Science Policy

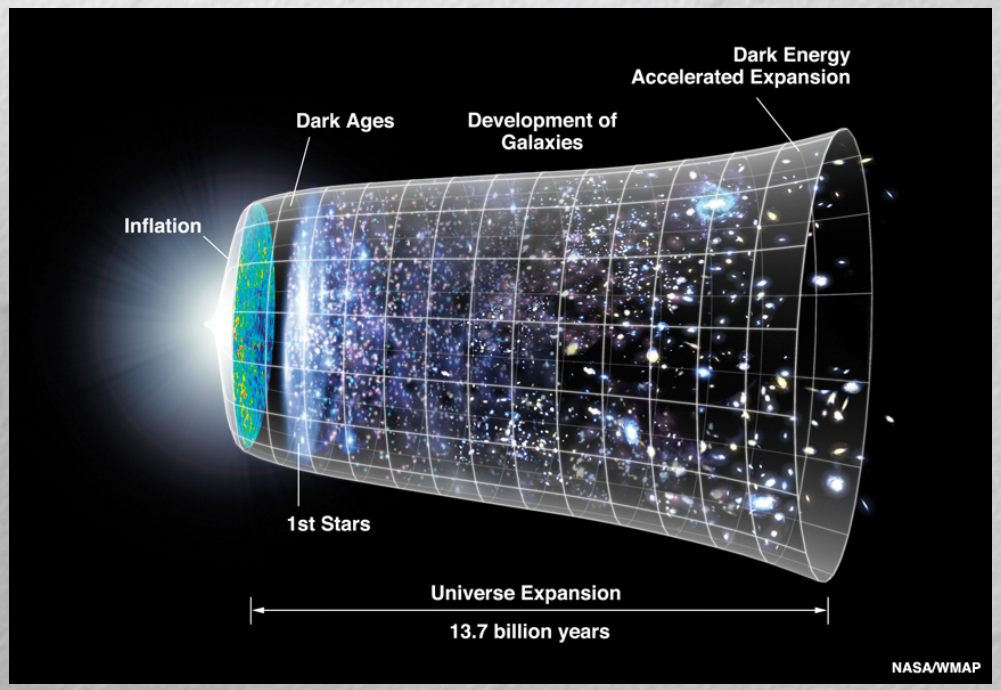
Neill Reid

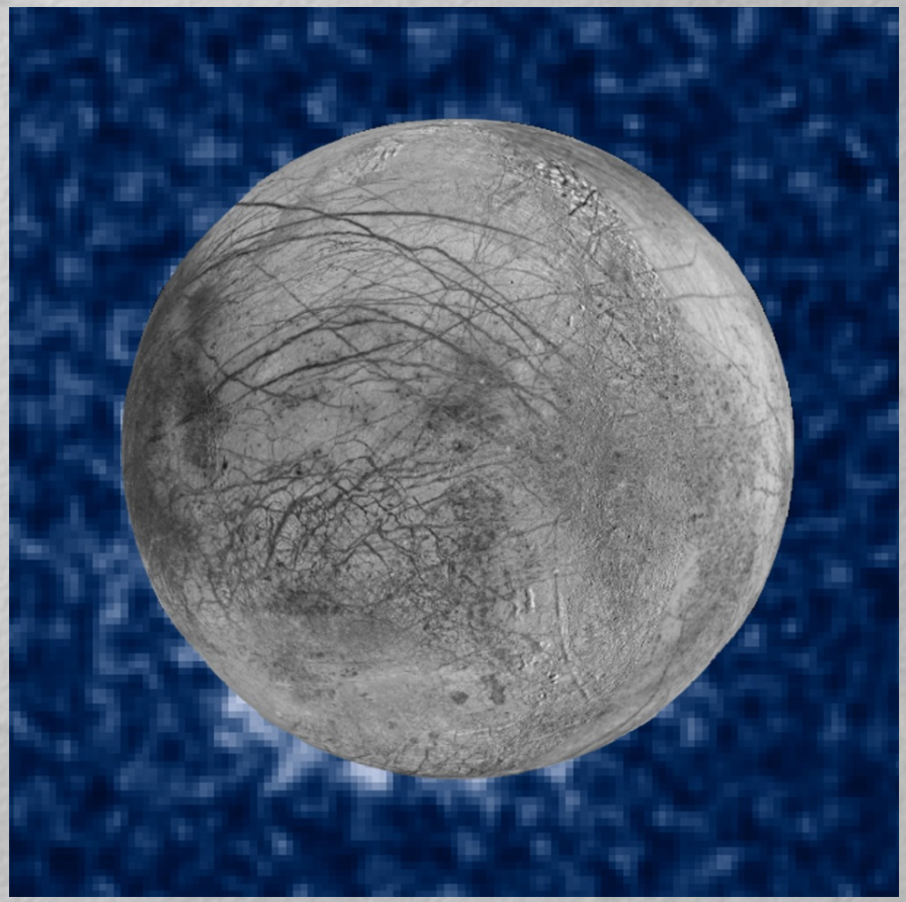
SMO

Outline

- Updates
  - Proposal demographics
  - Europa Advisory Committee
  - Fundamental Physics Advisory Committee
  - Joint programs
- Future planning
  - Program balance
  - Grant support

Updates


