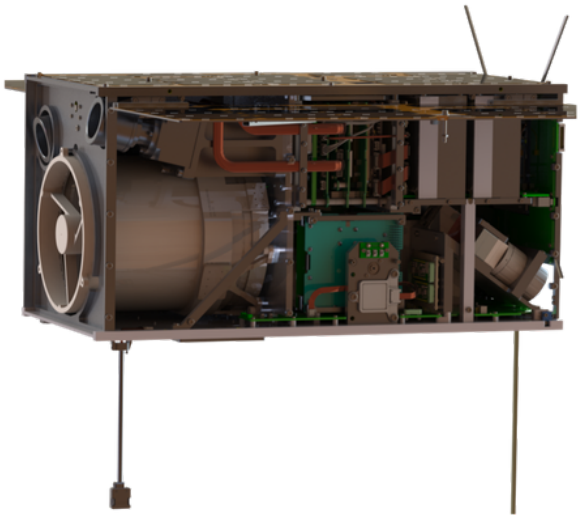
Ultraviolet & Visible Spectrophotometry of Stars

- Conceived for the study of bright, active stars and acts as a pathfinder for other observatories
- Enable long-term monitoring of flaring stars, high-energy phenomena, transiting events, and variability
- The satellite was launched on 28 November 2025 aboard SpaceX's Transporter-15



Internal view of the Mauve satellite

Telescope	13 cm Cassegrain
Satellite Mass	18.6 kg
Spectral Range	200 - 700 nm
Spectral Resolution	10.5 nm (max R = 65)
Sky Coverage (Declination)	-46.4 to 31.8 deg ICRS coord. (ep=J2000)
Orbit	Sun-synchronous LEO 510 km LTDN 10:30
Pointing Solution	High-performance Star Tracker and Gyro

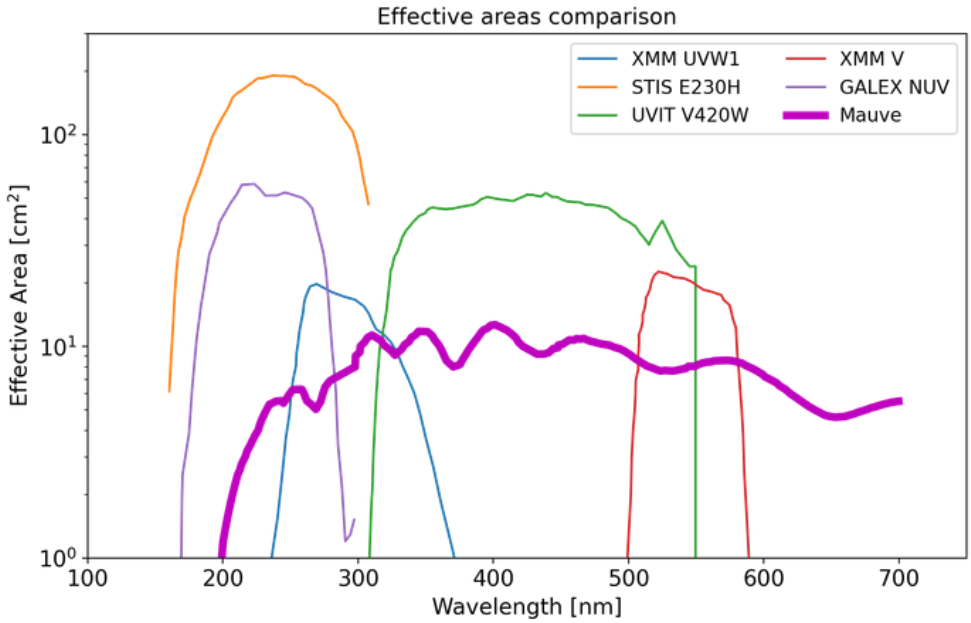


Figure 1: Mauve's effective area compared to some selected UV and optical facilities. Mauve covers a wide-wavelength range from 200-700 nm using a CMOS linear array detector. The wide coverage also highlights Mauve's capability to observe sources in both UV and optical, complementing existing instruments.

Below, we show the pre-flight detector performance across all stellar spectral types accessible to Mauve for a 100s 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. In-orbit 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. Performance estimates will be revised post-commissioning.

