

Status of Existing Facility Instruments

Takashi Hattori (Instrument Division, Subaru Telescope)

Summary 2017

Prime Focus

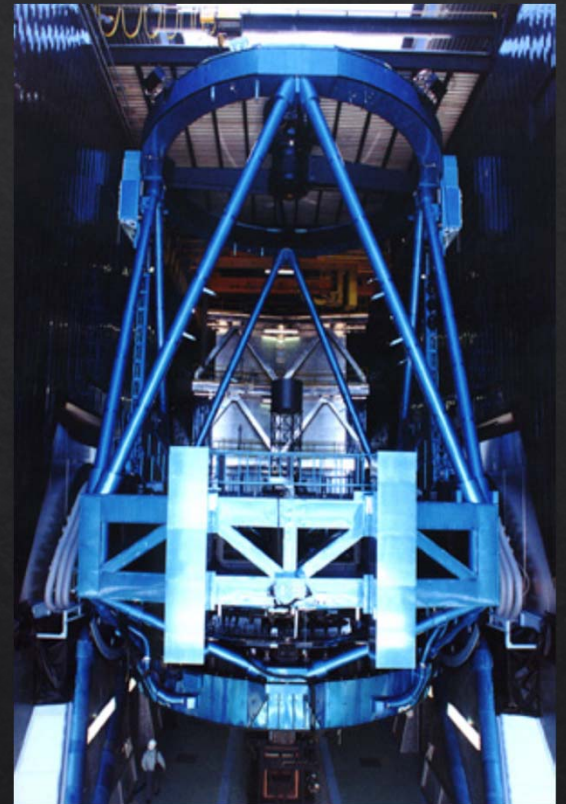
HSC	monochromatic dome flat, stray-light cover, FEU status
SpCam	Last observing run in May 2017

Nasmyth

AO188	TBAD progress, RTS upgrade
IRCS	TIR polarimetry mode, new OBCP status
HDS	no major status update

Cassegrain

COMICS	wave-plate status
FOCAS	IFU status
MOIRCS	plans for performance improvement, IFU



InstDiv new members

◆ Julien Rousselle (Instrumentation Engineer)

◆ March 2017-

◆ PFS, MOIRCS, ...



◆ Hiroshige Yoshida (Instrument Software Engineer)

◆ August 2017-

◆ PFS, MOIRCS, STS, APS, ...



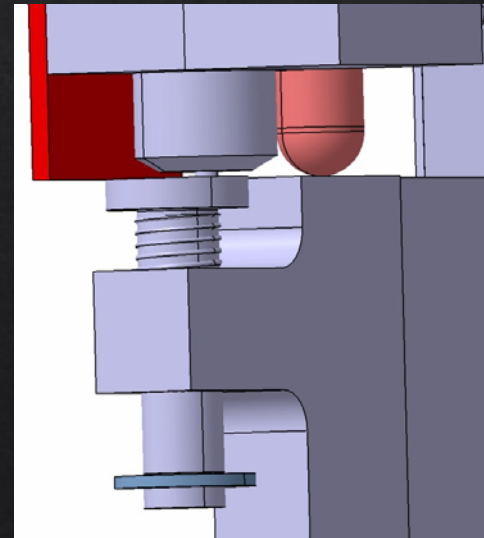
HSC updates

- ◇ monochromatic domeflat (HSC-Cal)
- ◇ stray-light cover
- ◇ faster CCD readout

(see Miyazaki-san's talk)