Dark Energy
Accelerated Expansion
Dark Ages
Development of
Galaxies
Inflation
1st Stars
Universe Expansion
13.7 billion years
NASA/WMAP

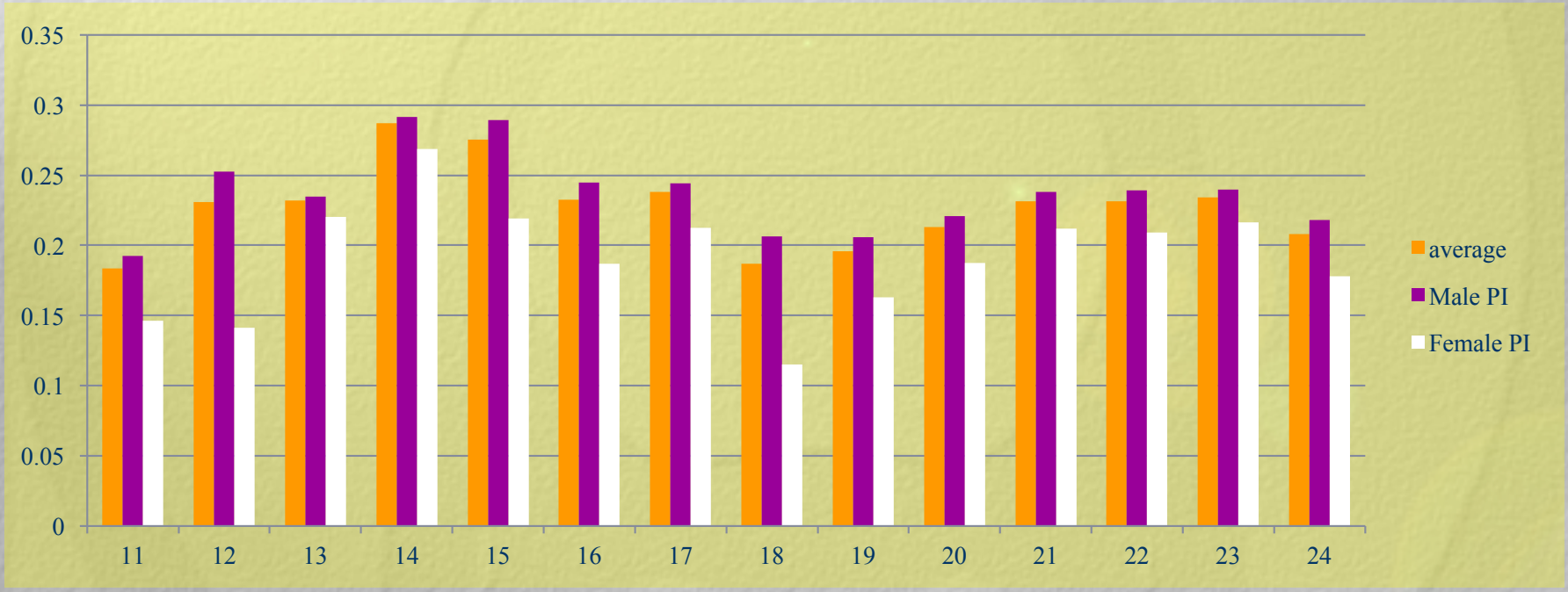


Proposal demographics

Over the past 5 years, we have briefed you on an apparent correlation between PI gender and proposal success rate

