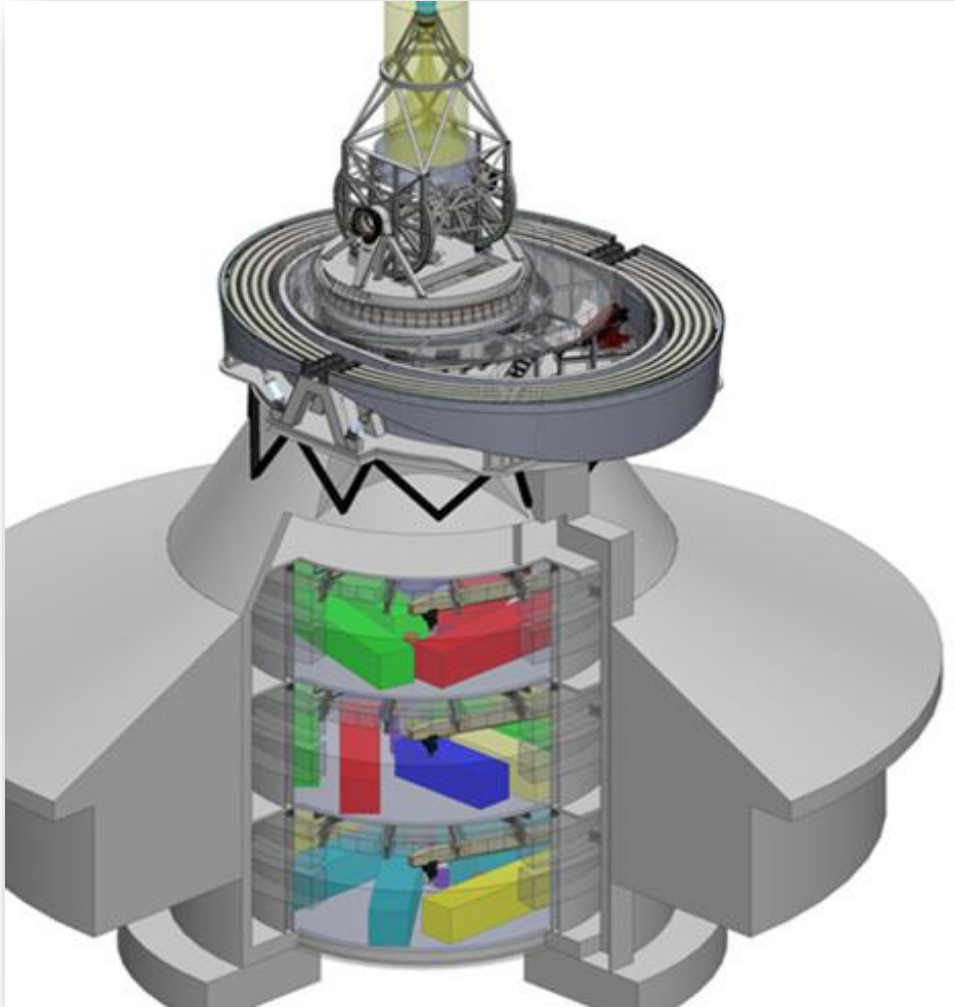


EST SCIENCE

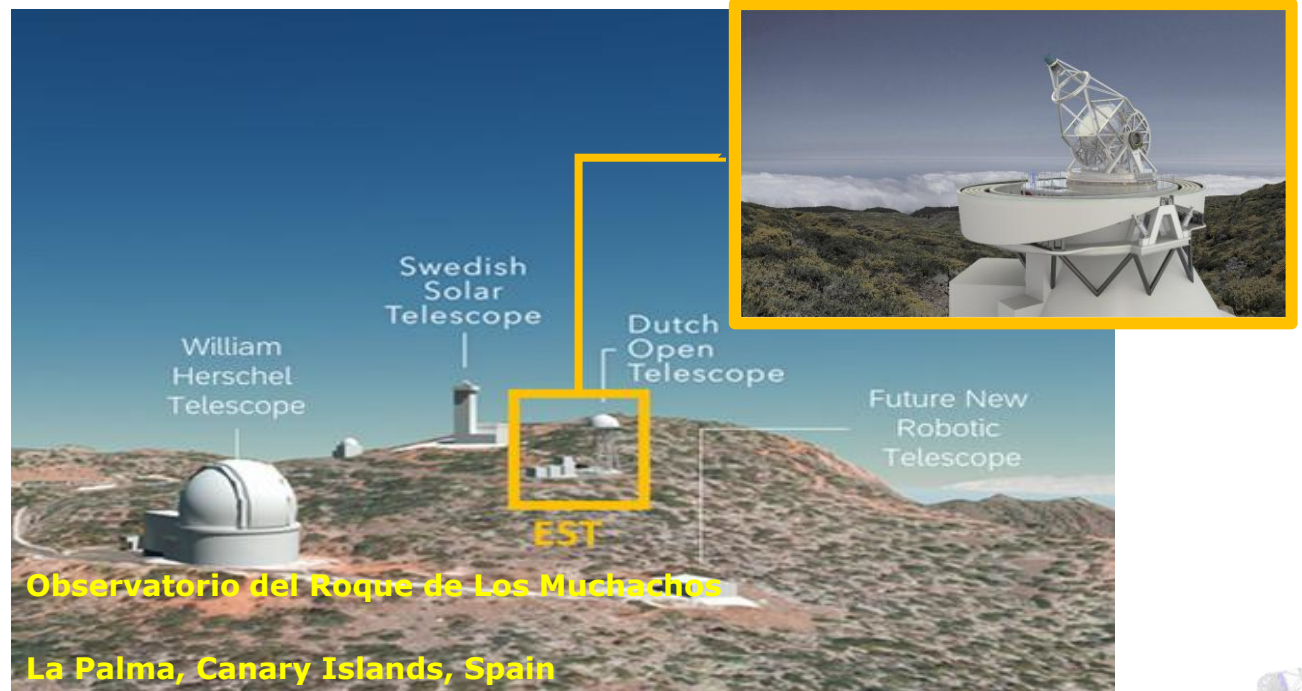
- Fundamental interactions occur at small scales