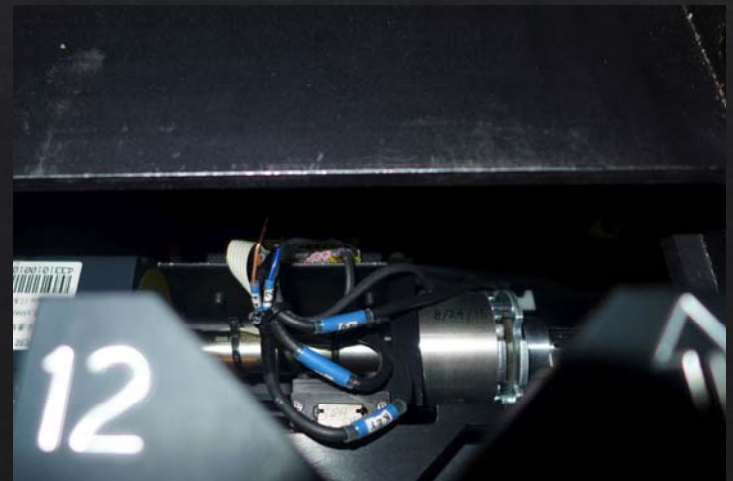
HSC-FEU status

- ◇ March 2017 run
 - ◇ central-unit actuator alarms (on several nights)
 - ◇ **no filter exchange on 4/1-4/3/2017**
 - replaced one actuator driver, adjusted the height of the actuators
- ◇ 11/30-12/10 : maintenance work with ASIAA/ASRD
 - ◇ replacement of the CU actuator and cable we had trouble in March
 - ◇ alignment of the actuators
 - ◇ upgrade of the gate switch structure
 - ◇ installation of spring and protection plate



HSC-FEU status

- ◇ December 2017 run
 - ◇ early morning on 12/25/2017
 - ◇ IR stacker didn't close
 - ◇ couldn't recover on 12/25 and observation was cancelled
 - ◇ on 12/26, we found a cable which was pulled by gate closing motion and disconnected
 - ◇ temporarily fixed in the morning and FEU was removed in the afternoon as scheduled
 - ◇ repair was done on 1/2/2018
- ◇ all of the problems have been solved
- ◇ hopefully more stable operation this year



Suprime-Cam

- ◇ Last observing run in May 2017
- ◇ Ceremony observation for SpCam “Final Light” on 5/29
- ◇ Periodic check/test to maintain as a backup for HSC

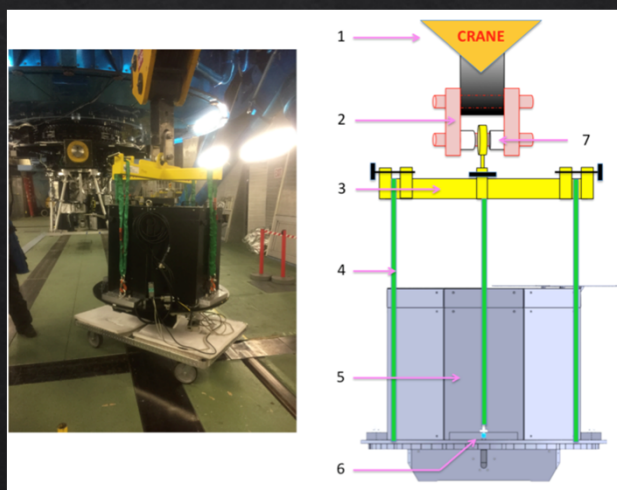


The last target: **NGC7479**



LGS/AO188

- ◇ TBAD (Transponder-Base Aircraft Detection)
 - ◇ completed hardware and software developments
 - ◇ ready for operation and on-sky test starts from 1/25/2018
 - ◇ daytime flight over test in July (TBC)
 - ◇ TBAD-only observation (without spotters) may start in S19A



LLT with TBAD

- Preliminary Plan for TBAD acceptance tests on Sky S18A -

Note: the following plan is likely to be modified depending on the Telescope Observation Schedule. For any questions -> christophe@naoj.org

	January	February	March	April	May	June	July
LLT at Top Unit							
Day Time Survey with possibility of opened dome	01/25 to 01/31	02/01 to 02/05	03/27 to 03/31	04/01 to 04/02 ~	05/04 to 05/06 ~	06/01 to 06/04 ~	07/01 to 07/09 ~
				04/26 to 04/29	05/24 to 05/31	06/22 to 06/30	07/27 to 07/31
	25-Jan	1-Feb	27-Mar	1-Apr	4-May	1-Jun	1-Jul
	26-Jan	2-Feb	28-Mar	2-Apr	5-May	2-Jun	2-Jul
	27-Jan	3-Feb	29-Mar		6-May	3-Jun	3-Jul
TBAD Survey NGS mode	28-Jan	4-Feb	30-Mar			4-Jun	4-Jul
	29-Jan	5-Feb	31-Mar				5-Jul
	30-Jan			26-Apr			6-Jul
	31-Jan			27-Apr			to
Night time test				28-Apr	24-May	22-Jun	09-Jul
TBAD Survey with LGS control				29-Apr	to	to	
					31-May	30-Jun	7/27/2017 (2nd half)
MK flight over test (?)							28-Jul
							29-Jul
							30-Jul
							31-Jul

