

Introduction to the NAOJ Future Symposium 2023 -Science Roadmap of NAOJ-

Nov 7, 2023

Kentaro Motohara (SOC Chair), on behalf of SOC members

SOC and LOC

SOC :

- ▶ Satoru Iguchi (NAOJ)
- ▶ Shinsuke Imada (Univ. Tokyo)
- ▶ Yumiko Oasa (Saitama Univ.)
- ▶ Masami Ouchi (NAOJ)
- ▶ Toshikazu Onishi (Osaka Metropolitan Univ.)
- ▶ Sakurako Okamoto (NAOJ)
- ▶ Kotaro Kohno (Univ. Tokyo)
- ▶ Keitaro Takahashi (Kumamoto Univ.)
- ▶ Masaomi Tanaka (Tohoku Univ.)
- ▶ Takayuki Tomaru (NAOJ)

- ▶ Kengo Tomida (Tohoku Univ.)
- ▶ Noriyuki Namiki (NAOJ)
- ▶ Kotaro Niinuma (Yamaguchi Univ.)
- ▶ Michiko Fujii (Univ. Tokyo)
- ▶ Kentaro Motohara (Chair, NAOJ)

LOC

- ▶ NAOJ SOC members
- ▶ Naoto Iida (Research Support Unit)
- ▶ Shinichi Yamamoto (Research Support Unit)
- ▶ Kuniko Hori (Research Assessment Support Office)

History of Discussions of Future Plans at NAOJ

▶ until 2018

- ▶ 国立天文台では毎年、プロジェクトウィークというものがおこなわれていた
NAOJ had a “Project Week” annually
- ▶ そこでは各プロジェクトから1年間の活動報告がされていた。
Where, each project reports its annual activity
- ▶ 自分のプロジェクト以外は出席しない方が多かった
Participants are mostly limited within each project
- ▶ 国立天文台の将来計画は議論されていないという課題もあった
No discussion on overall future plans of the whole NAOJ

▶ 2017 : 「国立天文台 10 年計画ワークショップ」 (“Workshop of 10-years plan at NAOJ”)

- ▶ 国立天文台内部のみ
Internal workshop within NAOJ
- ▶ テーマは「国立天文台の組織体制をどうしたいか」、「国立天文台の研究はどうしたいか」
Scopes were “How the organization of NAOJ should be” and “How the research activities at NAOJ should be”
- ▶ 将来計画についての議論はあまりなかった
Not much discussions on future plans

Science Advisory Committee (科学戦略委員会) of NAOJ

- ▶ NAOJ Science Advisory Committee (SAC) was established on 2018/7/1, under the Advisory Committee (運営会議)
- ▶ Rules of the SAC : 「国立天文台科学戦略委員会規則」
 - ▶ Article 2 The Committee shall deliberate on the following items
第2条 委員会は、次の各号に掲げる事項について審議する。
 - ▶ (i) **Medium- to long-term plan of NAOJ** : 国立天文台の**中長期計画**
 - ▶ (ii) **Master plan of NAOJ** : 国立天文台の**研究基本計画(マスタープラン)**
 - ▶ (iii) **Operational policies mainly of the large open-use facilities (excluding those under the jurisdiction of their science advisory committee)** : 大型装置の共同利用を中心とした運用方針(国立天文台科学諮問委員会の所掌分は除く)
 - ▶ (iv) **Other issues related to the scientific strategy of NAOJ.** : その他, 国立天文台の**科学戦略**に関すること
- ▶ One of the main activities of SAC is to hold the Future Planning Symposium, which is defined as forum to discuss the mid- to long-term plans and the master plan.