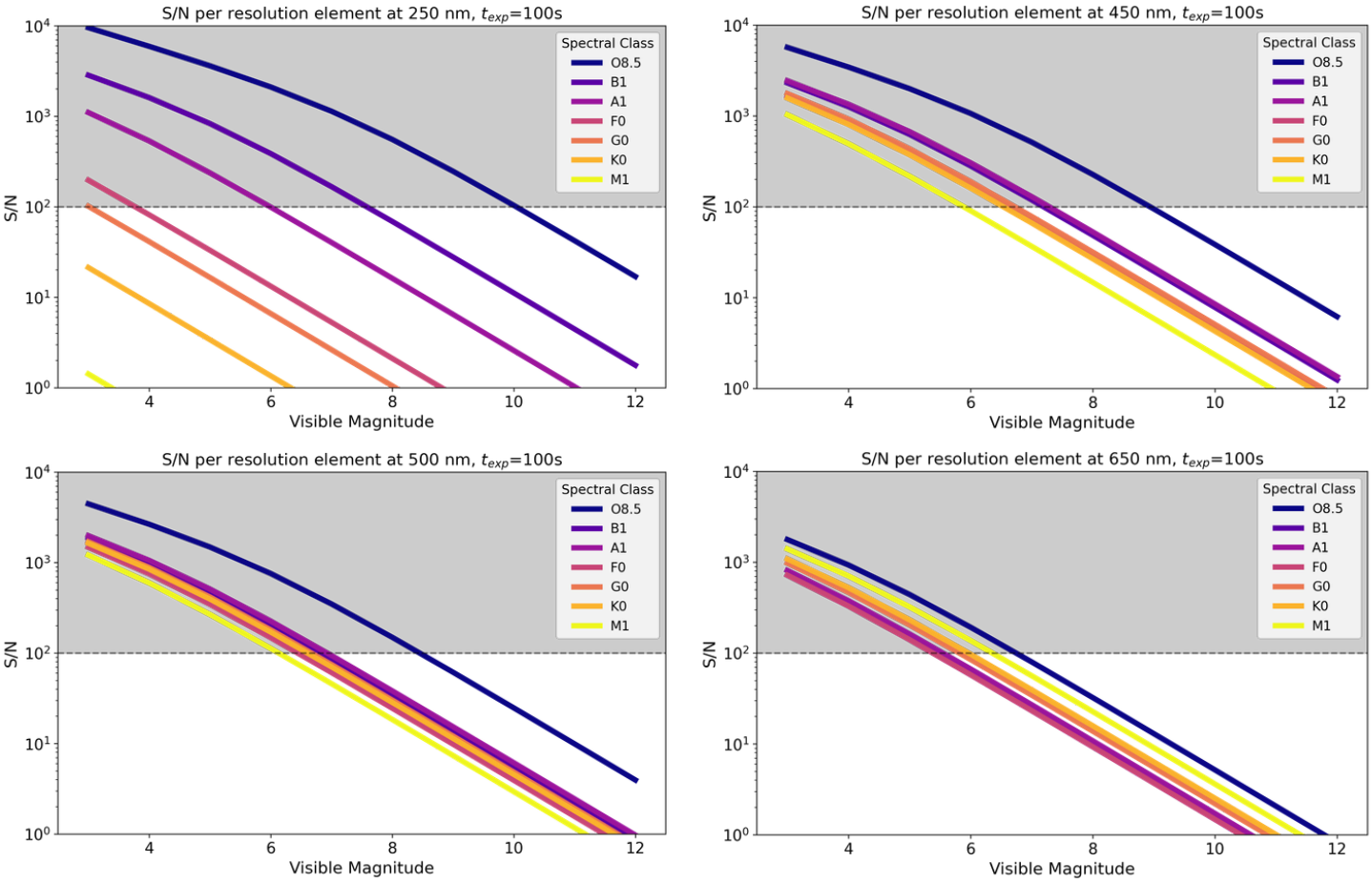


Figure 2: Expected S/N per resolution element (~10 nm) at 250 nm, 450 nm, 500 nm, and 650 nm with 100 s integration for different stellar types.

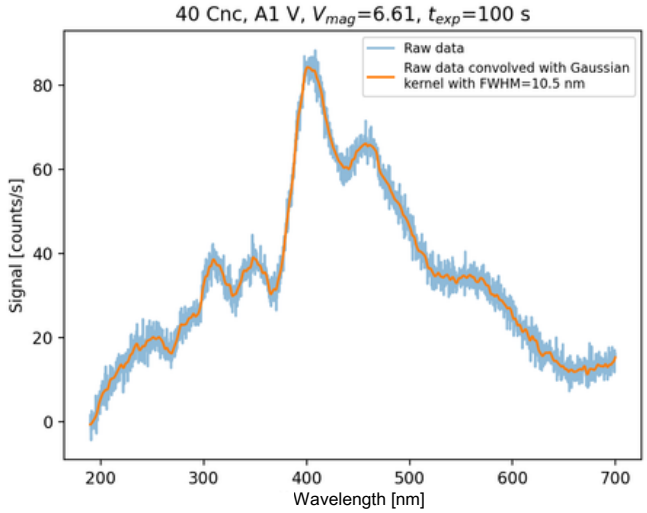


Figure 3: Simulated Mauve spectrum of an A1 V star at 100 s exposure. Both, the background-subtracted spectrum ("raw data") as read from the detector and a spectrum smoothed with a Gaussian kernel at the Mauve's resolution, are shown.

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