

# Subaru 3

**Tomoki Morokuma** on behalf of Subaru 3 WG / Subaru SAC  
Astronomy Research Center (ARC), Chiba Institute of Technology

Subaru 3 WG members: M. Oguri (Chiba U.), Y. Koyama (NAOJ), M. Ishigaki (NAOJ),  
M. Kubo (Kwansei Gakuin U.), B. Sato (Science Tokyo), T. Morokuma (Chiba Institute  
of Technology)

# Towards Subaru 2 (around 2010)

= 光赤外専門委員会への提言 =

## 2020年へのすばるの戦略 “天・地・人”

～スペースと地上観測の連携そして人材育成を軸に～

2009年3月9日

すばる小委員会

[https://subarutelescope.org/Science/SACM/sacreport/SAC\\_teigen\\_2008.pdf](https://subarutelescope.org/Science/SACM/sacreport/SAC_teigen_2008.pdf)

2026/06/17-19

= ハワイ観測所への提言 =

## 2020年代に向けたすばるの戦略

～次世代地上・スペース望遠鏡を見据えた運用と人材育成～

2012年6月30日

すばる小委員会

[https://subarutelescope.org/Science/SACM/sacreport/SAC\\_teigen\\_2012.pdf](https://subarutelescope.org/Science/SACM/sacreport/SAC_teigen_2012.pdf)

