

Provisional Acceptance of KMOS

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The near-infrared, multi-integral-field unit spectrograph, KMOS, has passed an important milestone. The provisional acceptance of this instrument by ESO in summer 2012 was the first step towards the commissioning of this new Very Large Telescope facility on the VLT Unit Telescope 1 (UT1) at the end of November 2012.

KMOS has been designed, built and tested by a consortium consisting of Durham University, the Max-Planck-Institut für extraterrestrische Physik (MPE), Universitäts Sternwarte München (USM), Oxford University and the UK Astronomy Technology Centre (Sharples et al., 2005). This unique spectrometer covers the wavelength range from 0.8–2.45 μm with five gratings. The *I*Z-, *Y*J-, *H*- and *K*- bands can each be observed in one setting at resolving

powers between 3000 and 4000. A lower resolving power mode allows the *H*- and *K*- windows to be covered simultaneously. Spatially resolved information on 24 sources can be obtained with a single pointing. Cryogenic arms position pick-off mirrors over a 7.2 arcminute field at the focal plane of the UT1 Nasmyth focus, relaying 2.8×2.8 arcsecond fields to integral field units. The spatial sampling on sky is 0.2×0.2 arcseconds. KMOS has been designed for the scientific goals of understanding the evolution and mass assembly of galaxies at moderate redshift, galaxies at extremely high redshift, reionisation and galactic stellar populations.

Before provisional acceptance was awarded, extensive testing was carried out in the integration laboratory at the UK Astronomy Technology Centre (see Sharples et al., 2010). ESO instituted a rigorous Provisional Acceptance Europe (PAE) process for this second generation instrument. Over the first six months of this year, ESO staff from Paranal and Garching worked with the consortium to witness and carry out tests that verified the performance in all areas, from safety

conformance to scientific performance. The instrument on a flexure rig is shown in Figure 1.

With these tests successfully completed, the instrument has been released for delivery to Paranal. The cable rotator (on the right of the figure) needed to support the KMOS electronics is too large for air freight, and so was sent by sea in advance of the rest of the instrument. During the months of September and October KMOS will be reintegrated and tested in the Paranal Assembly, Integration and Test facility before being installed on the Nasmyth platform. First light is planned for the end of November, followed by commissioning periods to confirm the instrument performance on-sky and to ensure that the system is fully integrated into the Paranal Observatory. Astronomers can look forward to a first call for proposals with KMOS in March 2013 (Period 92).

References

- Sharples, R. et al. 2005, *The Messenger*, 122, 5
Sharples, R. et al. 2010, *The Messenger*, 139, 24

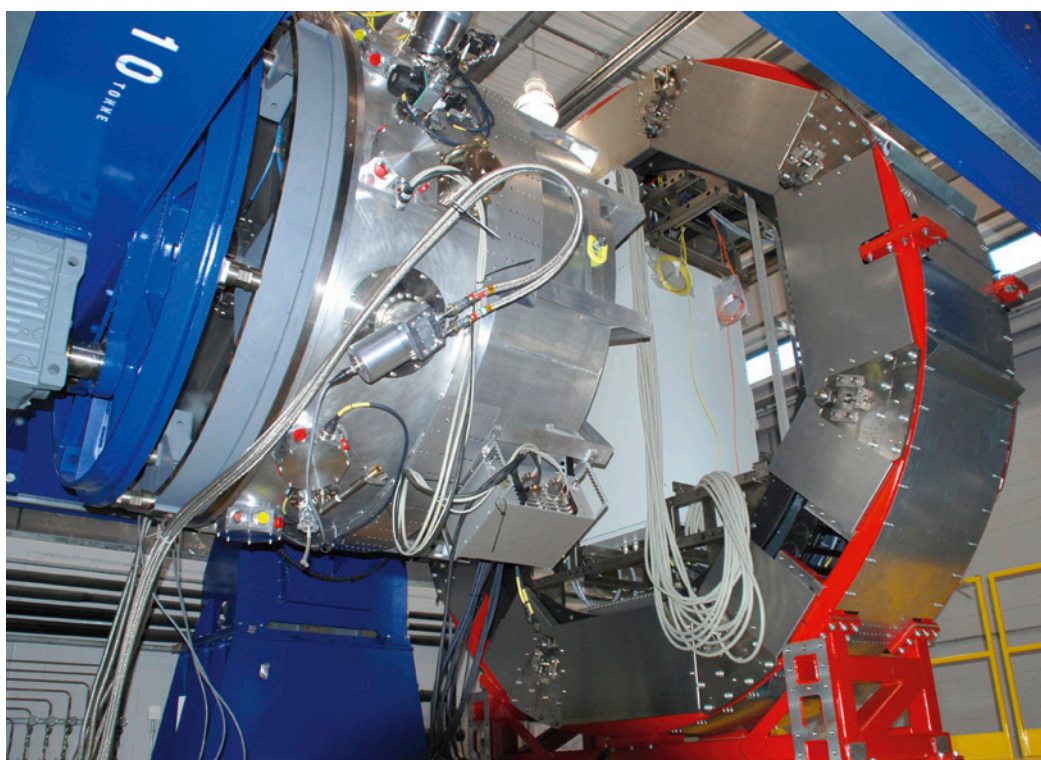


Figure 1. KMOS is shown on the flexure test rig in the integration hall at the UK Astronomy Technology Centre.