- Large solar telescopes are more like microscopes



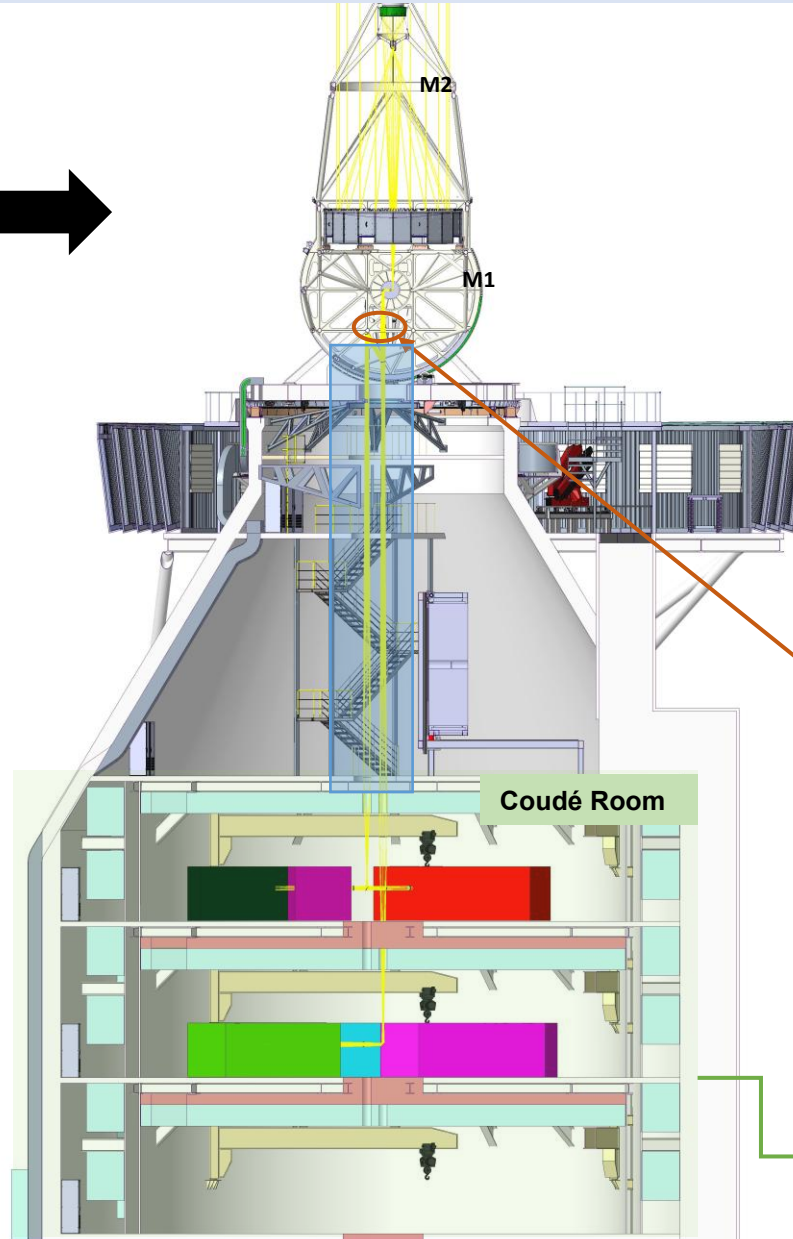
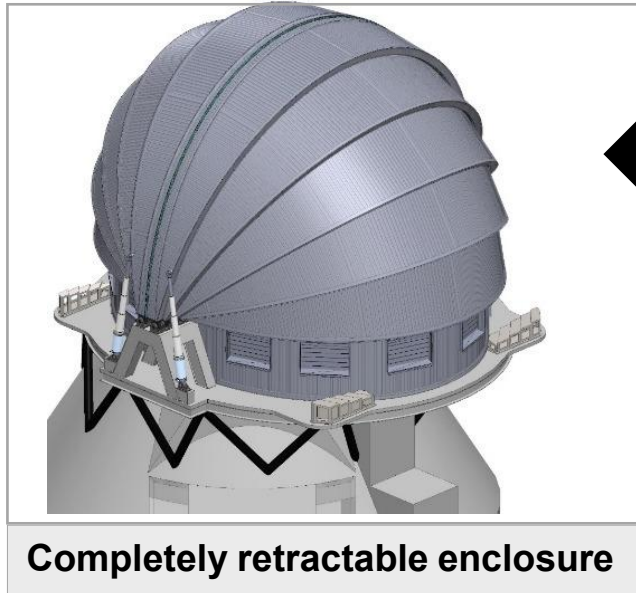
SITE: ORM