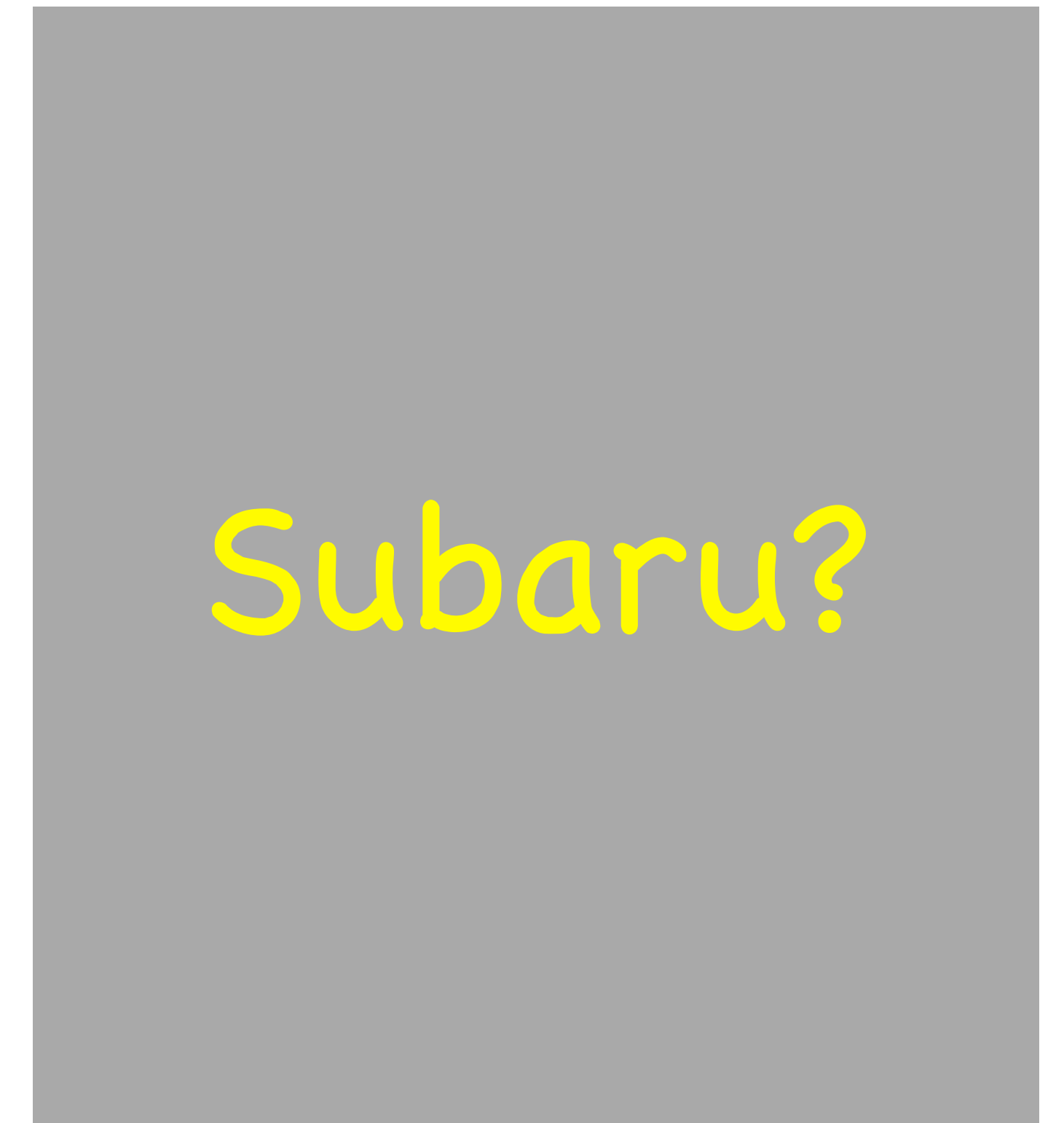
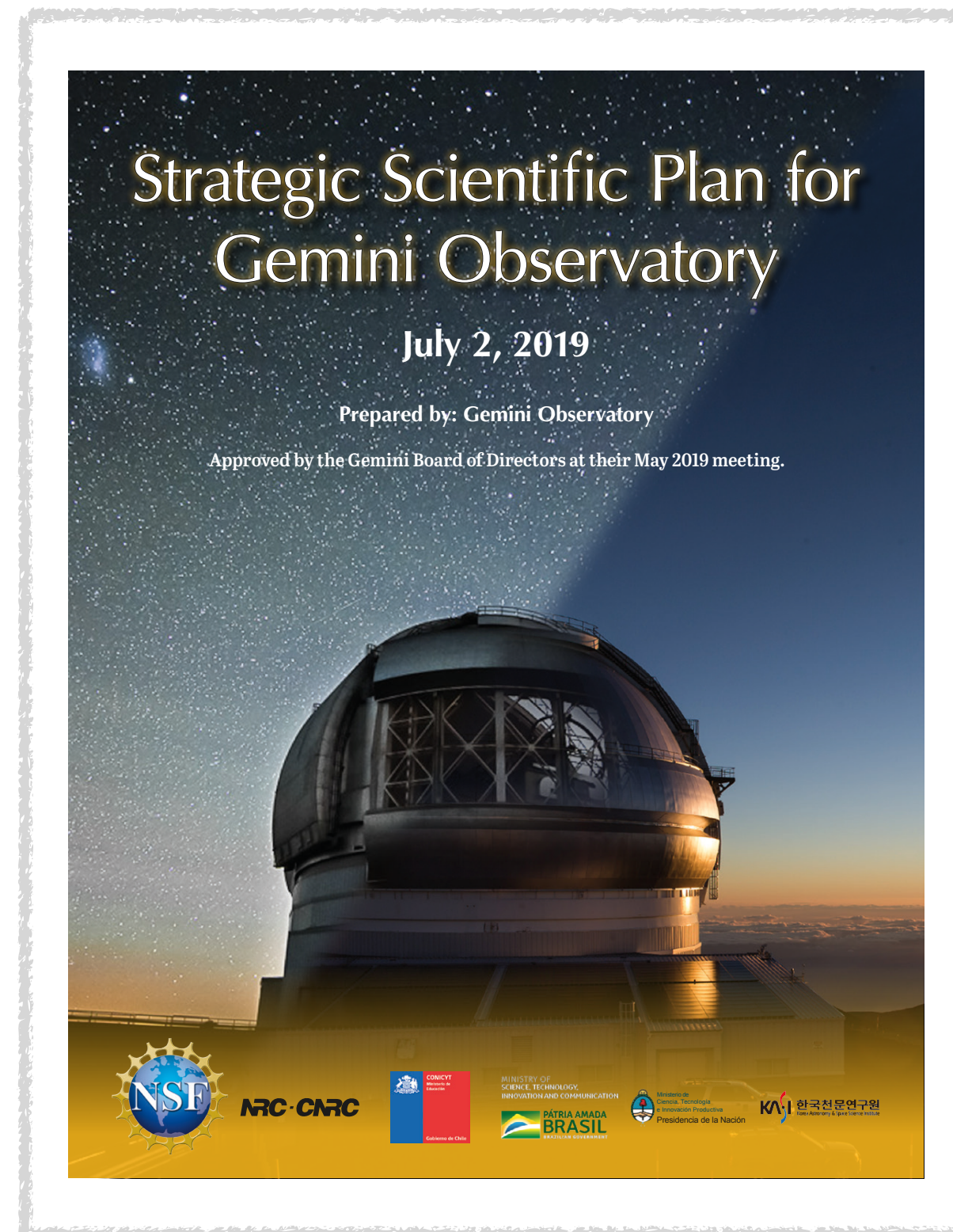
