CASSTOR
a technological and scientific demonstrator
for UV high-resolution spectropolarimetry

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CASSTOR

- **Nanosat** 12U (20x20x30 cm) with 12-cm telescope
- **Spectrograph** with R=12500 in the **UV domain**: 135-291 nm
- **Polarimeter** with MgF2 birefringent plates in molecular adhesion

→ demonstrate that this **technology** resists in space and increase its technological readiness level (TRL)
→ demonstrate that **science** will be feasible by producing the very first stellar UV spectropolarimetric results
CASSTOR: a technological demonstrator

Polarimeter is a rotating stack of 4 very thin (0.3 mm) birefringent plates (MgF2) in molecular adhesion to perform temporal modulation, followed by a Wollaston prism (MgF2) to separate the orthogonally polarized beams

This is the baseline for all UV spectropolarimetric missions in preparation (Arago, LUVOIR, PolStar)

CASSTOR will demonstrate that such a device can stand space conditions
CASSTOR: a scientific demonstrator

CASSTOR will concentrate on **UV spectropolarimetry of bright stars:**

- magnetic field in the circumstellar environment of Ap/Bp stars
- environment of Wolf Rayet stars
- circumstellar disks of Be stars, including gamma Cas
- inhomogeneity of the wind in blue supergiants

→ no spectropolarimetric data of these objects exist in the UV as of today
→ CASSTOR will provide the very first stellar UV spectropolarimetric measurements
CASSTOR: timeline

- Opto-mechanical study: 2019-2020
- **Ongoing Phase 0 study with CNES** (French space agency): 2020-2021
- Engineering model tested in vacuum chamber: 2022 → TRL=6
- Launch: end of 2025