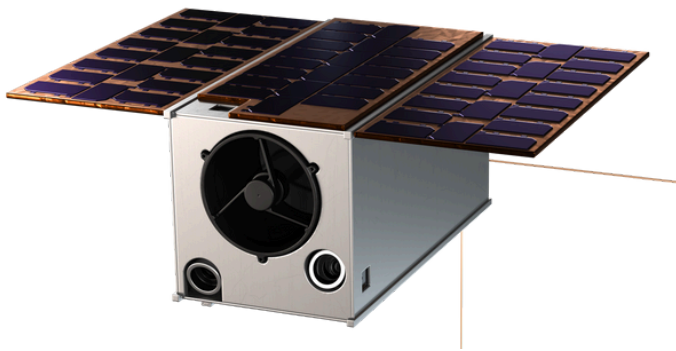# Ultraviolet & Optical Spectrophotometry of Active Stars

- Conceived for the study of bright, active stars and act as a pathfinder for other observatories

- Enable long-term monitoring of flaring stars, high-energy phenomena, transiting events, and variability

- Delivered as a 3-year survey program, set to launch in October 2025 with SpaceX

- Participation is open to researchers worldwide: bssl.space/participate

Artist's render of Mauve

Technical Specifications

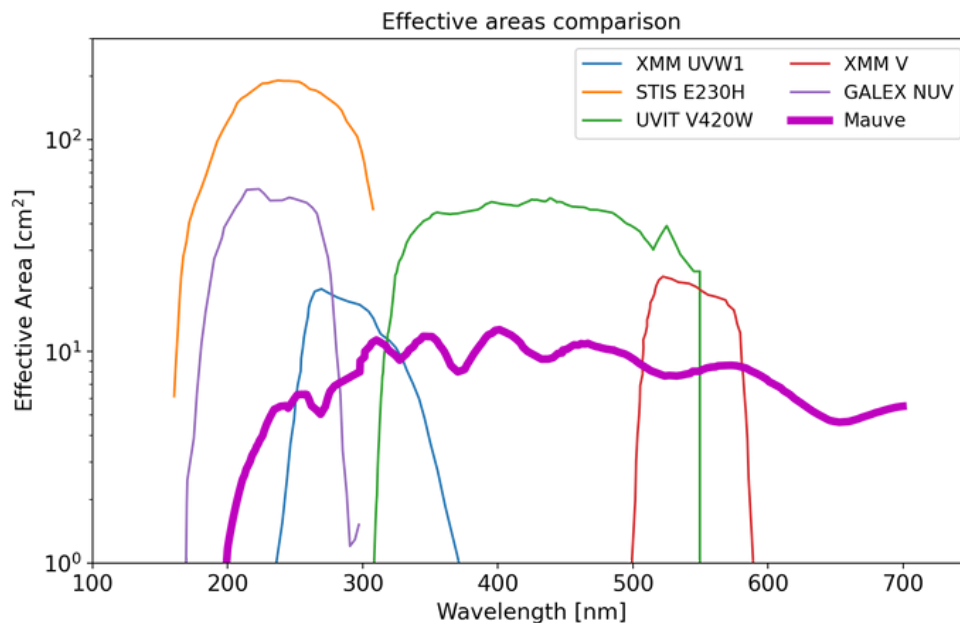|	
Telescope	13 cm Cassegrain
Satellite Weight	25 kg
Spectral Range	200 - 700 nm
Spectral Resolution	10 nm (max R = 65)
Sky Coverage	-46.4 to 31.8 deg ICRS coord. (ep=J2000)
Orbit	Sun-synchronous LEO 500 km LTAN 10:30
Pointing Solution	High-performance Star Tracker and Gyro

Figure 1: Mauve's effective area compared to some selected UV and optical facilities. Mauve covers a wide-wavelength range from 200-700 nm using a CMOS linear array detector. The wide coverage also highlights Mauve's capability to observe sources in both UV and optical, complementing existing instruments.