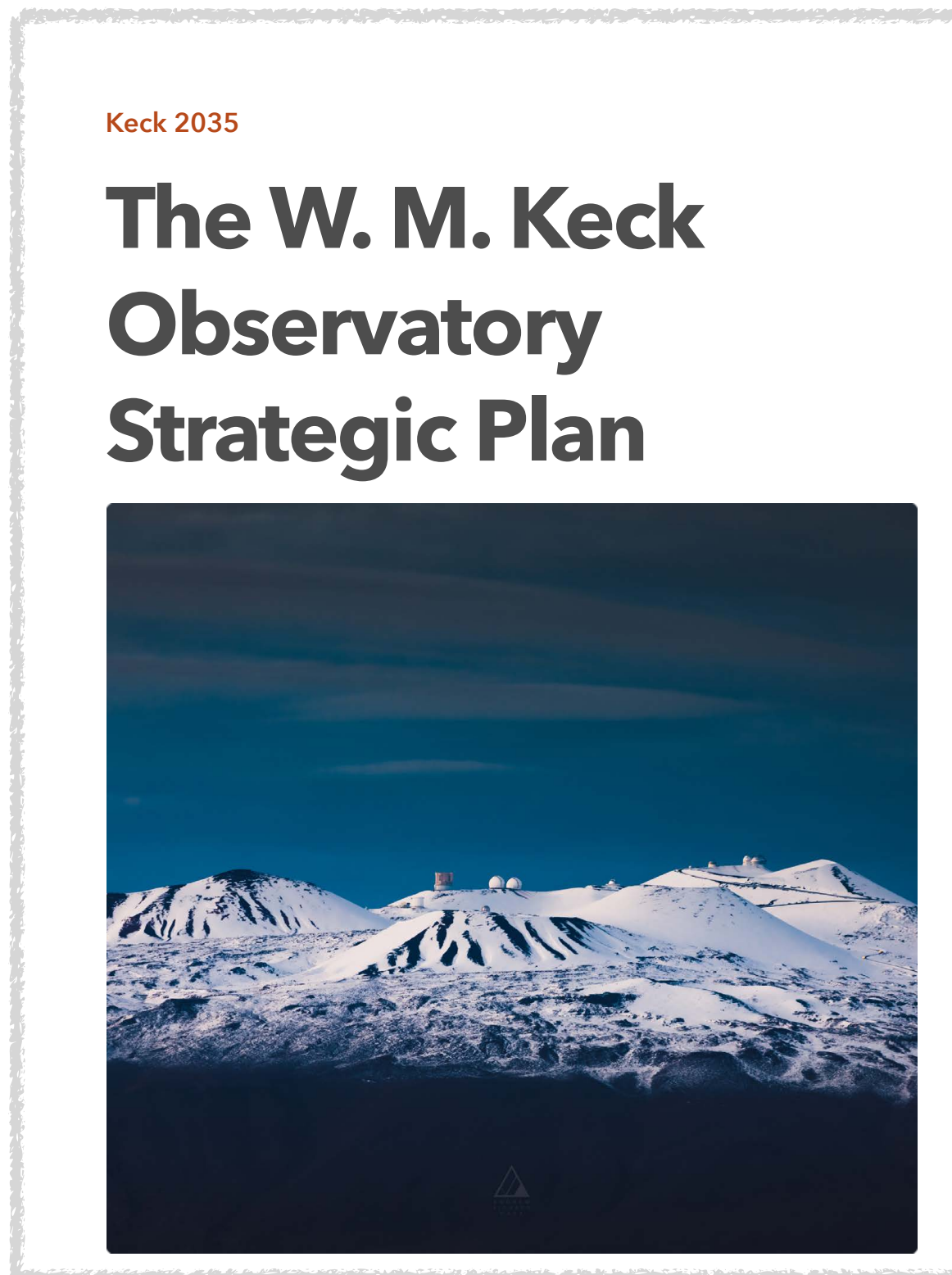
Subaru Users Meeting 2026 @ NAOJ/Mitaka