2019: “Symposium of the Outcomes and Future of NAOJ” 「国立天文台の成果と将来シンポジウム」

- ▶ To share excellent results by NAOJ facilities, regardless of the fields/wavelengths in the past one year
国立天文台の装置などを用いた過去 1 年の優れた研究成果を、天文学の分野・波長を横断して共有することが目的
- ▶ To introduce scientific value of existing facilities and expectation for future plans of NAOJ from each community
各天文コミュニティで議論されている、国立天文台の現有装置の科学的評価、将来計画、国立天文台への期待が紹介
- ▶ However, there were not enough discussions in each community beforehand
アナウンスが直前で、各コミュニティで議論する時間がほとんどとれなかった

NAOJ Future Planning Symposium 2021

~Thinking about Future Plans Across Wavelengths~

- ▶ Target 1 :
Share the vision beyond wavelength-divided communities
- ▶ Target 2 :
Share the current situation of NAOJ, and promote communication between NAOJ and communities
- ▶ Target 3 :
Vision for discussions of future plans

Set common themes across the fields and had review talks of them

Day1 : Tuesday, November 9

*NOTE- **Horizontal Axis**: Scientific Goal(SG) common across wavelengths.

Vertical Axis: Fundamental Scientific Topics common across SGs.

[Opening]

Chair : SAITO, Masao (NAOJ)

09:10-9:15 **Greetings from NAOJ Director General**

TSUNETTA, Saku (NAOJ) PDF(60KB)

09:15-9:30 **Significance of the Meeting and Questions to the Communities**

SAITO, Masao PDF(0.6MB)

[SG: Horizontal Axis 1] Galaxy/Black Hole Formation (incl. Reionization)

Chair: OUCHI, Masami (NAOJ)

09:30-10:10 **Galaxy, SMBH formation (including Reionization)**

(Keynote): NAGAMINE, Kentaro (Osaka, Univ.) PDF(6.5MB)

10:10-10:30 Discussion

[SG: Horizontal Axis 2] Stellar Physics (Plasma/Magnetic Fields/Sun)

Chair: IMADA, Shinsuke (Univ. Tokyo)

10:30-11:10 **Solar/Stellar magnetic fields and dynamo**

(Keynote): HOTTA, Hideyuki (Chiba Univ.) PDF(8.0MB)

11:10-11:50 **Magnetic Fields of Compact Objects**

(Keynote): KASHIYAMA, Kazumi (Univ. Tokyo) PDF(5.3MB)

11:50-12:10 Discussion

(Lunch Break)

[SG: Horizontal Axis 3] Stars, Planetary System Formation, and Exoplanets

Chair: SAKAI, Nami (RIKEN)

13:00-13:40 **Exoplanets**

(Keynote): IKOMA, Masahiro (NAOJ) PDF(6.9MB)

13:40-14:20 **Planetary system formation**

(Keynote): FUKAGAWA, Misato (NAOJ) PDF(2.6MB)

14:20-15:00 **(Near) Future of Star Formation Studies**

(Keynote): TOMIDA, Kengo (Tohoku Univ.) PDF(3.1MB)

15:00-15:20 Discussion

(Break)

[SG: Vertical Axis 1] Chemical Evolution of Matter and Life (Elements, Molecules)

Chair: TANAKA, Masaomi (Tohoku Univ.)

15:35-16:15 **Molecular Evolution** (Keynote): NOMURA, Hideko (NAOJ) PDF(5.2MB)

16:15-16:55 **Nucleosynthesis: the origin of elements, Milky Way, & distant galaxies**

(Keynote): KOBAYASHI, Chiaki (Univ. Hertfordshire, UK) PDF(6.2MB)

16:55-17:15 Discussion

NAOJ Future Planning Symposium 2022

- How to decide and promote future plans -

- ▶ Introduction to existing future plans
 - ▶ Frontier projects
 - ▶ Management expense grants projects (non-frontier projects)
- ▶ How future plans are discussed and decided in other communities / institutes ?
- ▶ Introduction to the discussions and decision process of future plans in each community and their relation to NAOJ

Based on the above discussions, how NAOJ should determine and promote future plans?