Below we show the detector performance across all stellar spectral types accessible to Mauve for a 100 s integration. The performance at the faint end is likely to be limited by the capacity of the spacecraft to track the target, which depends on factors such as stellar type and the presence of other sources in the field. Performance may also be constrained by systematics (e.g., noise saturation) at S/N per resolution element higher than 100. This is indicated in the plots below as a shaded grey region above the dashed line. To simulate the performance for your specific target, please contact us.
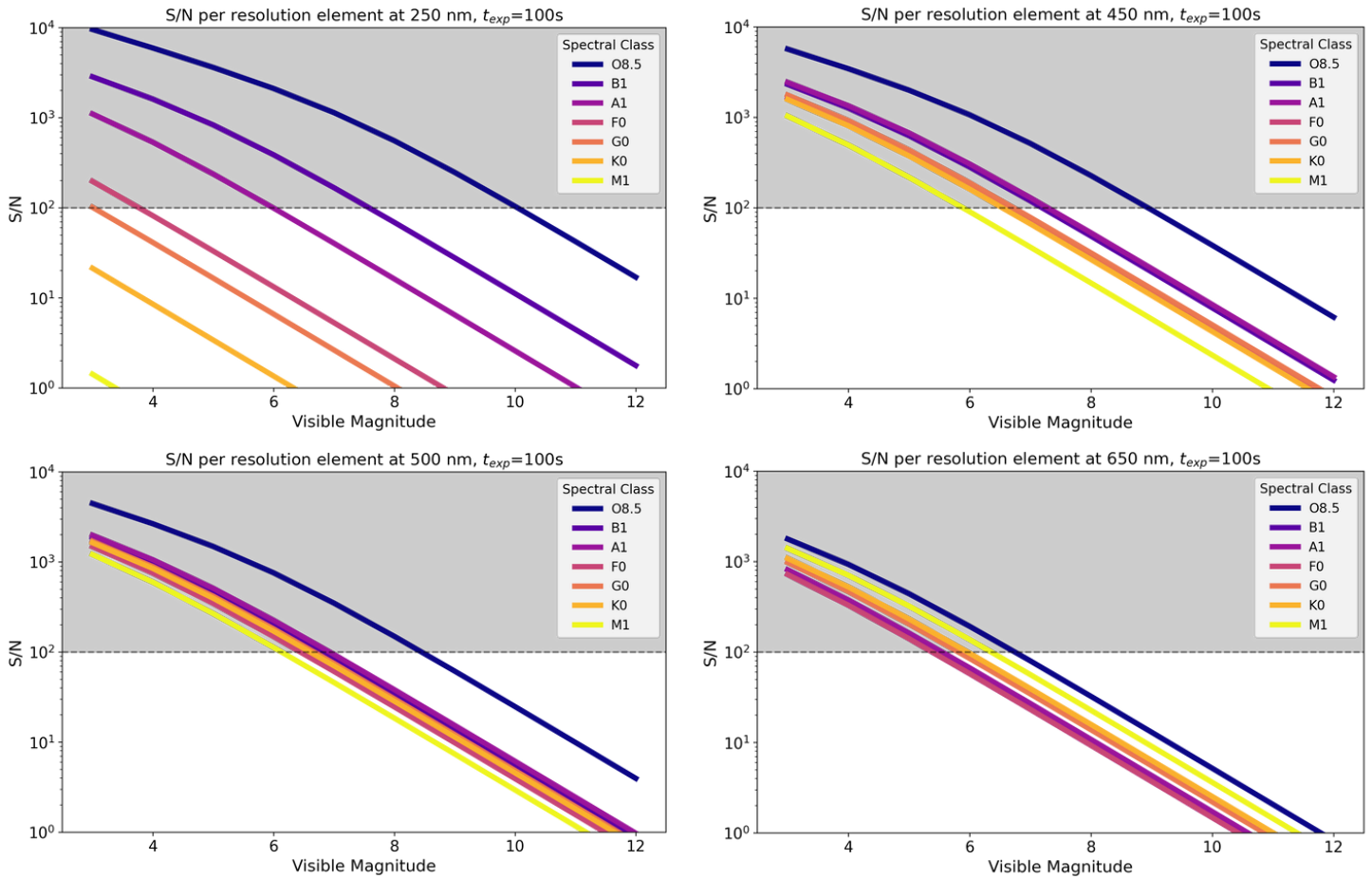

Figure 2: Expected S/N per resolution element (~10 nm) at 250 nm, 450 nm, 500 nm, and 650 nm with 100 s integration for different stellar types.
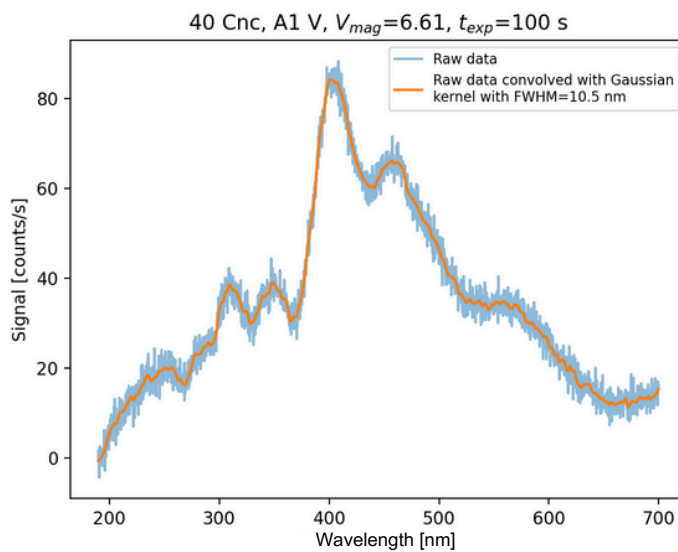

Figure 3: Simulated Mauve spectrum of an A1 V star at 100 s exposure. Both, the background-subtracted spectrum ("raw data") as read from the detector and a spectrum smoothed with a Gaussian kernel at the Mauve's resolution, are shown.