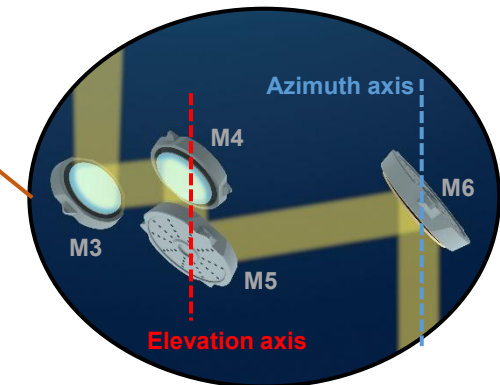
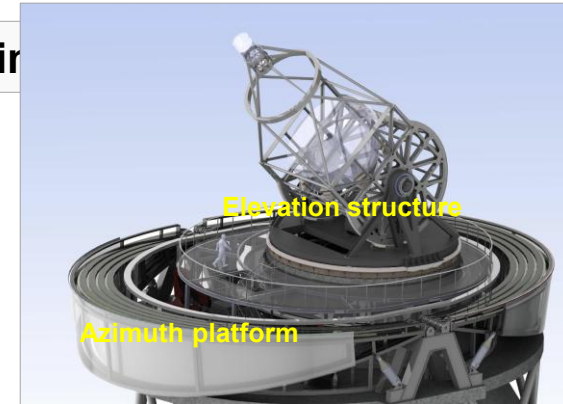
- Largest Solar Telescope in Europe (M1 $\varnothing$ 4.2 m).
- Aimed to study the magnetic coupling of the solar atmosphere.
- High spatial resolution, high photon flux, optimal polarimetric performance.



