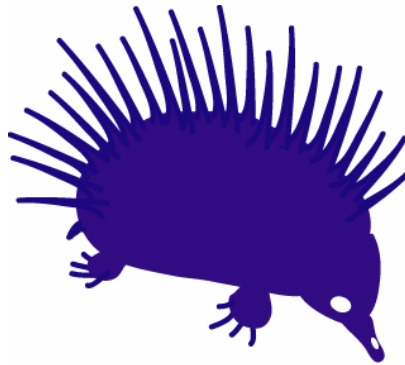


Strategic Program(?) (戦略枠) with FMOS



Kouji Ohta (Dept Astronomy, Kyoto Univ)
on behalf of FMOS team and
FMOS consortium

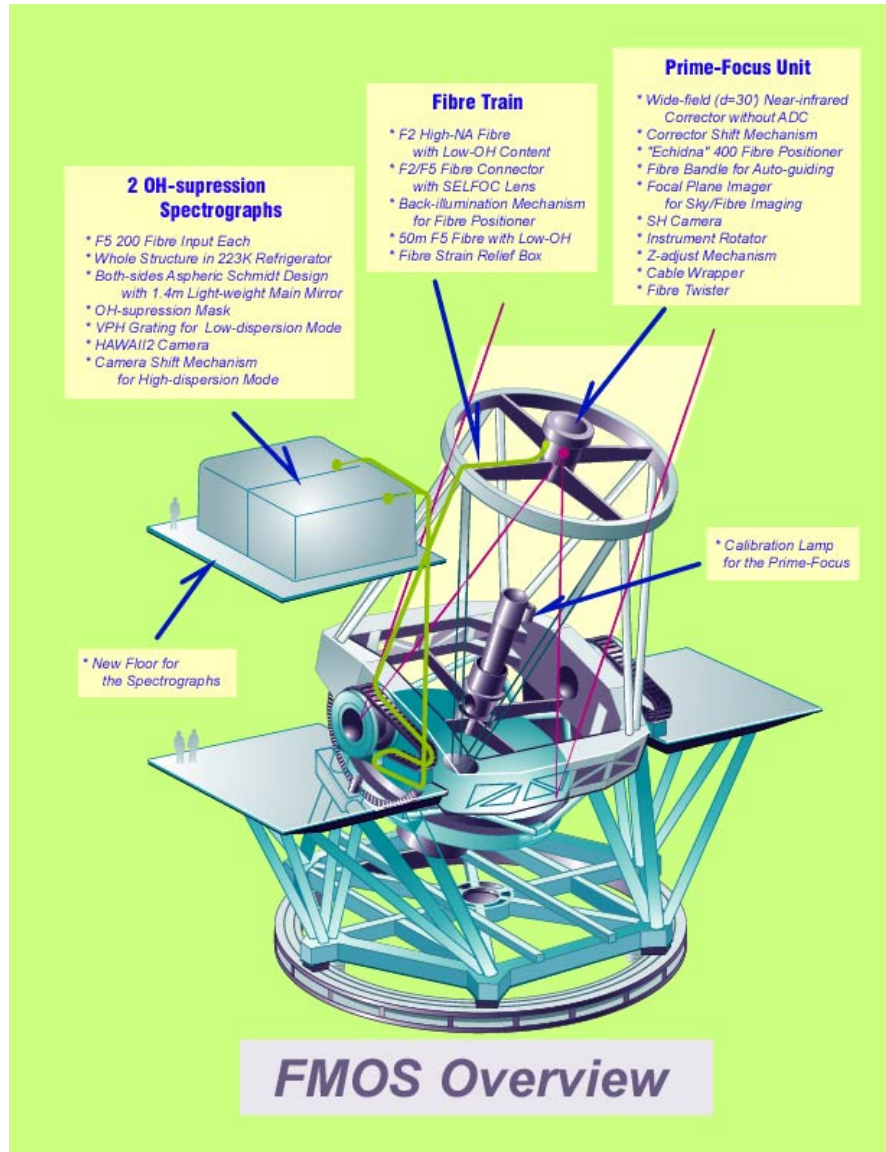
What's FMOS? (1/2)

