

Report of PFS SSP (SSP=Subaru Strategic Program)

Masahiro Takada (Kavli IPMU)
on behalf of PFS-SSP team



acknowledgements

- Overall survey planning: Khee-Gan Lee (chair; Kavli IPMU), Naoki Yasuda (Kavli IPMU), Masahiro Takada
- Working group contacts for SSP target preparation: Jingjing Shi (Cosmology WG: Kavli IPMU), Andy Goulding (GE WG: Princeton), Laszlo Dobos (GA: Eotvos Lorand U.)
- Subaru Observatory contacts: Miho Ishigaki, Yuki Moritani, Masato Onodera, Wanqiu He +
- PFS support astronomers: Akira Arai, Ichi Tanaka, Vera Passenger
- PFS technical team + Mitaka PFS team
- 39 observing volunteers (many junior scientists)

S25A

- The scientific operation of PFS, including PFS-SSP, started in March
- 14 nights** were allocated to PFS-SSP in S25A
- ~100hrs of on-sky integration**, out of **125hrs total night-time** (so we were very lucky and efficient)
- 16.5 nights allocated in S25B
- Established the PFS-SSP observation procedures (preparation of the PFS-SSP target lists, transferring those to the PFS op files, execution of the PFS observation, ...) (thanks to Khee-Gan Lee, ...)

Schedule for March 2025

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						Mar 01
						S25A-TE193-K Weisz HSC
Mar 02	Mar 03	Mar 04	Mar 05	Mar 06 ○	Mar 07	Mar 08
S25A-UH027-A(0.6) de Boer HSC	Queue HSC				S25A-026 (Cancelled) [Telescope] Hashimoto CRS+SCExAO+NIRWFS+NGS	S25A-026 (Cancelled) [Telescope] Hashimoto CRS+SCExAO+NIRWFS+NGS
Queue(0.4) HSC					Eng (Cancelled) [Telescope]	S25A-134(0.1) (Cancelled) [Telescope] Kuzuhara --- SSP(0.4) (Cancelled) [Telescope] IRD+NGS-AO
Mar 09	Mar 10	Mar 11	Mar 12	Mar 13 ○	Mar 14	Mar 15
S25A-026 (Cancelled) [Telescope] Hashimoto CRS+SCExAO+NIRWFS+NGS	S25A-026 Hashimoto CRS+SCExAO+NIRWFS+NGS	S25A-TE009-G Jiang VAM+SCExAO+NIRWFS+NGS	S24A-023I Currie CRS+SCExAO+NIRWFS+NGS		Eng AO188+LLT	S25A-040 Ichikawa MOIRCS
Eng (Cancelled) [Telescope] SCExAO	SSP IRD	Eng SCExAO			S24A-023I Currie CRS+SCExAO+NIRWFS+NGS	S24A-023I Currie CRS+SCExAO+NIRWFS+NGS
Mar 16	Mar 17	Mar 18	Mar 19	Mar 20	Mar 21 ●	Mar 22
S25A-025 Takeda MOIRCS	S24A-113 Matsumoto MOIRCS	S25A-026 [compensation] Hashimoto CRS+SCExAO+NIRWFS+NGS	Eng (Cancelled) [Telescope] PFS	Eng PFS		S25A-UH006-B(0.75) Sanders PFS
	Obs MOIRCS	S25A-134(0.1) Kuzuhara --- SSP(0.4) IRD+NGS-AO				Queue(0.25) PFS
Mar 23	Mar 24	Mar 25	Mar 26	Mar 27	Mar 28 ●	Mar 29
S25A-UH006-B(0.75) Sanders PFS	S25A-039 Lee PFS	Queue PFS		Queue PFS	Queue PFS	Queue PFS
Queue(0.25) PFS				SSP PFS	SSP PFS	SSP PFS
Mar 30	Mar 31					
Queue PFS	Queue PFS					
SSP PFS	SSP PFS					

