

National Aeronautics and
Space Administration



EXPLORE

SOLAR SYSTEM & BEYOND

**Dual-Anonymous Peer Review Town Hall
for Planetary and Exoplanets Research Programs**

Delia Santiago-Materese (DAPR PSD Lead)
April 28, 2021, 3:00-4:00 PM ET

Please submit any questions you have during this presentation via the following link:

<https://arc.cnf.io/sessions/tgwj>

You may also upvote questions already posted.

Overview of Dual-Anonymous Peer Review (DAPR)

<https://science.nasa.gov/researchers/dual-anonymous-peer-review>

Goal: Reduce implicit (unconscious) bias in the evaluation of the intrinsic / scientific merit of proposals.

Approach: In addition to the proposers being unaware of the review panel member identities, the reviewers are now also not told the identities of the proposers until after the evaluation of intrinsic / scientific merit.

Process for Proposers:

- Proposals are written to exclude any personally or organizationally identifying information of the proposers.
- Proposers must upload a separate "Expertise and Resources - Not Anonymized" document, which contains all of the personally or organizationally identifying information.

Process for Reviewers:

- Reviewers evaluate intrinsic / scientific merit of anonymized proposals without knowing proposing team qualifications.
- After the scientific evaluation is finalized for all proposals, panels review "Expertise and Resources - Not Anonymized" documents to assess whether qualifications / capabilities of team are sufficient to successfully execute proposed work.

Overview



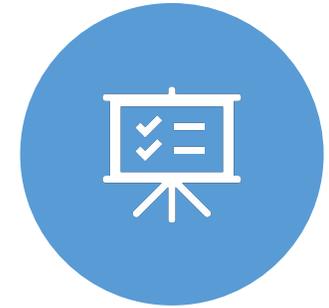
WHICH PROGRAMS
ARE CONVERTING TO
DUAL-ANONYMOUS
PEER REVIEW?



WHAT IS
DUAL-ANONYMOUS
PEER REVIEW?



HOW DO I MAKE MY
PROPOSAL
COMPLIANT?



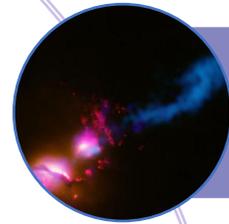
HOW IS MY PROPOSAL
GOING TO BE
REVIEWED?



Which Programs Are Converting to Dual-Anonymous Peer Review?



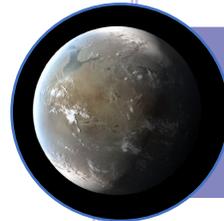
*Precursor: Hubble Space Telescope reviews by
the Space Telescope Science Institute starting in 2018*



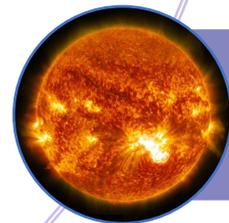
Astrophysics Data Analysis (ADAP)



Earth Science US Participating Investigator



Habitable Worlds



Heliophysics Guest Investigator

ROSES-20 Pilot



Chandra
Dual-anonymous in 2021
(separately solicited)



NuSTAR
Dual-anonymous
in ROSES-19



Webb
Dual-anonymous in 2020
(separately solicited)