OVERVIEW



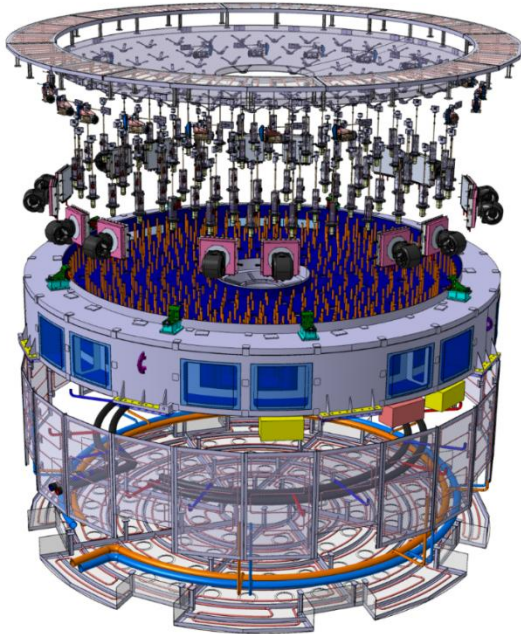
Alt – azim



1. Fabry-Perot based Tunable Image Spectropolarimeter coupled to fixed band imagers (**TIS/FBIs**).
2. Grating based spectrographs based on different Integral Field technologies: Microlens-Arrays (**IFS-M**) and Image Slicers (**IFS-S**).

TELESCOPE STRUCTURE OPTICS (M1, M2 & HR)

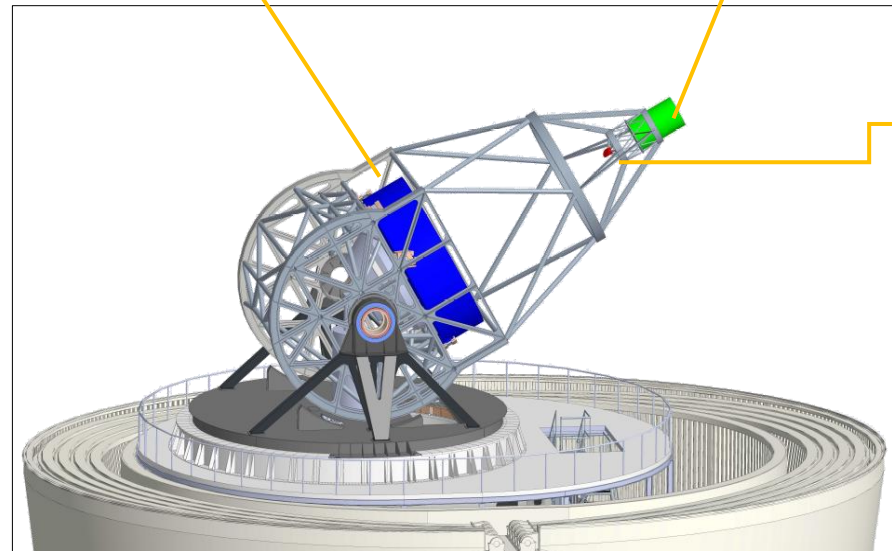
Primary mirror (M1)



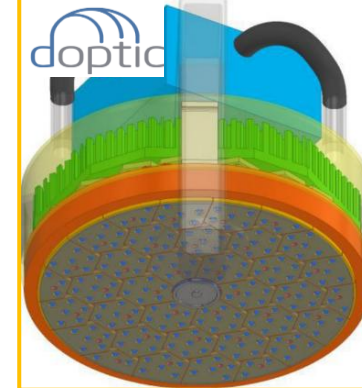
- Annular
- Parabolic
- $\phi = 4200$ mm
- 80 axial actuators



- **Gregorian design:**
 - Minimizing instrumental **polarization** (on-axis, symmetric optics),
 - Having an accessible intermediate focus for heat rejection,
 - Allowing deformable M2 (adaptive optics) at the pupil.

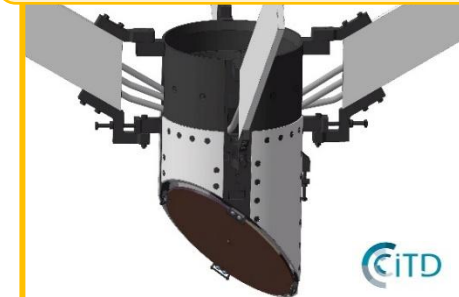


Secondary Mirror (M2)