- Fibre-Multi-Object Spectrograph
- A Second Generation
Common Use Instrument
for Subaru Telescope
- Collaboration with
Japan (Kyoto, NAOJ)
UK (Oxford, Durham, RAL)
Australia (AAO)

What's FMOS? (2/2)

- 400 fibres in 30' FoV at the prime focus
- Wavelength coverage: 0.9 μ m - 1.8 μ m
greening redshift desert
Fully covered in a low resolution mode
- Spectral resolution
Low resolution mode: $R=500$
High resolution mode: $R=2200$
- OH Airglow Suppression with OH masks
high sensitivity
 $\sim 1/20$ suppression of continuum level
75% clearance of the wavelength coverage

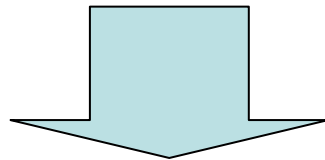
Configuration of FMOS



FMOS

only one instrument
in the world

- Survey-type observations
- Many sciences in several fields
- Well organized team
- Investment of large observing time



Outstanding outputs from Subaru

Formation of FMOS consortium

- Proposal of FMOS large program with GTO
- Announce 2006 Jan (2005 Dec?) and Jun
- 1st WS 2006 Jan @ Kyoto
 - proposals from about 40 persons
- 2nd WS 2006 Jul @ Kyoto
- Extragalactic team + Galactic team
- Proposal in preparation

- 3rd WS soon @ Kyoto
- Including UK astronomers?

PLAN: extragalactic

Evolution of galaxies and AGNs
in the first half of the universe

- Drastic evolution of galaxies at $z=1-3$
- Drastic evolution of AGNs at $z=1-3$
- Co-evolution
- Quest for galaxies in young phase at $z>3$
- Environment effect of the evolution
- Unbiased survey of galaxies in NIR band
- Pilot study for the DARK ENERGY

PLAN: Galactic

IMF in low and high mass ends

- Low mass end of IMF
- High mass star formation

FMOS consortium as of 2007

(0)FMOS core team:

Maihara Toshinori, Iwamuro Fumihide, Kiuchi Gaku?, Ohta Kouji (Kyoto Univ.),
Akiyama Masayuki, Tamura Naoyuki, Kimura Masahiko (National Astronomical Observatory, Subaru Telescope) in Japan side,
Gavin Dalton, Ian Lewis (Oxford Univ.) in UK side.

(1)Galaxy evolution in the drastic evolution era of $z = 1 - 3$ (BzK,ERO, SGM etc):

Arimoto Nobuo¹, Sekiguchi Kazuhiro², Yamada Toru², Shimasaku Kazuhiro³, Yoshida Makiko³, Hayashi Masao³, Motohara Kentaro⁴, Onodera Masato⁵, and UK astronomers? + FMOS core team

¹ National Astronomical Observatory, ² National Astronomical Observatory, Subaru Telescope, ³ Department of Astronomy, University of Tokyo, ⁴ Institute of Astronomy, University of Tokyo, ⁵ Yonsei University, Korea

(2)unbiased survey:

Ouchi Masami (STSci), + FMOS core team

(3)Environment effect:

Kodama Tadayuki¹, Tanaka Masayuki², Kajisawa Masaru¹, Tanaka Ichi³, Arimoto Nobuo¹, Matsuda Yuichi⁴, Yamada Toru³, Uchimoto Yuka⁵ + FMOS core team

¹ National Astronomical Observatory, ² Department of Astronomy, University of Tokyo, ³ National Astronomical Observatory, Subaru Telescope, ⁴ Department of Astronomy, Kyoto University, ⁵ Institute of Astronomy, University of Tokyo

(4)AGN survey:

C. Simpson? (LPJMU, UK), + FMOS core team

(5)LBG/LAE/first galaxies:

Matsuda Yuichi¹, Nagao Tohru², Ouchi Masamai³, Ikuru Iwata⁴ + FMOS core team

¹ Department of Astronomy, Kyoto University, ² National Astronomical Observatory, ³ STScI, ⁴ National Astronomical Observatory, Okayama Astrophysical Observatory

(6)Evolution of DE:

