Wide Field-MOIRCS

(WFMOIRCS+AO)

New Generation Instruments for Advanced Research

(Multi-Object InfraRed Camera and Spectrograph)

Wide Field Near Infrared Camera that can realize extremely large field of view as wide as 1-2 degrees^2

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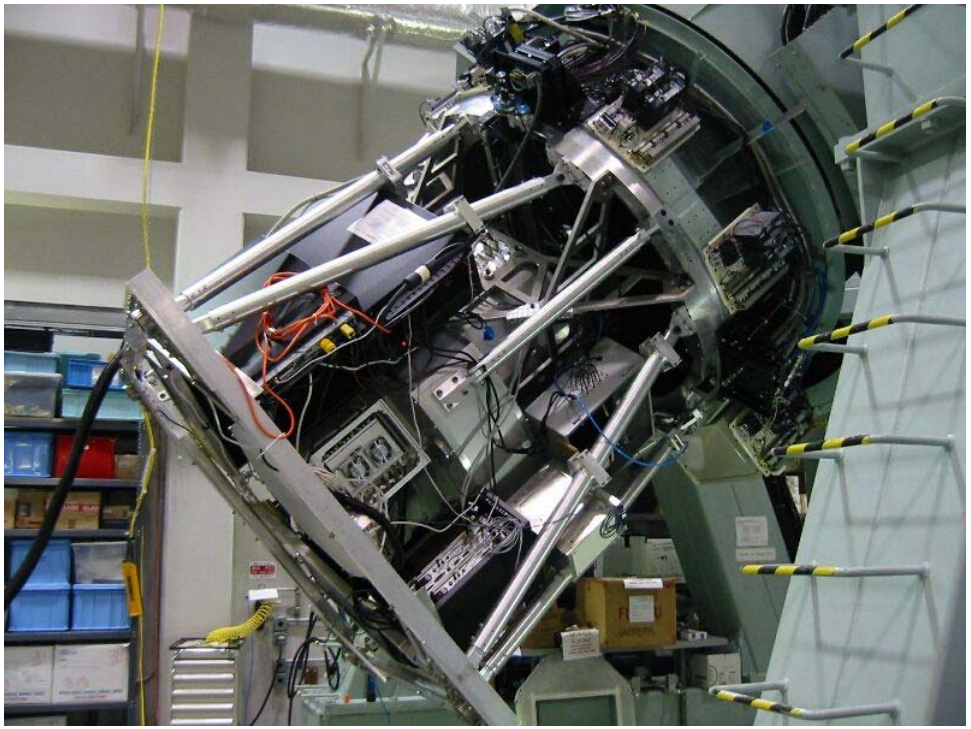
Wide Field Multi-Objects Spectrograph that can take near infrared spectra of 100-1000 objects with resolution of R=10^3 - 10^4



MOIRCS (NAOJ)

N. ARIMOTO (NAOJ, SAC)

EMIR (GTC)

Multi-Object Infrared Camera and Spectrographs in the World

EMIR is a wide-field, near-infrared, multi-object spectrograph proposed for the Nasmyth focus of GTC.
It will allow observers to obtain from tens to hundreds of intermediate resolution spectra simultaneously, in the nIR bands Z, J, H, K.
A multi-slit mask unit will be used for target acquisition.
EMIR is designed to address the science goals of the proposing team and of the Spanish community at large.

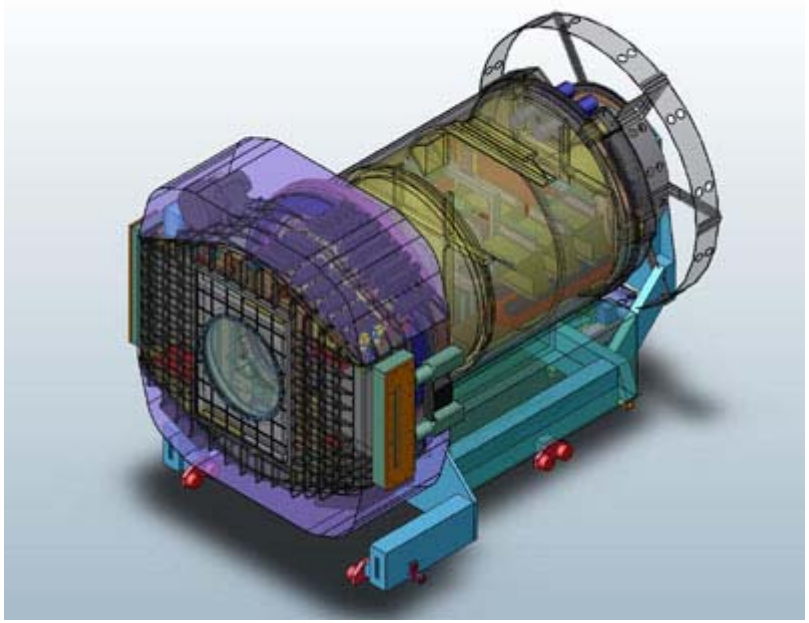
Science Team

R. Guzman (Yale)
et al.

KIRMOS (Keck)

Multi-Object Infrared Camera and Spectrographs in the World

KIRMOS is a fully cryogenic near infrared imager and multi-object spectrograph designed for the Keck-II telescope.
It will utilize massive transmissive focal reducer optics servicing a 4K2 format detector array formed from a 2-by-2 mosaic of HgCdTe detectors. The pixel scale will be 0.16"/pixel giving a square field of view of ~11.3' (on-a-side).
In multi-slit spectroscopic mode, full wavelength coverage at spectral resolving powers of R ~4,000 will be obtainable for an object multiplex of ~150 in each of the J, H and K windows over an 11.3'–by-4' rectangular field of view.



Science Team

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M.Rich (UCLA)
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Multi-Object Near Infrared Camera & Spectrographs

Instrument	Telescope	Field of View	Imaging	MOS	Pixel Scale	Operation
MOIRCS	Subaru	4′x7′	yes	yes	0.117″	2005
HAWK-I	VLT	7.2′x7.2′	yes	no	0.106″	2006
FLAMINGOS2	Gemini-S	6.1′x6.1′	yes	yes	0.18″	2006
EMIR	GTC	6′x6′	yes	yes	0.2″	planned
KIRMOS	Keck	11.3′x11.3	yes	yes	0.16″	planned

Science Case (1)

- **Galaxy Evolution in the Redshift Desert (1.4<z<2.5)**

  1) secure redshift,
  2) stellar mass and luminosity,
  3) surface density, number counts, clustering,
  4) spectral energy distribution, stellar populations,
  5) dust extinction, reddening
  6) chemical abundances, metallicities, star formation rate,
  7) velocity dispersions, gas flows

MOIRCS (2005)

Science Case (2)

- **Galaxy Evolution (K. Shimasaku)**

  1) How gas collapsed and cooled ?
  2) What is the inter-relationship among EROs, LBGs, BzKs, DRGs, LBGs, and SMGs? How did they evolve to the present day "normal" galaxies?
  3) When LLS and clusters of galaxies formed?
  4) How galaxy environments affected galaxy stellar mass, morphology and star formation history?

Science Case (3)

- **SMBH Mass Function Evolution (T.Murayama)**

  1) estimating M(BH) from line widths and continuum luminosity Opt/IR R～1000 spectroscopy

  2) reverberation mapping (MgII, CIII], CIV) Opt/IR R～1000 spectrophotometry