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MAVIS: The MCAO-Assisted Visible Imager and Spectrograph for the VLT

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Abstract: MAVIS is a new facility instrument for the VLT that will deliver diffraction-limited imaging and integral-field spectroscopic (IFS) capabilities over most of the southern sky, using a state-of-the-art wide-field multi-conjugate adaptive optics (MCAO) system. This complex instrument makes use of the Adaptive Optics Facility of the VLT, exploiting its multi-laser guided star system and adaptive secondary mirror to enable near-diffraction limited performance over a 30”x30”imaging field at optical wavelengths (370-1000nm). A flexible IFS provides moderately-high spectral resolutions (5000-15000) across this wavelength domain, delivering around 15,000 spectra simultaneously within a contiguous field, with multiple spatial scales. The instrument consortium is led by Australia (ANU and Macquarie/AAO - 45% partner) together with Italian (INAF: Arcetri and Padova, 45% partner) and French (LAM, 10% partner) institutions. Following a successful Phase A last year, the project has progressed to Phase B, which launched in June this year, marking a commitment to deliver MAVIS to the VLT by late 2027. Here I will present an overview of the project, the science cases envisioned, and the plans and challenges for the Phase B.

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