TBAD on-sky test schedule

LGS/AO188

- ◆ new RTS (Real Time System)
 - ◆ new real-time computer and software CACAO
 - ◆ test with spare hardware is ongoing
 - ◆ on-sky test in July
- please see the poster presentation by Chris for details

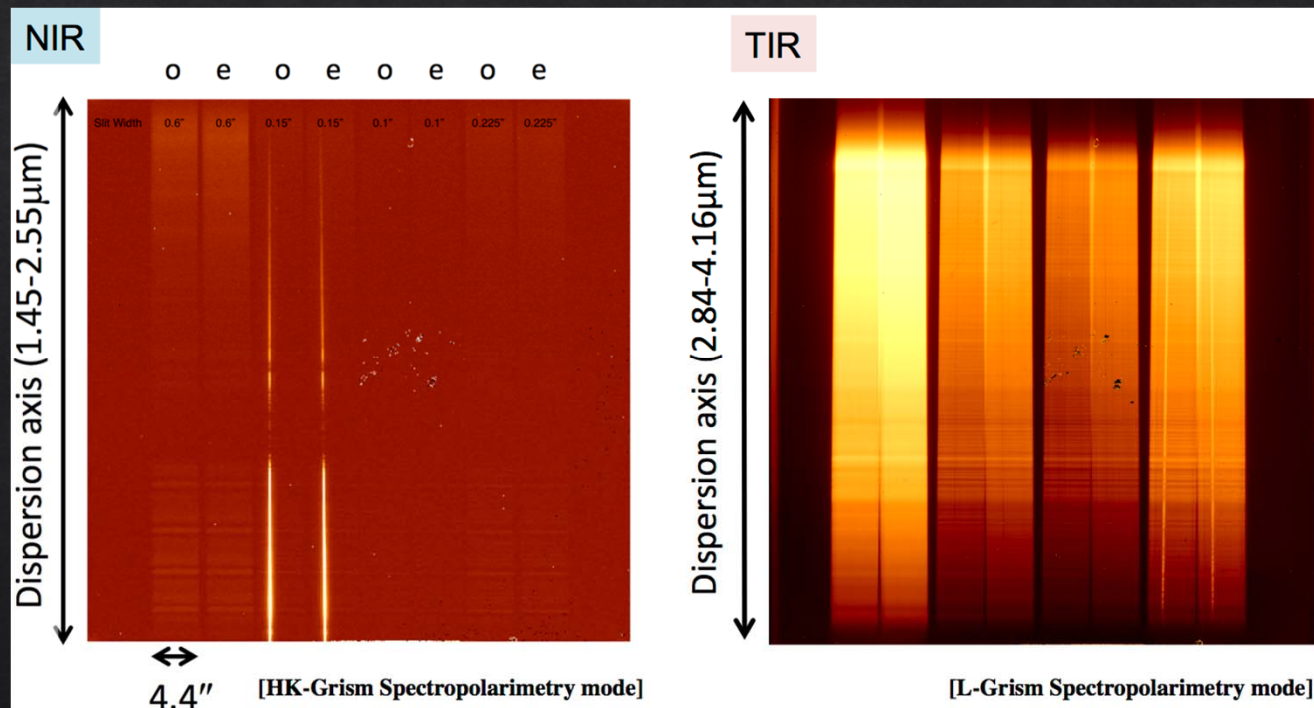


*Communication Test with
CACAO and the spare DAC40
in Hilo*



IRCS

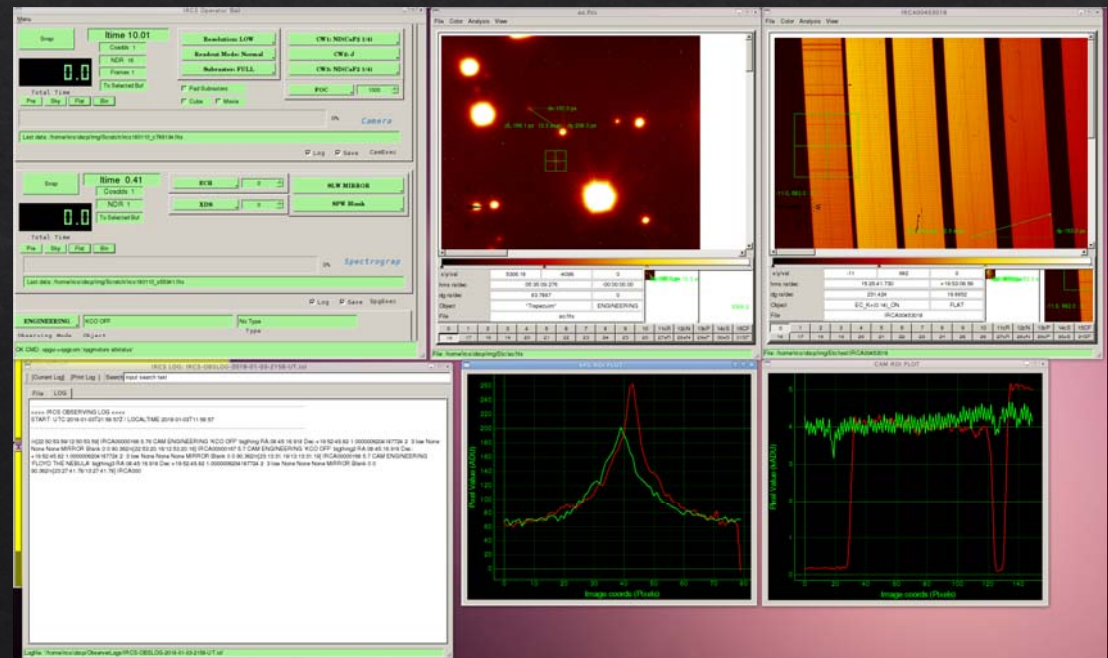
- ◇ thermal infrared (TIR) polarimetry mode
 - ◇ L-band imaging- and spectro-polarimetry modes were opened in S18A
 - ◇ M-band will be test in S18A and expected to be opened from S19A



IRCS

◆ new OBCP

- ◆ main purpose is to update the hardware