Goals of S25A

- **Cosmology**: Science verification studies using ~ 0.1 million targets to finalize color-mag selection cuts for [OII] emission-line galaxies
- **Galaxy Evolution (GE)**: inter-galactic medium (IGM) tomography targets over 1 pointing of ELAIS-N1 field
 - Other GE targets ($z \sim 1-2$ galaxies, high- z galaxies, AGNs) are fillers
- **Galactic Archaeology (GA)**: stellar populations in Ursa Minor and Draco dwarf galaxies with medium resolution (MR) grating

challenges/issues

- need updates (or improvements) in NIR data reduction pipeline
- fiber positioning accuracy (typically $\sim 20\mu\text{m} \sim 0.2''$ for now; can we achieve $< 10\mu\text{m}$?)
- unconverged fibers (now ~ 200 fibers); will be resolved soon?
- how many sky fibers do we need? (~ 200 fibers for cosmology, but ~ 400 fibers for GA and GE)
- need an improvement in the coadd spectra quality (for faint objects); this issue is likely related to imperfect flux calibration, fiber-to-fiber throughput variations, and/or AG inaccuracy?
- wavelength calibration in the blue-arm spectrum: will be resolved soon?
- need more communication and protocols btw science WGs and technical team
- timely delivery of data/products via the NAOJ site

SSP=Subaru Legacy Survey

Please join the PFS-SSP!

PFS page: <https://pfs.naoj.org/research/index.html>



Prime Focus
Spectrograph

Support
PFS!

Blog



Introduction

Science

Instrument

Collaboration

Schedule

For Scientists

For Scientists

This page and the following links are to introduce the PFS instrument and large survey programs both under development by the PFS collaboration. The contents will be updated as the instrument design and operation are finalized and the survey plans are matured. We hope scientists can learn more details about PFS and be interested in the use for their research programs.

- [Instrument parameters](#)
- [Expected instrument performance](#)
- [Survey plans \(under construction\)](#)
- [Publications](#)
- [PFS Abbreviations](#)

For Scientists Interested in PFS Collaboration

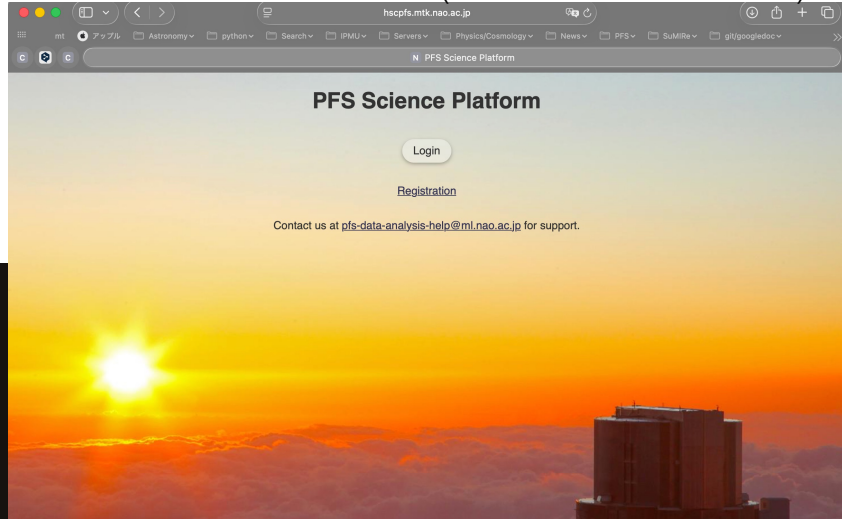
The membership of PFS Collaboration is given to:

- all scientists with Japanese nationality
- those who do not have the Japanese nationality but are working as employees at the Japanese institutes
- those who are giving significant contributions to the instrument development

Visit this page for the registration form.

Please register for the PFS-SSP collaboration!

PFS Science Platform (see Tanaka-san's talk)



PFS slack workspace (Slack pro): ~344 members