- Gender stats drawn publicly available sources
- Possible evidence that the offset is higher for more senior astronomers

Look at this as the canary in the coalmine…something that we can measure that might hint at underlying unconscious bias in the review



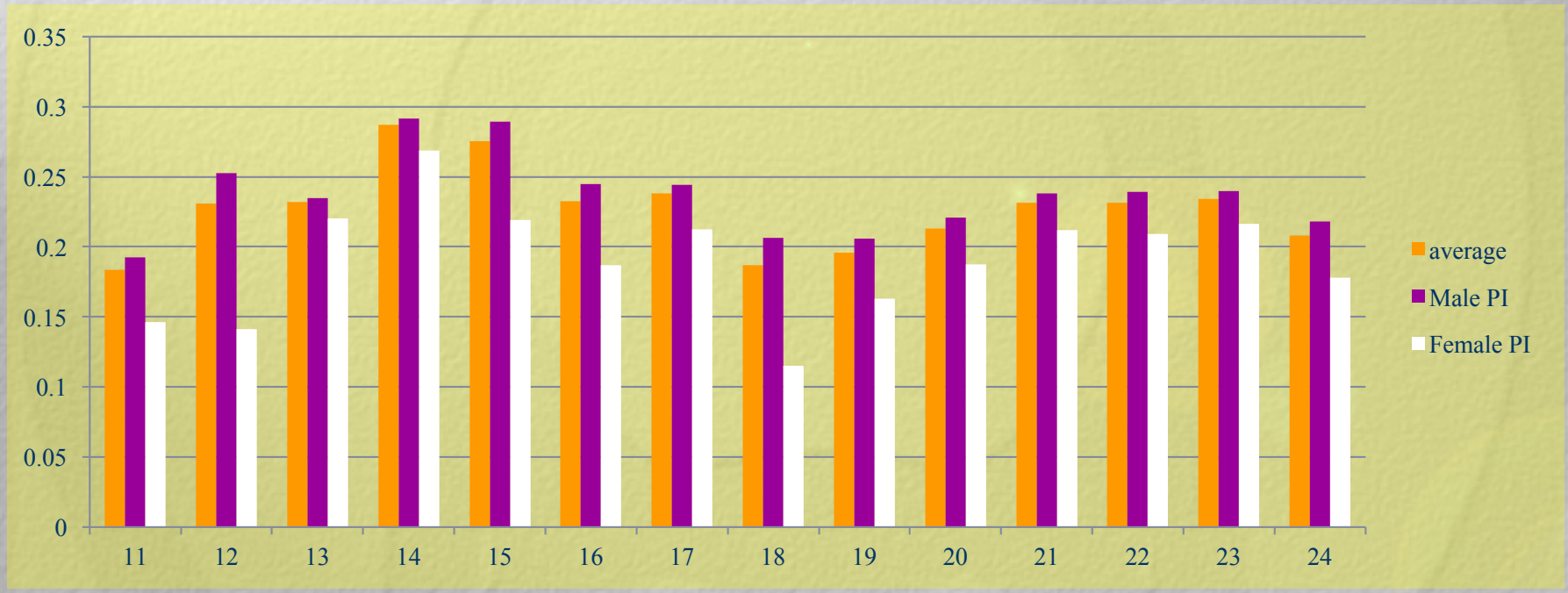
Proposal demographics

Over the past 5 years, we have briefed you on an apparent correlation between PI gender and proposal success rate.

We have adjusted the TAC process to

a) De-emphasise the focus on the PI

b) Increase the focus on assessing the written proposal against standard criteria



Next steps

Engaged Professor Stefanie Johnson (Leeds School of Business, University of Colorado) as an external consultant:

