

# Collaboration Framework

Ikuru Iwata (Subaru Telescope)

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*Photo by Enrico Sacchetti*



# Outline

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- Instrument Development Collaboration
- Subaru Telescope Partnership
- Desirable Future Instrument Development for Subaru Telescope

# I. Instrument Development Collaboration

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## A. Hyper Suprime-Cam

- Japan (NAOJ, IPMU), Princeton, Taiwan (ASIAA)
- MOU between NAOJ and Princeton
- MOU between NINS and ASIAA

## B. Prime Focus Spectrograph

- International Collaboration Led by IPMU
- IPMU and collaborator institutes have agreements
- In both cases, collaborators gain access to Subaru Strategic Program using the instrument.
  - Joining science team to define science goals, survey designs
  - Data access rights

# I. Instrument Development Collaboration

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- One possibility is to form instrument development collaboration team similar to HSC.
  - NAOJ, ANU, ASIAA, NRC
  - NAOJ and collaborators will make MOUs, to define responsibilities and benefits.
  - Benefits will be:
    - To join science team for ULTIMATE-Subaru SSP
    - To have immediate access to the data from ULTIMATE-SSP
    - MOU would define number of researchers eligible to join the science team.

## 2. Subaru Telescope Partnership

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- Subaru Telescope is seeking for international partners who cooperatively operate the observatory.
- Current partnership framework:
  - Full partner: >\$2M/yr contribution, including in-kind contribution
    - Joins Subaru Telescope governance - the board and Science and Technology Committee (STC)
    - Shares telescope time - joins Time Allocation Committee (TAC)
    - 4 years term, renewable
  - Semi partner: \$500K-\$2M/yr contribution
    - Shares telescope time - joins TAC
    - 2 years term, not renewable beyond 4 years? (TBD)
  - Cash contribution is expected to be dominant.

## 2. Subaru Telescope Partnership

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- Subaru Telescope partners have immediate access to Subaru Telescope normal open-use time, and all instruments for open-use can be used.
- In-kind contribution:
  - Human resources for Subaru Telescope operations
  - Technical contributions to improvement of Subaru Telescope
    - Current scheme defines that new instrument development is not counted as in-kind contribution (in Subaru Telescope partnership) - based on discussion in Subaru UM FY2016 and partnership workshop in March 2017.
    - Is Adaptive Optics system an ‘instrument’ or part of the telescope?

## 2. Subaru Telescope Partnership

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- Partnership and SSP:
  - HSC and PFS have their collaboration policy. Access to SSP is the objective of the instrument development collaborators.
  - For HSC and PFS SSP, currently there is no way for Subaru Telescope partners to join their science collaborations
    - Partners can make observations with these instruments in normal open-use time.
  - For ULTIMATE-Subaru, framework of SSP is not yet determined. However, rules should change, considering the new international organization of the Subaru Telescope.
    - Not only the instrument development collaborators but also Subaru Telescope partners will have access to ULTIMATE-SSP.
    - There will be some regulations on the number of Japanese researchers who can join the ULTIMATE-SSP science team.

## cf. Institutional partners

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- Subaru Telescope is also thinking about defining ‘institutional partners’.
- The idea is to expand / modify current collaborative relationship with Princeton.
  - MOU with Princeton: Princeton will contribute to development of HSC in both cash and in-kind. Princeton and NAOJ will make ‘collaborative research projects’ - basically that means SSP.
- Institutional partners would have contributions less than \$500K/year (in addition to contribution to ULTIMATE-S development?).
- Institutional partners will have limited access to Subaru Telescope time - e.g., limited number of nights without engagement in TAC?



# Pros and Cons

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## 1. Instrument Development Collaboration

- No restriction in how to contribute; we can determine framework
- Will have access to ULTIMATE-SSP
- No access to Subaru Telescope time until ULTIMATE-S starts science observation.
- No access to other instruments

## 2. Subaru Telescope Partnership

- Immediate access to Subaru Telescope time
- Joins governance
- Cash contribution mandatory
- Contribution to instrument development is not counted as in-kind contribution (AO development would be OK)

# Desirable Future Instrument Development?

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- Below in my personal opinion:
  - Build Subaru Telescope Instrumentation Strategy.
  - Allocate instrument development budget in Subaru Telescope operations budget.
  - Call for proposals and selection process by community representatives.
  - Instrument collaborators' contributions should be regarded as contributions to Subaru Telescope.
  - Note: we have a separate framework of 'PI-type instruments'.