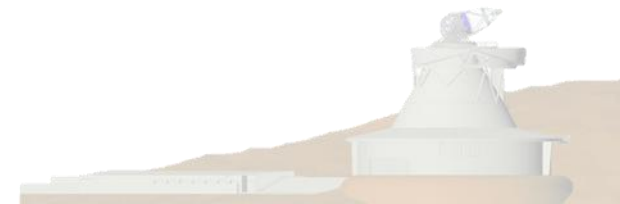
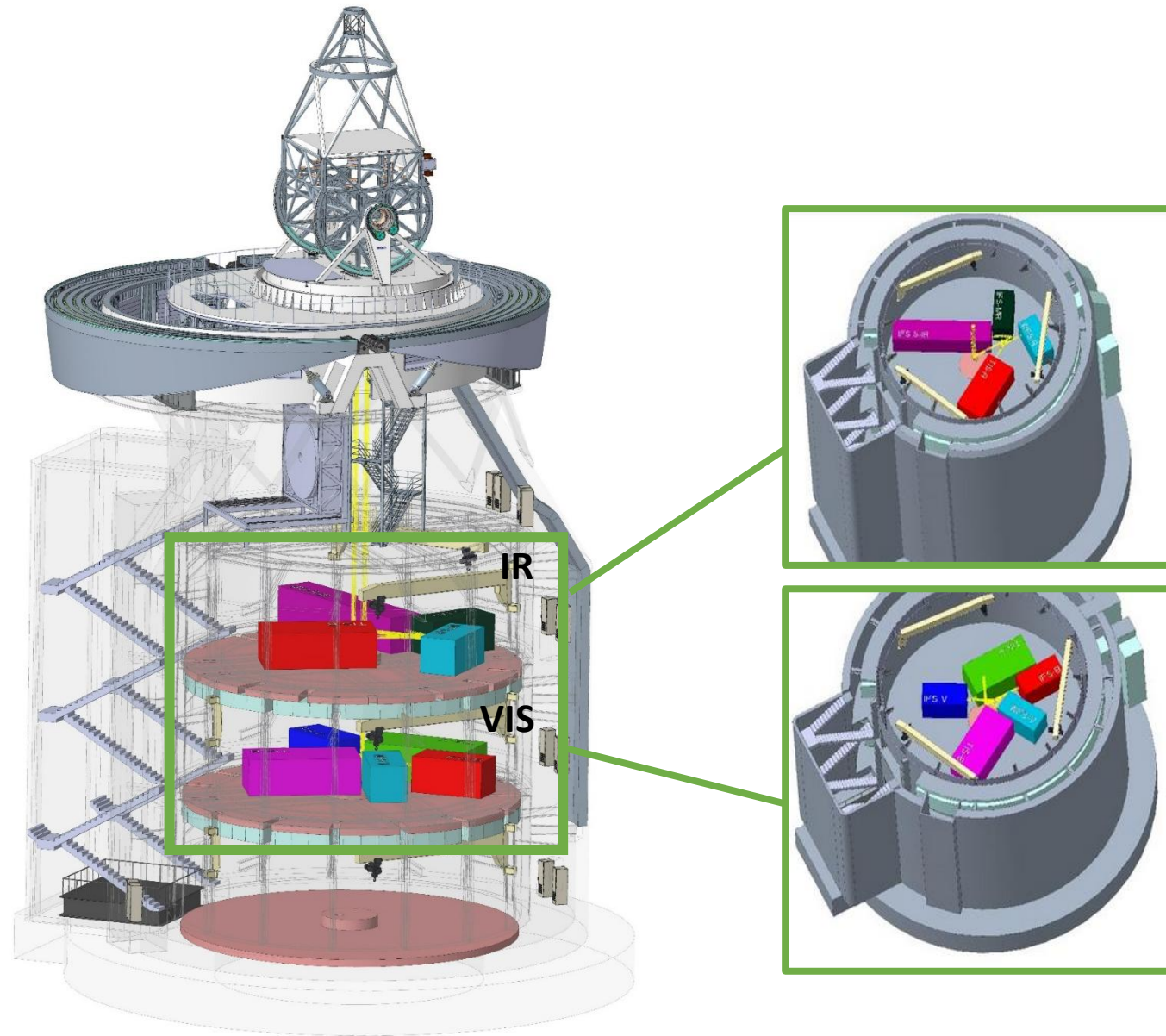
- Aperture stop
- Ellipsoid
- $\phi = 795$ mm
- 2000 actuators & mounted on a hexapod

Heat Rejecter (HR)