Tomoki Morokuma



# Subaru 3 (booklet)

- Workshop (Aug. 2024), Subaru UM FY2024 (Jan. 2025), Workshop #2 (Mar. 2026)
- Other observatories (incl. Keck, Gemini) issued 30–40–page books for their future.
- Anybody welcome to join the subWGs (please contact the WG members)
  - Exoplanets, Nearby galaxies, Galaxy evolution, Cosmology, MMA, Milky Way



**Subaru 3 WG:** M. Oguri, Y. Koyama, M. Ishigaki, M. Kubo, B. Sato, T. Morokuma

# Subaru 3 Science subWGs

- Exoplanets: Stevanus Kristianto Nugroho (Science Tokyo)
- Milky Way: Kumiko Morihara (NAOJ/Subaru)
- Galactic archeology: Yutaka Hirai (Tohoku University of Community Service and Science), Tadafumi Matsuno (Heidelberg Univ.)
- Galaxy evolution: Kei Ito (Cosmic Dawn Center), Yuichi Harikane (Univ. of Tokyo)
- Cosmology: Ken Osato (Chiba Univ.), Hironao Miyatake (Nagoya Univ.)
- Multi-messenger: Nozomu Tominaga (NAOJ), Takashi Moriya (NAOJ)

# 目的 / Purposes

- すばる3時代に向けた科学的展望を明示し、外部への説明資料および内部の交通整理資料として活用  
Clearly present the scientific vision in the Subaru 3 era, and utilize it both as material for external communication and as an internal reference document.
- 以下の読者を想定する: 国内外の天文学コミュニティ (光赤外以外も含む)、他分野の研究者、政策決定・予算措置に関わる方々、一般の方々  
Intended audience includes: astronomical community (not limited to optical and infrared fields), researchers in other disciplines, policymakers and funding authorities, and the general public.

## 構成案 / Booklet Structure (draft) To be discussed seriously in late FY2026

- すばる3時代におけるサイエンスの展望 (キーサイエンス+その他)  
Scientific vision in the Subaru 3 era (emphasis on key sciences)
- マウナケアを取り巻く状況・環境 / Current situation/environment surrounding Maunakea
- 望遠鏡の運用方針 など / Telescope operation policies, etc. Comments in Subaru UM FY2024
  - Relationship w/ local community
  - Sustainable operation model

# Goals of Subaru 3 WS #2 (March 11-12 2026)

- This workshop serves as an **interim report and discussion** toward clarifying the vision of the Subaru Telescope in the Subaru 3 era and preparing the Booklet. It is an opportunity to reconfirm and share our objectives and the roles of each subWG.
- This WS is the **first opportunity** to learn about the **progress in other subWGs**. We strongly encourage **active information sharing and open, constructive discussion**.
- We would also like to use this workshop as a **kickoff for examining the technical and operational feasibility** of the proposed plans. In particular, some aspects will require detailed consideration by the observatory. Ultimately, the Booklet should include concepts that are reasonably realistic and technically feasible.

