

The CASTOR UV space mission

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The Cosmological Advanced Survey Telescope for Optical and UV Research (CASTOR) is a proposed CSA mission that would make a unique, powerful, and lasting contribution to astrophysics by providing panoramic, high-resolution imaging and spectroscopy in the UV/optical (0.15-0.55 μ m) spectral region [1]. This versatile 'smallSAT'-class mission would far surpass any ground-based optical telescope in terms of angular resolution, and would provide ultra-deep imaging in three broad filters to supplement longer-wavelength data from planned international dark energy missions (Euclid, Roman) as well as from the ground-based Vera Rubin Observatory. Combining the largest focal plane ever flown in space, with an innovative optical design that delivers HST-quality images over a FOV two orders of magnitude larger than HST, CASTOR would image about 1/8th of the sky to a (u-band) depth about 1 magnitude fainter than will be possible with LSST even after a decade of operations.

CASTOR mission includes a UV multi-object spectrograph in the 150-300nm band, covering a FOV of 3.5 x 2 arcmin² with 1500 spectral resolution. Thanks to its experience in MOEMS-based spectro imagers (BATMAN concept [2]), LAM will contribute widely to the UV-spectrograph with a DMD as a reconfigurable slits-mask for object selection. Several instrumental challenges have to be addressed, including spectrograph optical design, UV-DMD, convex blazed gratings, integration and test of a UV-instrument.

This is a very good opportunity for the French community to have access to a world-class space mission for the UV-Universe both in imagery and spectroscopy.

References:

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