- ◆ software development has almost finished
- ◆ daytime tests ongoing
- ◆ nighttime test in S18A



HDS

- ◆ (minor) troubles
 - ◆ communication error with the refrigerator controller (2016/11 – 2017/11)
 - ◆ fixed by improving the new OBCP software
 - ◆ trouble with Messia5 board (2017/5)
 - ◆ replaced with spare board
 - ◆ planning to upgrade to Messia6 system
- ◆ upgrade plans
 - ◆ MOS : still under development
 - ◆ CCD upgrade : applying for grant

COMICS

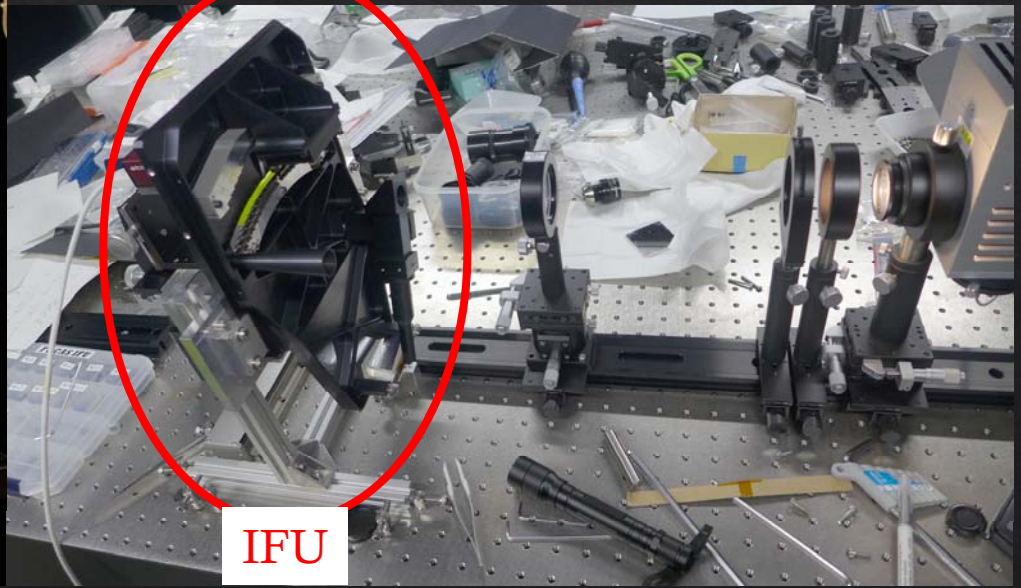
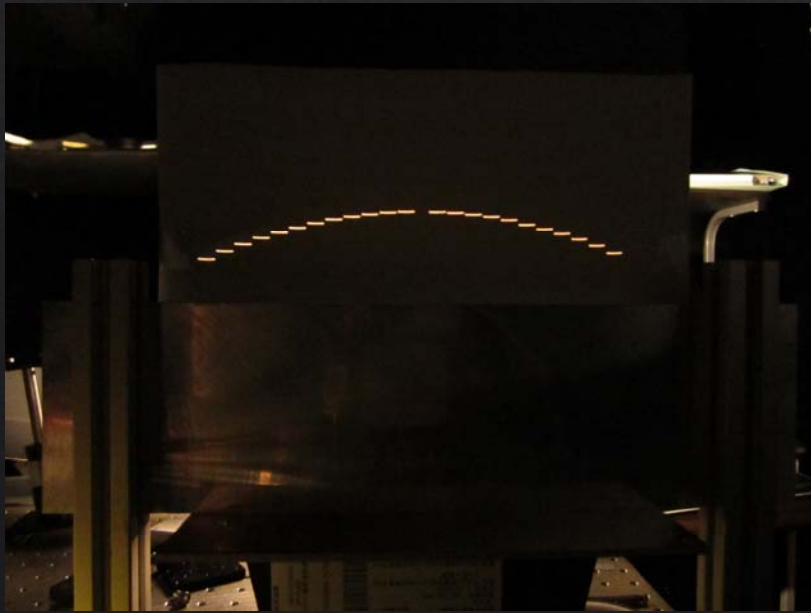
- ◇ remaining tasks polarimetry mode
 - ◇ waveplate retardance measurement
 - ◇ software development for waveplate rotation



