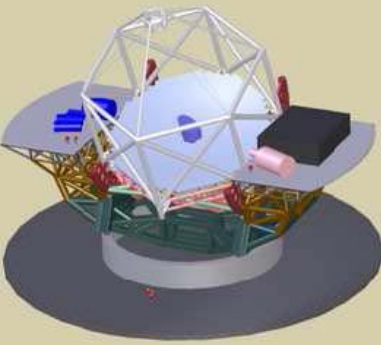


JWST

## JWST (6.5m) INSTRUMENTS

NAME	Observing Mode	Wav. Range ( $\mu\text{m}$ )	Field (arcsec)	Sampling (mas)	Spectral Resolution
<b>NIRCam</b>	Imaging	Short 0.6-2.3	132x264	32	Wide, medium & narrow bands
		Long 2.4 5.0	132x264	65	
<b>NIRSpec</b>	Spectroscopy	MSA	204x186	100	100, 1000
		slits	$\sim 0.2 \times 4$	"	" "
		IFU	$3.0 \times 3.0$	"	" "
<b>MIRI</b>	Imaging	5 -29	$84 \times 114$	110	5 – 4
	Coronagraphy	5 -29	$26 \times 26$	110	"
	Spectroscopy	5-10	0.2-5	=	100
	IFU	5-29	$3.6^2 - 7.5^2$	200-470	2000-3700
<b>TFI</b>	Imaging	1.6 -2.6	$132 \times 132$	65	Tunable narrow filter (R=100)
		3.1 - 4.9			



## TMT INSTRUMENT STUDIES

	Main Observing Mode	Wav. Range ( $\mu\text{m}$ )	AO System	P.I.	INSTITUTES
<b><u>IRIS</u></b>	Imaging - Spectroscopy	0.8 – 2.5	NFIRAOS	J. Larkin, K. Taylor	UCLA, CALTECH
<b><u>WFOS</u></b>	MOS	0.3 – 1.1	Seeing -GLAO	R. Abraham	Toronto
<b><u>MIRES</u></b>	High Resolution Spectroscopy	8 - 18	NFIRAOS or MIRA0	J.Elias, A. Tokunaga	NOAO – Univ. Hawaii
<b><u>IRMOS</u></b>	IR MOS	1-2.5	MOAO	2 studies	UF+HIA/ CALTECH
<b><u>PFI</u></b>	High contrast cor. imager	1-2.5 (5)	XAO	B. Macintosh	Livermore
<b><u>NIRES</u></b>	High Res. Spect.	1 - 5	NFIRAOS	J. Rayner	Univ. Hawaii
<b><u>HROS</u></b>	High Res. Spect.	0.3 – 1.3:	Seeing-GLAO	2 studies	UCSC/ CASA

**STATUS:** Feasibility Studies (in some cases quite comprehensive) completed and reviewed in 1Q 2006. In December 2006 the TMT SAC identified as first light instruments IRIS, IRMS and WFOS.

For the **GMT**, very thin instrument concepts with the telescope proposal presented in Feb.2006. Feasibility studies now under way.