Swift
Dual-anonymous
in ROSES-20



NICER
Dual-anonymous
in ROSES-20



Fermi
Dual-anonymous in
ROSES-20



TESS
Dual-anonymous
in ROSES-20



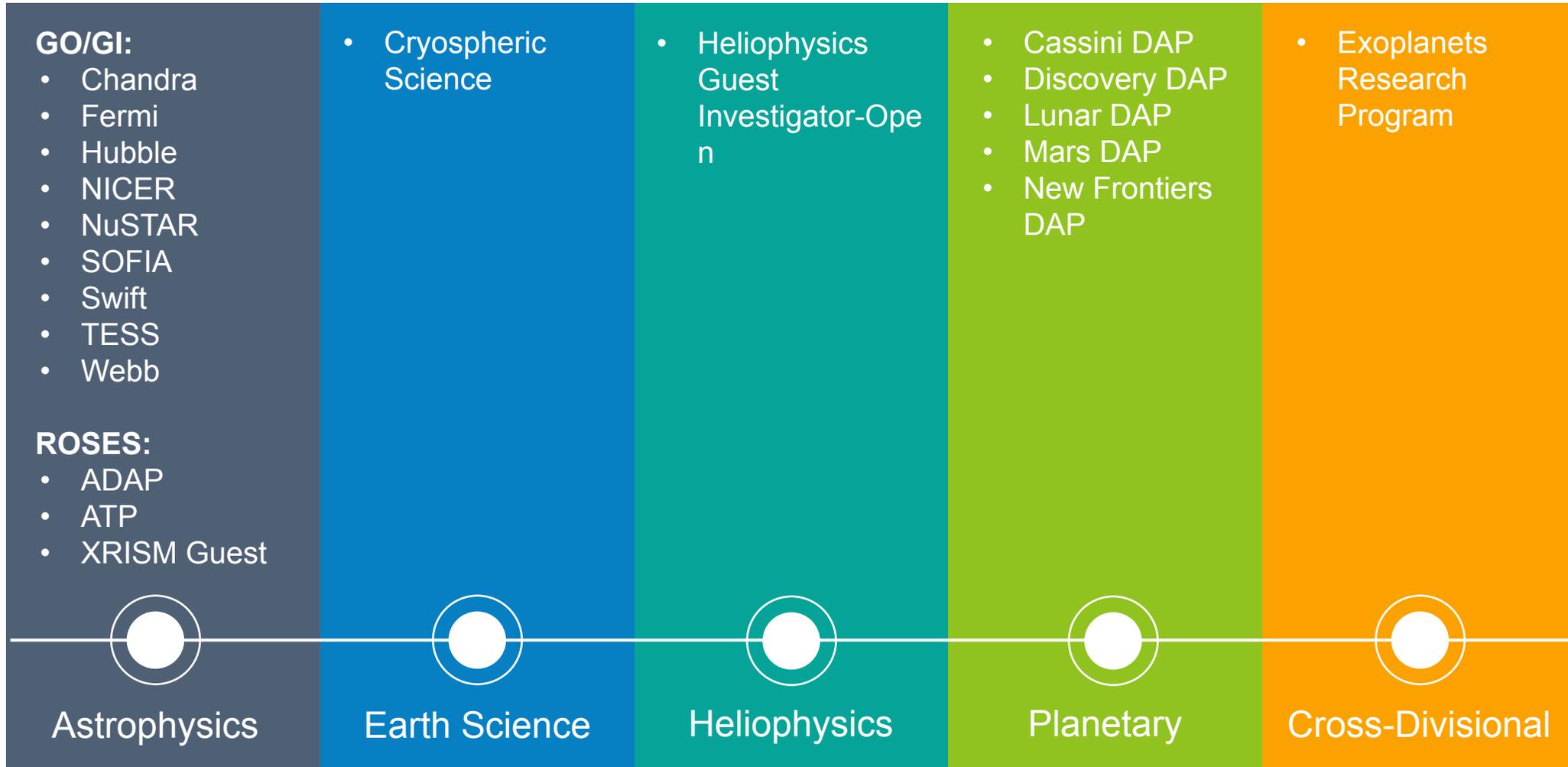
SOFIA
Dual-anonymous in 2020
(separately solicited)



Hubble
Dual-anonymous
already underway
(separately solicited)

Astrophysics GO/GI Programs are permanently converting to dual-anonymous peer review

2021 Dual-Anonymous Programs



DAPR: What PSD programs?