mount for waveplate and
wire grids to measure
wavelength dependence
of retardance

FOCAS

- ◇ IFU schedule
 - ◇ alignment and test ongoing in ATC
 - ◇ ship to Hawaii next week
 - ◇ daytime test in FOCAS mid-Feb.
 - ◇ engineering observation on 3/2/2018 (if IFU function is confirmed)



MOIRCS

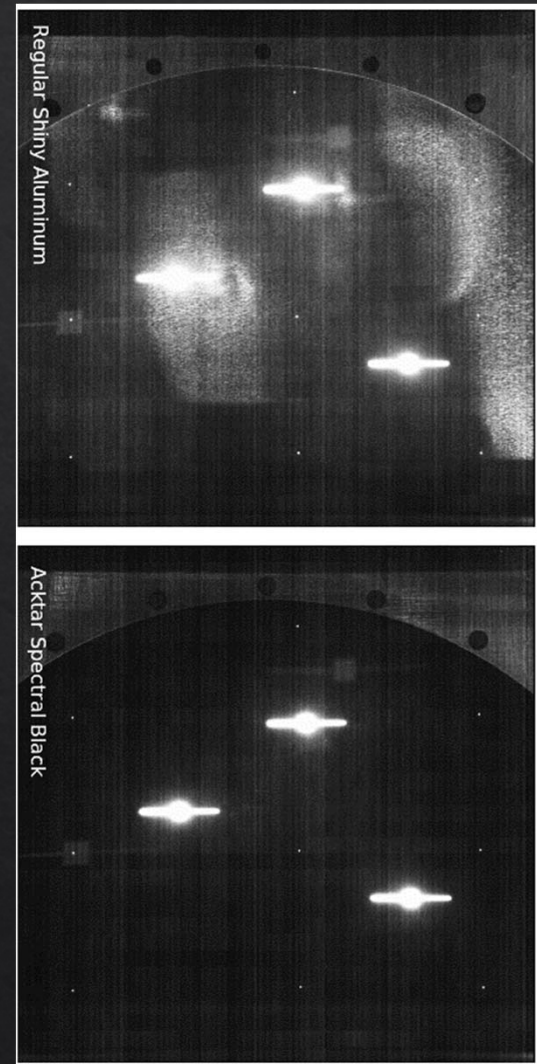
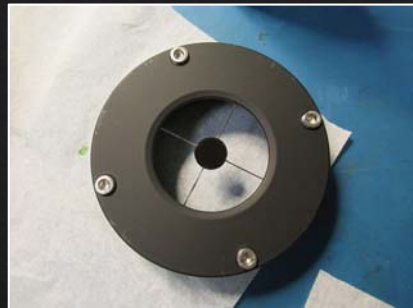
◆ Important:

The policy on the preparation of preimages for MOS was changed – **now we ask you to use the PS1 data (or the HSC SSP data etc).**

Please check the instrument webpage.