http://www.colorado.edu/business/stefanie-johnson

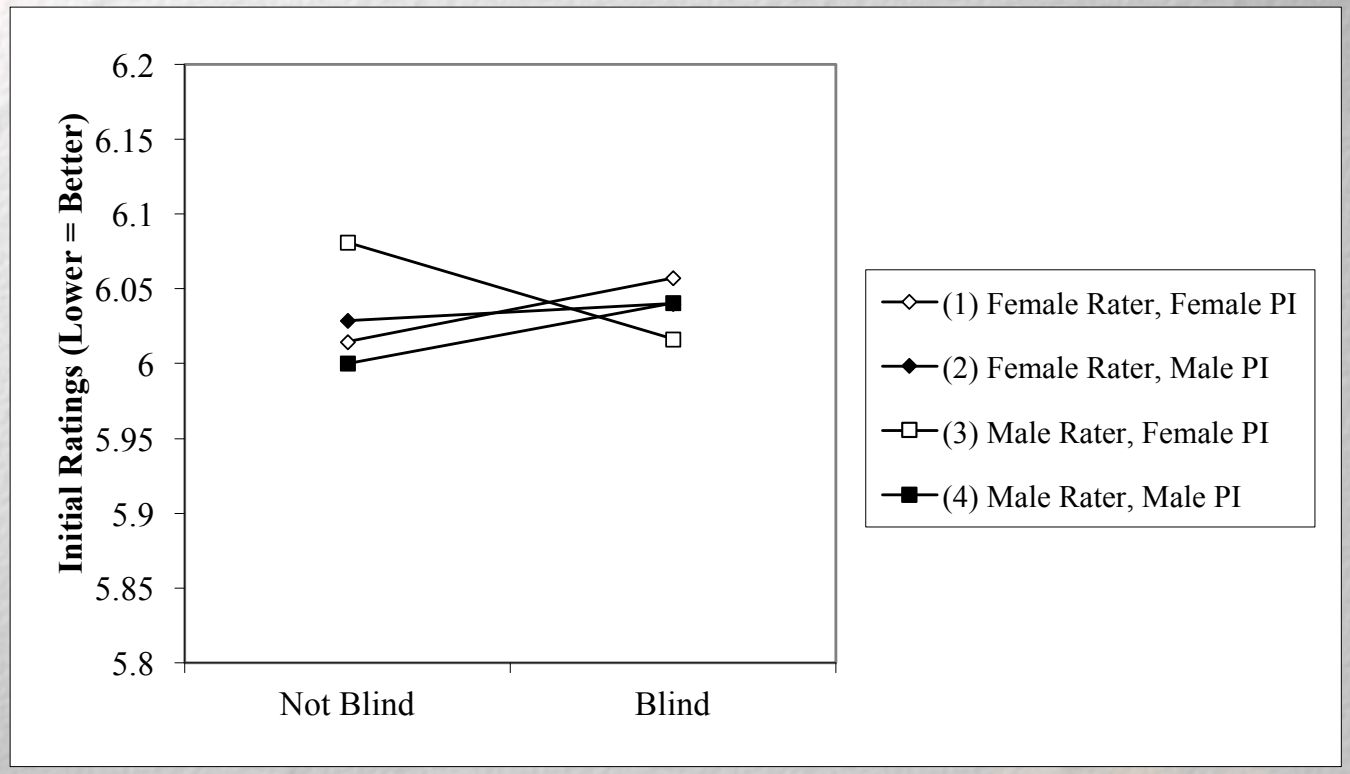
> "Dr. Stefanie K. Johnson is an assistant professor of management at the University of Colorado, Boulder's Leeds School of Business. She did her PhD at Rice University **and is particularly interested in the effects of unconscious biases in the evaluation of women and minorities with the goal of finding ways to mitigate those biases**. Stefanie has published 40 journal articles and book chapters in outlets such as Harvard Business Review and has presented her work at over 50 meetings around the world including at the White House for a 2016 summit on diversity in corporate America on National Equal Pay Day and the 2016 Harvard Negotiation and Leadership Conference."

She is working with a student to analyse anonymised data from the Cycle 21 and Cycle 24 TAC reviews:

- Individual preliminary grades and final grades
- Gender & Phd information for panelists
- Gender & Phd information for proposers

She will attend the Cycle 25 TAC as an observer, and will make a presentation at the opening orientation.