Tomonori Totani¹, Ken'ichi Harikae¹, Karl Glazebrook², Takahiko Matsubara³, Gavin Dalton⁴, Yasunori Sato⁵, Kaz Sekiguchi⁵, Toru Yamada⁵, Masahiro Takada⁶, Masami Ouchi⁷, Naofumi Fujishiro⁸, Scott Croom⁹, Matthew Colless⁹, Warrick Couch¹⁰, Chris Blake¹¹, Bob Nichol¹², Ivan Baldry¹³, John Peacock¹⁴, Steve Warren¹⁵, Andy Bunker¹⁶, Will Sutherland¹⁷, Steve Rawlings⁴, Ian Lewis⁴, Matt Jarvis⁴, Lee Clewley⁴, David Bonfield⁴, Lance Miller⁴, Christian Wolf⁴, Roberto Trotta⁴, Sarah Bridle¹⁸, Ofer Lahav¹⁸, Malcolm Bremer¹⁹, Steve Phillips¹⁹, Roberto De Propris¹⁹, Chris Simpson²⁰, Alistair Edge²⁰, Ray Sharples²⁰, Carlos Frenk²⁰ + FMOS core team

¹Kyoto, ²Johns Hopkins, ³Nagoya, ⁴Oxford, ⁵NAOJ, ⁶Tohoku, ⁷STScI, ⁸Genesha, ⁹AAO, ¹⁰UNSW, ¹¹UBC, ¹²Portsmouth, ¹³Liverpool John Moores, ¹⁴Edinburgh, ¹⁵Imperial College, ¹⁶Exeter, ¹⁷Cambridge, ¹⁸UCL, ¹⁹Bristol, ²⁰Durham

(7)IMF:

Yoichi Itoh¹, Yumiko Oasa¹, Yuhei Takagi¹, Miki Ishii², Motohide Tamura³ + FMOS core team

¹ Graduate School of Science and Technology, Kobe University, ² National Astronomical Observatory, Subaru Telescope, ³ National Astronomical Observatory

Plan: Fields

- Fields
SXDF,
LH,EIS,GOODS-N,SDF
- Distant clusters, SSA22
- Star forming regions

Plan: example of observing run

@SXDF

Table 4. Observing plan (low resolution mode) in SXDF

Field	#	Exp time	Targets (No. of targets)
Field 1	1	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10)
	2	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	3	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	4	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
Field 2	1	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10)
	2	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	3	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	4	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
Field 3	1	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10)
	2	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	3	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	4	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
Field 4	1	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10)
	2	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	3	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	4	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
Field 5 (SHADES)	1	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (100); SMG (50) ^b ; pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10)
	2	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(X-ray) (40); sBzK (100); SMG (50) ^b ; pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	3	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a
	4	$30^{\text{min}} \times 10 = 5^{\text{h}}$	AGN(radio) (40); Biz' (150); pBzK (10) ^a ; LAE/LBG@ $z = 5 - 7$ (10) ^a

Plan: example of observing time fall season

- SXDF(2h -5d)
galaxies AGNs at $z \sim 2$, LBGs/SMGs
DE pilot survey in 5 FoVs
20 nights
- SSA22 (22h 0d)
LABs, LBGs,
first 1/5 nights of SXDF
- Orion (5.5h -5d)
young stars
last 1/5 nights of SXDF

Total 20 nights + alpha

Plan: example of observing time spring season + etc

- SDF or GOODS-N (12h-13h)
galaxies, AGNs at $z \sim 2$
including LBGs/SMGs
5-10 nights
- clusters
5 nights
- Star forming region
1-3 nights

Total 20 nights

Plan: example of observing time total

Total 40 nights + alpha

Rate of clear nights

=> 50 nights / two? years

e.g.,

S0xB(fall) 10-15 nights

S0(x+1) A (spring) 10-15 nights

S0(x+1)B 10-15 nights

S0(x+2)A 10-15 nights

Probably Grey run or bright runs

What's the strategic program?

- Intensive Program
 - specific aim, relatively small group
 - => 特別推進 type
- Strategic Program
 - general purpose in a few research fields
 - consortium
 - publicity
 - extended observatory program?
 - => 特定領域type
- Not necessarily link to GTO

summary

Let' start (contunue?) discussion