**DRAFT**

## High Priority Instrument Batch : *candidates for 1st generation*

INSTRUMENT	OBS. MODES	FOCUS / AO *	WAV. RANGE ( $\mu\text{m}$ )	FIELD <span style="display: inline-block; width: 10px; height: 10px; background-color: black; vertical-align: middle;"></span>	PIXEL SIZE (mas)	$\Delta\lambda / \lambda$	PROMINENT SCIENCE CASES +	REF. STUDY
<b>DL, NIR Imager</b>	imaging	Nasm./LTAO , MCAO	0.9-2.5	>30''	4	wide, n. bands	~ all	ONIRICA @ OWL
<b>Narrow Field Spectrograph</b>	spectroscopy	Nasm./SCAO , LTAO	0.6- 2.5	1''/ 10'':	20/ 50	3000, 20000:	~ all	Not studied
<b>High Resolution Vis Spectrograph</b>	spectroscopy	Coude/ GLAO	0.4 -0.8	Point source	=	150000	C2, C7	CODEX
<b>Planetary Imager Spectrograph</b>	imaging, spectroscopy	Nasm/ EXAO	0.6-1.75	~2'' V ~4'' H	>= Nyquist	>15	S3, S9	EPICS
<b>NIR MOS</b>	Spectroscopy multiplex.20	Grav. Inv./ MOAO	0.8-2.5	>= 5'	30 - 50	3000, 10000:	C4, C10	WFSPEC, MOMSI
<b>NIR MOS ,DL</b>	Spectroscopy multiplex 20	Grav. Inv. or Nas/MCAO	0.8- 2.5	>30''	10 - 30	3000 , 20000	G4, G9	MOMSI
<b>MIR Imager</b>	imaging (+limited spectroscopy)	Nas or IF/ SCAO or LTAO	3-20	30''	6 - 20	w-n bands,	S3, S9, S5, G9, C10	MIDIR

\* Minimum Strehl or EE to be specified ; +: from Science WG Report <http://www.eso.org/projects/e-elt/publications.html>



## E-ELT Instrument Study Phase

- **7 E-ELT instrument studies to be launched within one year to arrive in 2009 to the definition of the 1<sup>st</sup> generation instrument complement (present goal to build 6 instr.).**  
**Study start constrained by:** 
  - definition of main telescope interfaces
  - manpower at ESO to prepare study framework specifications and negotiate study contract
  - availability of qualified groups to carry out the studies
- **Feedback solicited from the SWG:**
  - on the current proposal of high priority instruments
  - before every study is launched on the instrument requirements
  - during the studies to support the review process on the scientific aspects



**DRAFT**

**Fishing Pond : *instruments concepts still to be investigated for the 42m, or not yet firmly associated to prominent science cases***

INSTRUMENT	OBS. MODES	FOCUS/ AO	WAV. RANGE ( $\mu\text{m}$ )	FIELD	PIXEL SIZE (mas)	$\Delta\lambda / \lambda$	SCIENCE CASE	REF. STUDY
<b>Wide Field NIR Imager</b>	Imaging	Nasmyth/ GLAO, LTAO	0.8 – 2.5	> 5' x 5'	50	Wide,narrow bands	C4,C10,S5,G4	ONIRICA @ OWL
<b>High Time Res. Imager</b>	Fast photometry	NASMYTH/ GLAO, SCAO	0.4 - 0.8	2 times (2" x 2")	tbd	Wide, narrow bands	Photon stat., rapidly varying phenomena	QUANTEYE @ OWL, HTRI
<b>High Res. IR Spectrog.</b>	HR spectroscopy	coude/ SCAO,LTAO	0.8 – 1.8 (5)	<1"	tbd	150000:	S9, G4, G9, C7	HISPEC
<b>High Res. MIR Spectrog</b>	HR spectroscopy	Nasmyth/SCAO,LTAO	3 – 20:	2" :	tbd	50000:	S9, G9, C7,	MIDIR
<b>Polarimeter*</b>	Imaging, spectroscopy	IF, Nasmyth? / GLAO, LTAO:	0.35- 0.8	tbd	tbd	W-n bands,LRS	S9,C7,	No study
<b>MOS Visual</b>	MR spectroscopy	Nasmyth/ GLAO	0.35 – 1	~ 6' x 6'	100:	1000-15000:	C10, C4,G4	No study
<b>Wide Field Visual Imager</b>	Imaging	Nasmyth/ GLAO	0.35- 1	~7' x7'	50-100:	Wide bands	C10, C4,G4	No study
<b>Sub-mm Imager</b>	Imaging	Nasmyth/ tbd	350-450-850	5'	1- 2.5"	Wide Bands	C10	SCOWL, SCEL T

\* : Polarimetry can be included as an observing mode in other instruments, if required by their respective science cases