Habitable Worlds in ROSES-20 (Lindsay Hays & Becky McCauley-Rench)

- Proposals have been submitted and the review process is underway.
- Several proposals returned without review because of egregious DAPR rule violations.
- Many other non-compliances observed; PIs will be ‘warned’ this year.
- Most common issues:
 - Failure to follow the reference numbering scheme laid out for DAPR
 - Accidental inclusion of names (inconsistently): (e.g. in one place in the proposal, it says “Co-I XX”, while elsewhere it says “A co-I” or similar)

All PSD Data Analysis Programs (DAPs) in ROSES-21

Cassini DAP
Henry Throop

Discovery DAP
Doris Daou

Lunar DAP
Shoshana Weider

Mars DAP
Mitch Schulte/
Adrian Brown

New Frontiers DAP
Henry Throop

Cross-divisional Exoplanets Research Program (XRP) in ROSES-21

Megan Ansdell (PSD)
Galen Fowler (HSD)

Hannah Jang-Condell (APD)
Richard Eckman (ESD)



Motivation



Double-Blind, aka Dual-Anonymous Review



“In 1970, the top five orchestras in the U.S. had fewer than 5% women. Today, some... are well into the 30s.”

Behavioral Ecology switched to double blind review, resulting in a significant increase in female first-authored publications



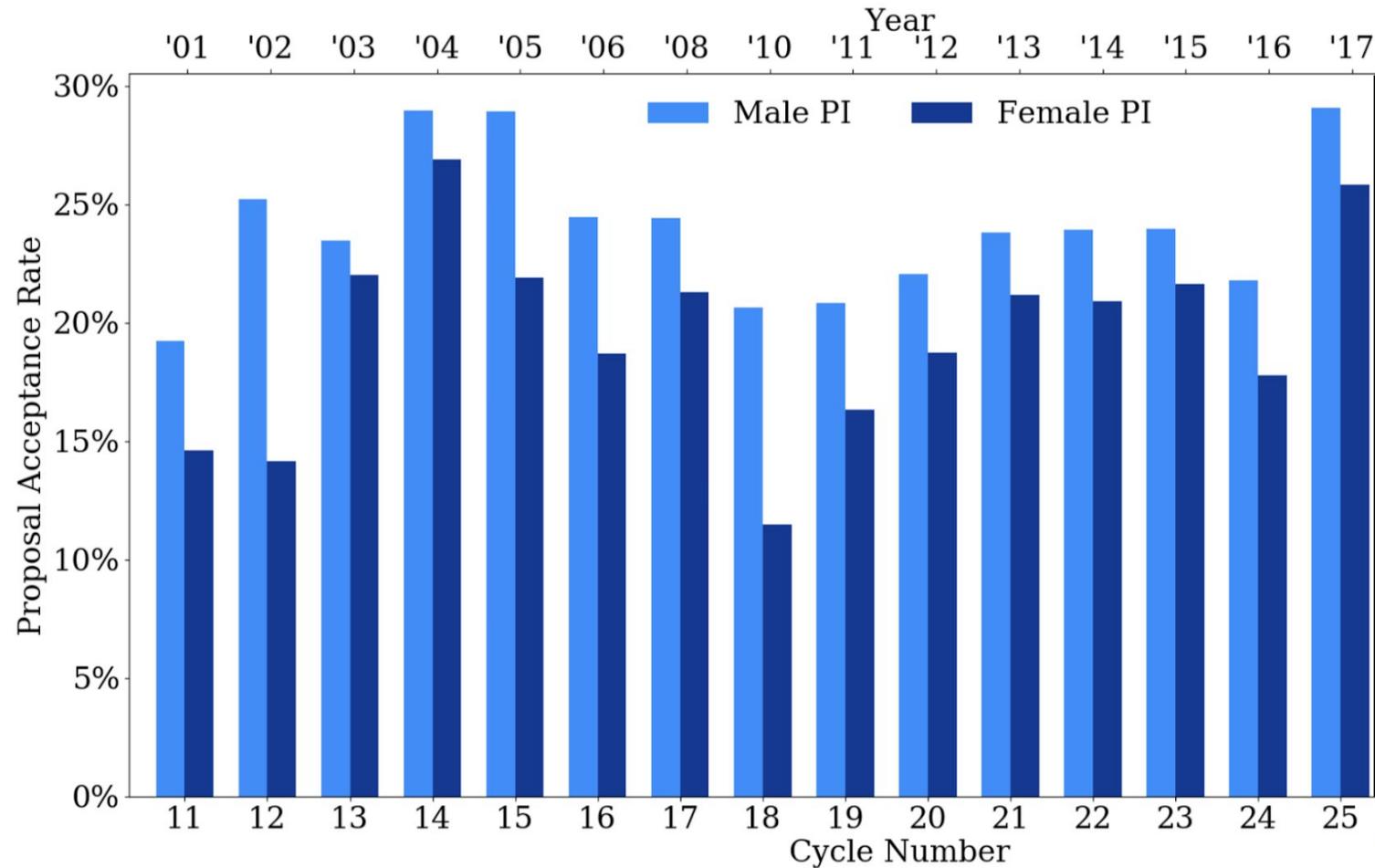
1. It is difficult to completely interrupt implicit bias through training.