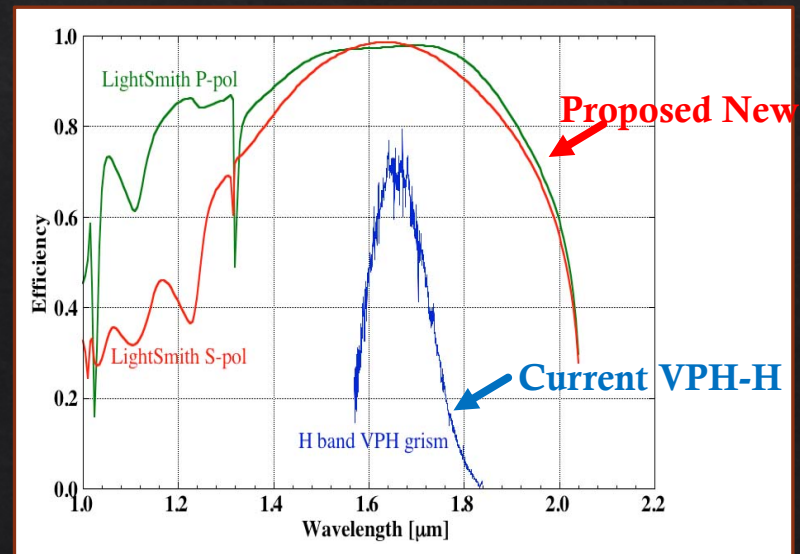
◆ Activities to improve performance

1. MOS mask material (silver → Acktar Spectral Black).
2. New Cold Stop for stray-light suppression: on-sky test soon.



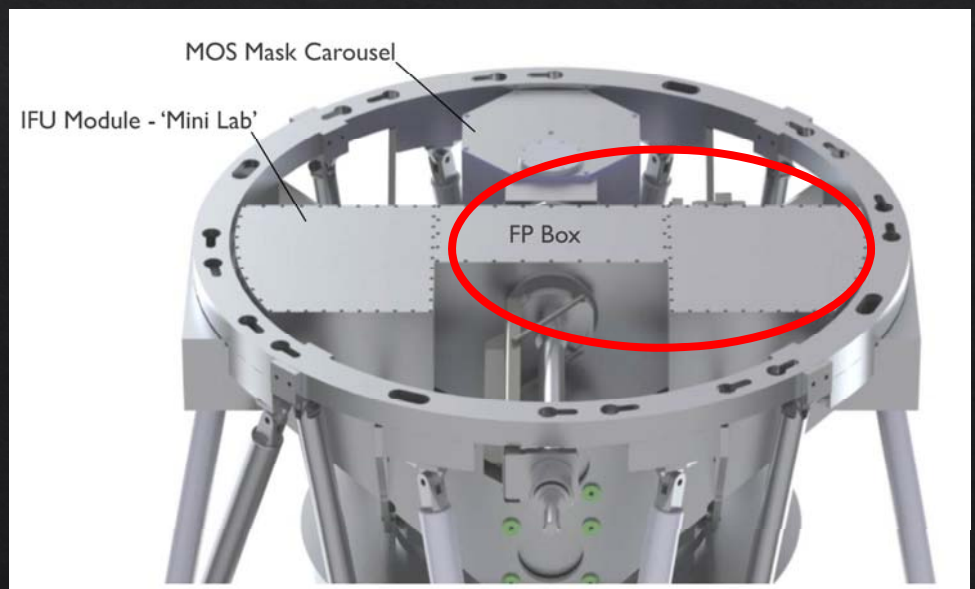
MOIRCS

- ◇ grism upgrades
 - ◇ high-dispersion volume binary grating (Ebizuka@RIKEN)
 - ◇ hybrid-grism for medium dispersion spectroscopy (Ebizuka@RIKEN)
(please see Ebizuka-san's poster presentation for details)
 - ◇ LightSmyth transmission grating
 - ◇ replace with the current VPH grisms
 - ◇ R~2700 with 0".5 slit
 - ◇ high diffraction efficiency
 - ◇ wide spectral coverage
 - ◇ low scattering



MOIRCS

- ◇ cryogenic test of MOIRCS IFU
 - ◇ successfully cooled down to $\sim 100\text{K}$
 - ◇ transmission and image quality test at cryogenic temperature
- please see the poster presentation by Julien Russelle



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