

MAGE is a moderate resolution optical echelle spectrograph installed on the Magellan Baade telescope folded port. The instrument has been designed to observe faint targets in the ultraviolet region (blueward of 3600 Å), while maintaining high resolution and full wavelength coverage of the visible spectrum (3200 Å – 1µm). MAGE provides resolutions of R~1000 to R~8000, using a movable slit plate containing non-overlapping slits that are 10" long and 0.5" to 5" wide.

BASIC PARAMETERS

Camera	Pixel scale, ("/pix)	Spectral Resolution, (1.0" slit)	Wavelength Range, (Angstroms)	Peak efficiency, (%)
MagE	0.3	4100	3200-10000	20

SLIT SELECTION

MAGE has a range of available slit widths. There is also a position with three 0.35" pinholes used for focusing the spectrograph. All slits are 10" long with a plate scale of 0.3"/pix on the detector.

Slits							
0.5	0.7	0.85	1.0	1.2	1.5	2.0	5.0

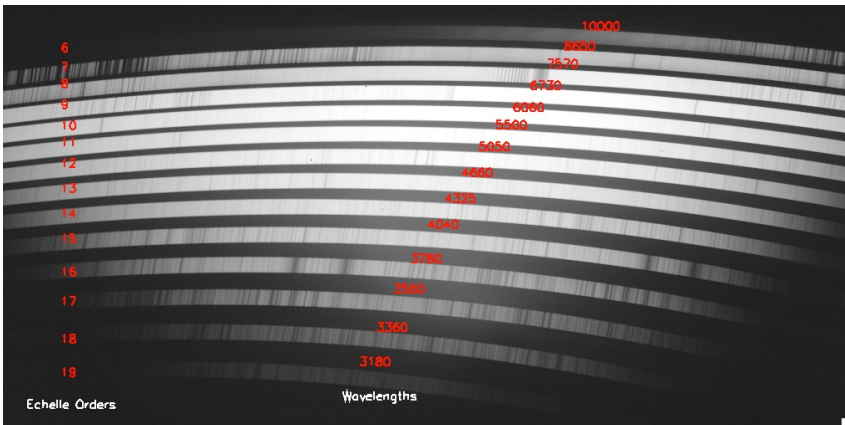
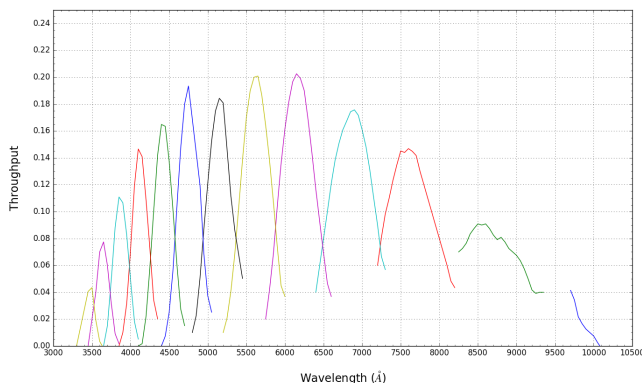
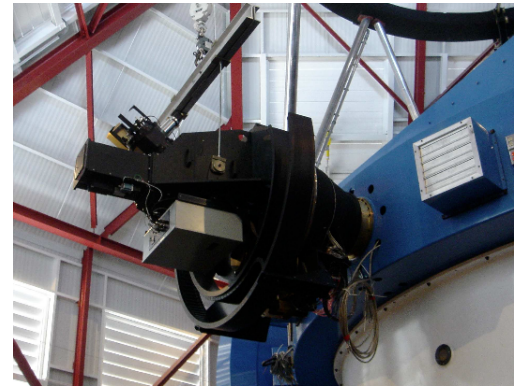


Fig.2 Solar spectrum taken with MagE, with the order number and central wavelength of each order indicated.

SPECTROSCOPIC PERFORMANCE



More information: <http://www.lco.cl/telescopes-information/magellan/instruments/instruments/mage>



SLIT VIEWER

MagE slit plate is a carefully constructed component. The slits are etched into a 0.003 inch thick NickelCobalt plate using photolithography and liquid etching. The slit plate is then mounted on a stage that is controlled by a stepper motor. The slit plate is tilted with respect to the science beam in order to redirect light to the slit viewing camera. The slit viewing camera allows the observer to see a ~1 arcminute image of the region near the slit.

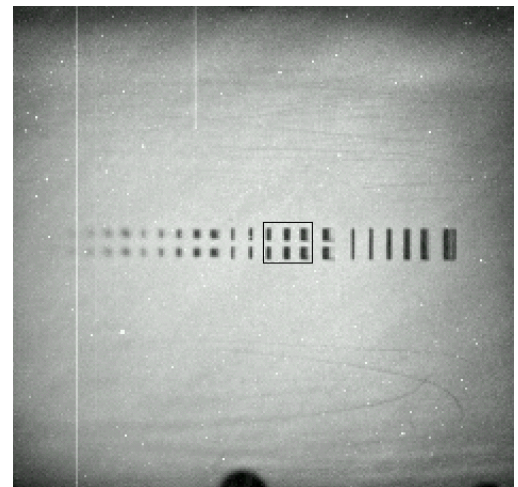


Fig.1 Slit viewer

FLEXURE

The instrument flexes both as the instrument rotates around the axis of the rotator and as the telescope changes elevation, but in all cases by less than one pixel (13.5µm or 0.3"). In the lower plot, the symbols correspond to the same test repeated at different instrument rotations.