Day 1: March 11				Day 2: 3/12				
10:30-10:45 (15)	01	Workshop Background and Purpose	Tomoki Morokuma	<b>Discussion reports</b>				
10:45-11:00 (15)	02	TMT	Wako Aoki	10:00-12:00	Summary of subWGs' Discussion			
<b>Progress reports</b> Progress Reports from Sub-Working Groups				10:00-10:30 (30)	12	Exoplanets	Exoplanets subWG	
10:45-10:55 (10)	03	Exoplanets	Exoplanets subWG	10:30-11:00 (30)	13	Galaxy Evolution	Galaxy Evolution subWG	
10:55-11:05 (10)	04	Milky Way	Milky Way subWG	11:00-11:30 (30)	14	Milky Way	Milky Way subWG	
11:05-11:15 (10)	05	Galactic Archeology	Galactic Archeology subWG	11:30-12:00 (30)	15	Cosmology	Cosmology subWG	
11:15-11:25 (10)	06	Galaxy Evolution	Galaxy Evolution subWG	12:00-13:30 (90)	lunch			
11:25-11:35 (10)	07	Multi-Messenger	Multi-Messenger subWG	13:30-14:30	Summary of subWGs' Discussion			
11:35-11:45 (10)	08	Cosmology	Cosmology subWG	13:30-13:00 (30)	16	Galactic Archeology	Galactic Archeology subWG	
11:45-13:30 (105)	lunch			14:00-14:30 (30)	17	Multi-Messenger	Multi-Messenger subWG	
13:30-15:00 (90)	09	Discussion in each subWG	-	14:30-16:00 (90)	18	Future Plans and Discussion		
15:00-15:20 (20)	break							
15:20-16:30 (70)	10	Discussion across subWGs	-					
16:30-17:00 (30)	11	Today's Summary	-					

# Keywords discussed in Subaru 3 WS #2 (March 11-12 2026)

- Instruments
  - PFS high-R( $\sim 20,000$ – $100,000$ ) mode
  - PFS multi-IFU
  - PFS extension to longer wavelengths
  - ULTIMATE multi-IFU
  - CMOS imaging camera & spectrograph
  - Simultaneous coverage in optical/NIR high-R spectroscopy
  - Ultra-Doppler, exo-NINJA, HDS 2.0, IRD, T-SHIRT, SCE<sub>x</sub>AO
  - HSC w/ medium-band filters, MOIRCS, wide-field IFU, NINJA
- Telescopes
  - Secondary mirror on Wide Field Corrector at Prime focus (HSC/PFS)
- Operation
  - Flexible observations (scheduling, queue, instrument exchange, ToO etc.)
    - “Smart Subaru”, “AI Subaru”
  - New proposal category
    - SSP-like (>> intensive) w/ existing instruments, over  $\sim 10$  years (talk by M. Tanaka)

# Timeline

- Sep/Oct 2025: Call for subWG members ==> started discussion
  - Oct 2025: Subaru 3 Discussion @ Subaru UM FY2025
  - Mar 2026: Subaru 3 WS #2 (this WS)
  - Jun 2026: Subaru UM 2026
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- [Technical discussion soon started]
  - Sep 2026: gopira symposium
  - Late FY2026: Subaru 3 WS #3 (and TMT-ACCESS-Subaru3 WS?)
  - [define the key science cases etc. in SAC]
  - [finalize the booklet structure]
  - From late FY2026?: Writing & Editing
  - FY2027? (before mid-term review for Subaru 2): Subaru 3 Booklet Issued
  - FY2028?: gopira roadmap (renew)