We reached a consensus for the “Three Stage Framework”

Day1 : Wednesday, December 7



[Session 1] Understanding Background

Chair: MOTOHARA, Kentaro (NAOJ)

	Title	Speaker	PDF
09:10-09:15	Opening Remark	MOTOHARA, Kentaro	
09:15-09:35	Background of the Future Symposium	MOTOHARA, Kentaro	 (637KB)
09:35-10:20	NAOJ current status and challenges	TSUNETTA, Saku (Director General, NAOJ)	 (4MB)
10:20-10:30	Q&A		

[Session 1.1] Currently proposed future plans at NAOJ




Chair: FUJII, Michiko (Univ. Tokyo)

	Title	Speaker	PDF
10:30-10:40	Study Groups in NAOJ	SAITO, Masao (NAOJ)	 (532KB)
10:40-11:10	The next generation Very Large Array (ngVLA) - planning towards a Japanese contribution	GONZALEZ, Alvaro (NAOJ)	 (2MB)
11:10-11:40	SKA1 commitment plan of Japan	KOBAYASHI, Hideyuki (NAOJ)	 (4MB)
11:40-11:50	Q&A		

(Lunch Break)

[Session 2] How to decide a roadmap for a community or research institute

Chair: KAWAHARA, Hajime (JAXA, ISAS)

	Title	Speaker	PDF
13:00-13:40	Future Planning Process in the US	MURAYAMA, Hitoshi (Univ. Tokyo, Kavli IPMU/UC Berkeley)	 (5MB)
13:40-14:20	Basic policy for deciding on the implementation of research projects at the High Energy Accelerator Research Organization (KEK) and the space science program at the Institute of Space and Astronautical Science (ISAS) of JAXA	MITSUDA, Kazuhisa (NAOJ/KEK)	 (2MB)
14:20-15:00	The second decadal survey of planetary science and Solar System exploration by Japanese Society of Planetary Science	SEKINE, Yasuhito (Tokyo Inst. Tech., ELSI)	 (2MB)

Detail Summary of Future Symposium 2022

Kazuhisa Mitsuda (Chair, NAOJ Science Advisory Committee)

Trial of the Proposing Process to the Roadmap of NAOJ

1. SOC called for **letters of intent (Lol)** for science cases of the NAOJ science roadmap on July 28, 2023 .
The science case is expected to be implemented during the 5th Mid-Term Objective(第5期中期計画) period (FY2028-2033) .
: Deadline Sep 4, 2023, received **26 Lols**
2. In addition, a detailed **“proposal document”** (提案書 : will be explained later) was also requested for major 6 management expense grants projects (i.e. Mizusawa, Nobeyama, Solar Science, CfCA, ASTE, Gravitational Wave Science), and for a frontier project candidate that is expected to be proposed by NAOJ (ngVLA).
: Deadline Oct 10, 2023
3. Note that existing and already proposed Frontier projects were not included in this process.
4. In the symposium,
 1. the groups submitting Lol will make poster presentation + 5min talk,
 2. 7 projects submitting the “proposal documents” will make 30min presentation describing their details, and
 3. based on above presentations, we will have a discussion on the framework of how to select the science cases to be included in the “Science Roadmap of NAOJ”

Trial of the Proposing Process to the Roadmap of NAOJ (cont'd)

5. After the symposium, the Science Advisory Committee will
 - I. Review the “proposal documents” to check what written there is **enough to make a decision**, but **not evaluate their contents**.
The comments will be returned to the proposers.
 - II. Review the list of Lol
 - III. The results of above reviews will be returned to the Advisory Committee (運営会議) of NAOJ.

Target of This Symposium

- ▶ Simulate the proposed decision process of the science roadmap of NAOJ
- ▶ Share the proposing process so far within the community
- ▶ Share the understanding of ;
 - ▶ “Lol” and “Proposal Documents” to be prepare next year, and
 - ▶ How to set science goals of each project for the next mid-term objective period (第5期中期計画)

! We wish to have intense discussions for the future of NAOJ !

Language of the Symposium

- ▶ Presentation slides : **English.**
- ▶ Presentation talks : **English**, but Japanese is allowed when there is a risk that English translation may introduce misunderstanding (especially government related topics, where official English translation for terms used does not exist).
- ▶ Q&A : **English has a priority**. Japanese questions are allowed, however in that case, the chair (or one of SOC members) will make a brief summary of the discussion afterward.