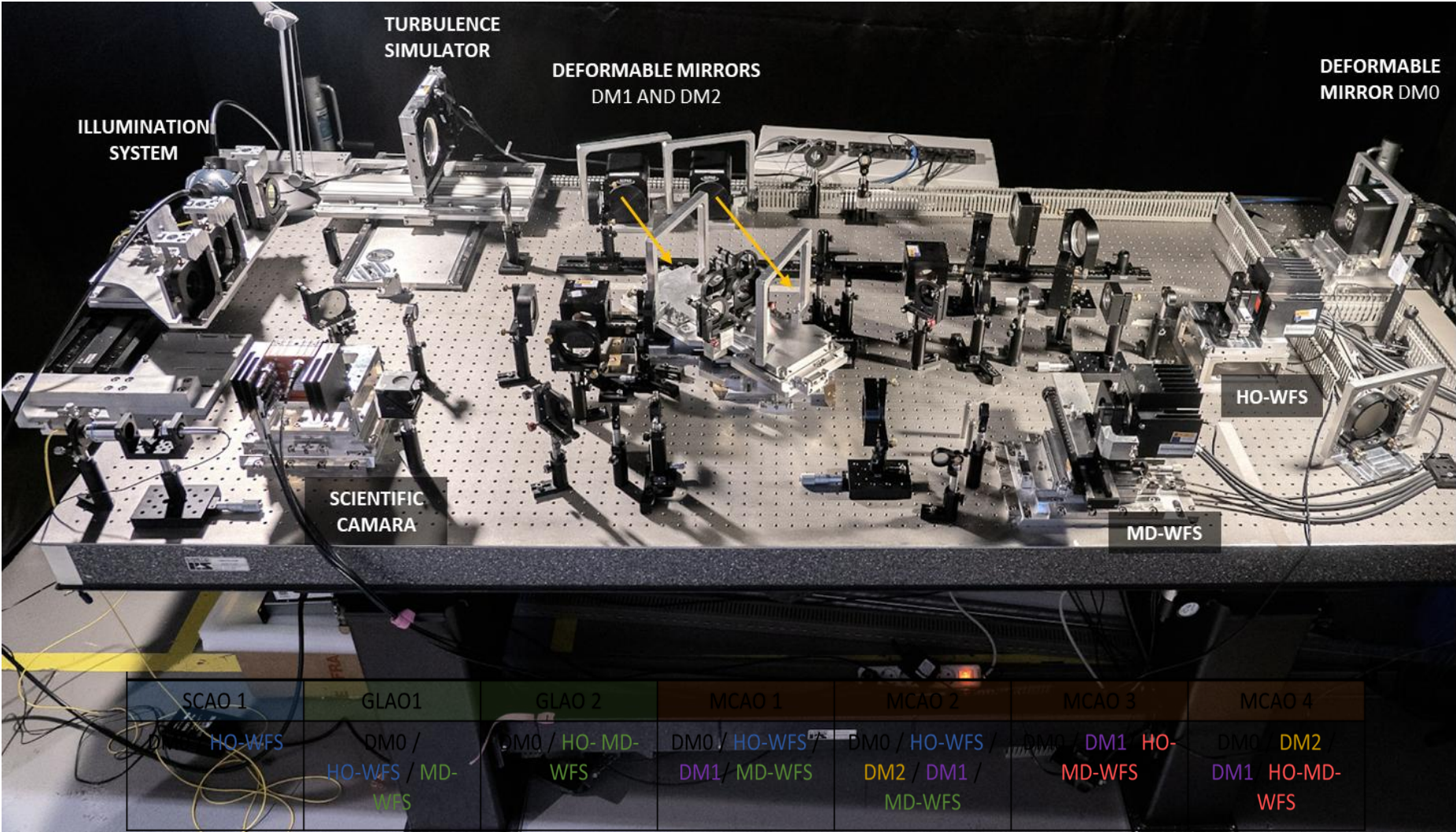


- Field stop at F1
- Flat cooled mirror tilt 45°

COUDÉ LIGHT DISTRIBUTION (CLD)



MULTI-CONJUGATE ADAPTIVE OPTICS DEMONSTRATOR



Funding commitments and government involvement:

Spain, Slovakia, Czech Republic, Sweden

About 40% of total

About 75% of Phase I

Cut from German roadmap 2026

New proposals:

Switzerland

Norway

Austria

BGR (Board of Governmental Representatives) -> ERIC application