Initial results: preliminary grades

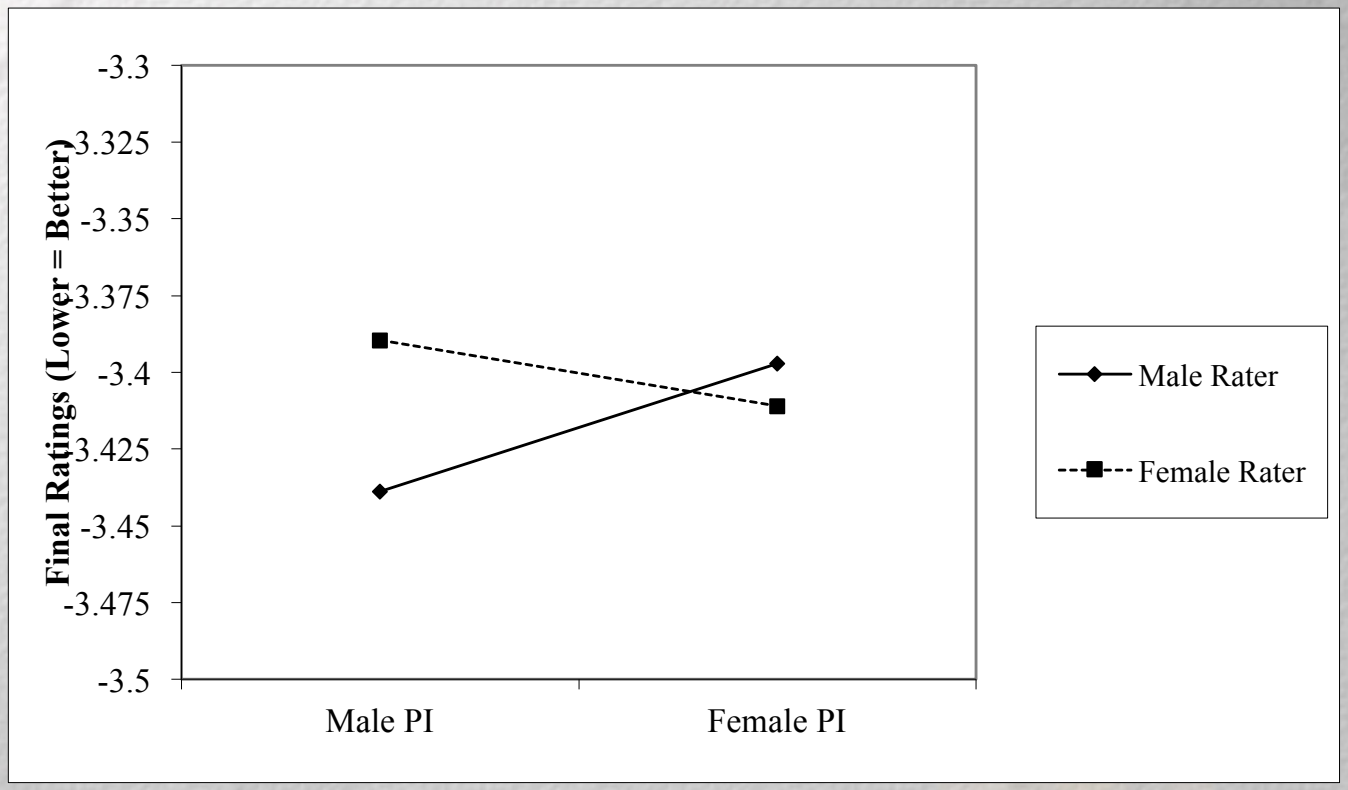


Cycle 21 (not blind) preliminary grades show evidence of bias

- Proposals led by female PIs were graded significantly more negatively by male reviewers than by female reviewers

That effect is not present in the "blind" Cycle 24 grades

Initial results: final grades



Evidence for bias in Cycle 24 final grades

- Statistically significant preference of male reviewers for proposals led by male PIs

Europa Advisory Committee

Europa is a key target for NASA Planetary missions

Observations with Hubble suggest the presence of outgassing from the subsurface oceans

- But activity appears to be sporadic and unpredictable

Chartered small advisory committee "to provide advice on how Hubble can best support planning for potential future missions."

Committee comprises

- John Clarke (Boston University), chair
- Amanda Hendrix (Planetary Science Institute)
- John Spencer (SouthWest Research Institute)

Europa Advisory Committee: actions & recommendations

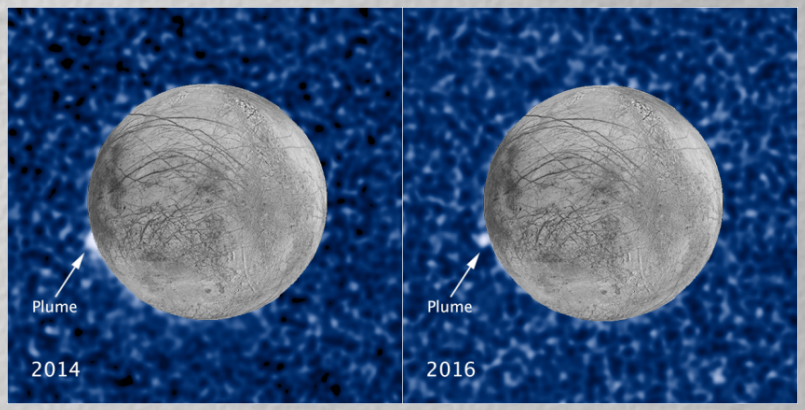
Committee solicited input from the community

- HST e-mail, articles in DPS and PEN newsletters

Submissions have been reviewed

Discussions with Europa mission

- Bob Pappalardo, JPL
- Curt Niebur, NASA HQ



Recommendations:

- A handful of DD orbits for observations during the current apparition to test specific observing modes
- Call for observing proposals from the community for the 2017/2018 Jovian apparition via the first Cycle 25 mid-cycle
  - Limit to 60-70 orbits

HST and Fundamental Physics

Hubble has made significant contributions to cosmology and fundamental physics

H_0, dark matter distribution, dark energy

STScI Director has constituted a working group to "explore the intersection between Hubble's capabilities and the scientific priorities in fundamental physics research and to provide advice on future strategies for implementing appropriate observing programs with HST"

Chair: Bhuvnesh Jain (U. Penn)

Members: Neal Dalal (U. Illinois), Cora Devorkin (Harvard), Jeremy Heyl (UBC), Marc Kamionkowski (JHU), Phil Marshall (Stanford), David Weinberg (OSU)

Working group has held several telecom discussions and is soliciting input from other members of the community on a number of topics. Report and recommendations due by early summer.

Joint programs

We have been exploring options for joint HST-ALMA programs

- Discussions led by Rachel Osten (HSTMO/Deputy Chair North America ALMA Science Advisory Committee)
- White paper produced for circulation to ASAC
- Ad hoc committee formed to discuss options
- Report to ASAC did not recommend implementing joint programs in Cycle 6, but look to implement a pilot program in ALMA Cycle 7

Future planning

HST in the JWST era

From 2018, STScI will be supporting community access to Hubble and the James Webb Space Telescope

- We need to consider how to optimise that support

Claus Leitherer has been tasked with developing a plan for the telescope time allocation process from Cycle 27 onwards

- He will be gathering both internal and external input

In that context, we would like input from the STUC on two questions:

1. What is the appropriate balance between large, medium and small proposals in the JWST era?
2. Should STScI reconsider the funding paradigm for HST proposals?

No changes are planned at present.

We introduce these topics as a preliminary to potential discussions at future STUC meetings

Program balance

The traditional Hubble GO allocation is

- ~1800-1900 orbits for small programs (~210 programs)
- ~650 orbits for medium programs (~15 programs)
- ~1100 orbits for large & treasury programs (~10 programs)

HST will devote resources to support JWST observations

- The mechanism for assigning those resources has not yet been decided

Does the STUC have suggestions/opinions on the program size balance for the residual (non-JWST) orbits?

Grant Funding

The funding for HST proposals is assessed by the Financial Review Committee (FRC)

- FRC recommendations are set to support the work required to achieve the science goals outlined in the proposal

Funding has been strong in recent years, and the aim is to maintain robust support. At some point, the recommended funding may exceed the available budget

- In past occasions, STScI has adjusted funding on a case by case basis, generally cutting most programs. So far those cuts are limited (~5%). That might change.

Is there a general strategy that would be worth exploring if we are faced with larger cuts?

- Always maintaining the ability to fine tune any adjustments.

Summary

- Demographics
  - Independent analysis suggests that “blinding” proposals has reduced bias in the preliminary grades
  - Bias may still be present in the panel discussions
- Working groups
  - Europa committee has recommended modest support for further observations
  - Fundamental Physics working group is continuing ongoing discussions
- Joint programs
  - ALMA does not want to pursue joint HST-ALMA programs
- HST in the JWST era
  - Science policies group is considering the TAC process for Cycle 27 et seq.
  - STUC input is invited regarding the program size balance and funding prioritisation in future cycles