2. Structural changes are also needed.

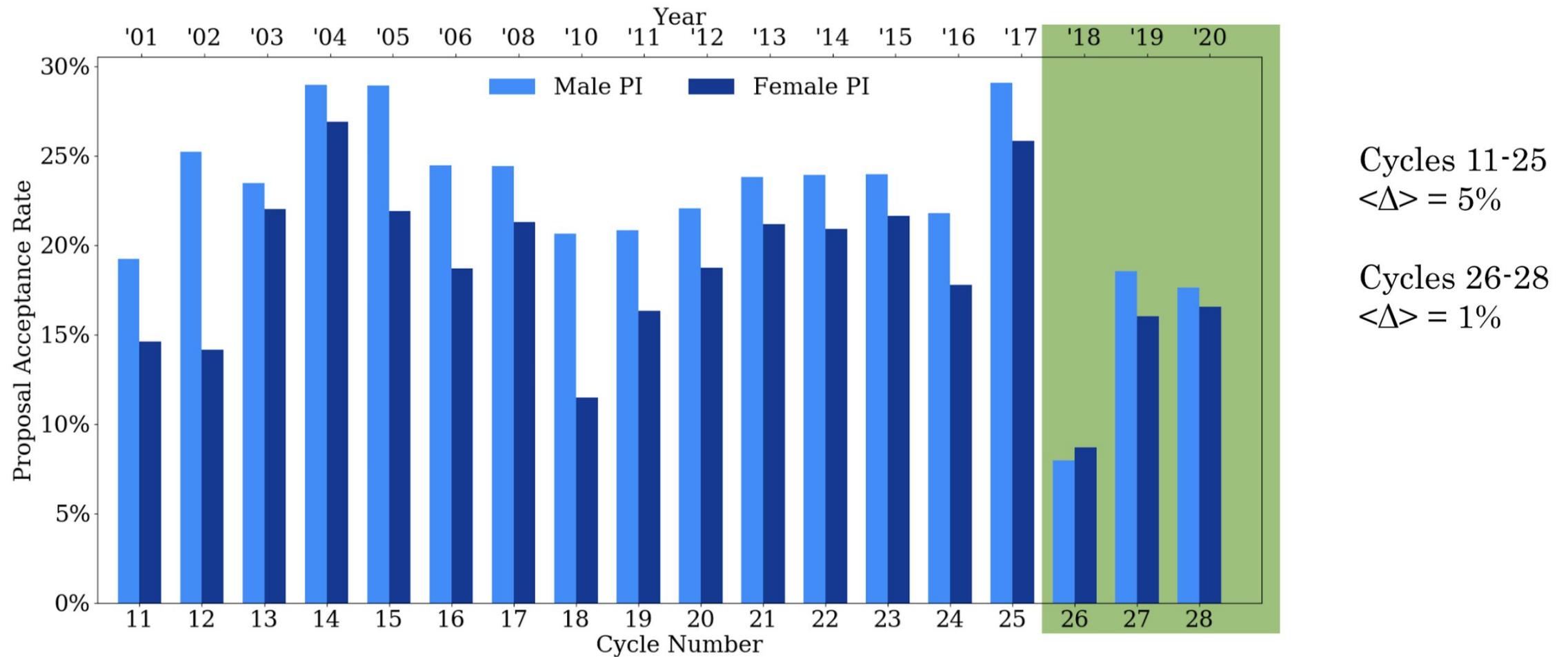


Thanks to the Hubble Space Telescope team for pioneering dual-anonymous peer review

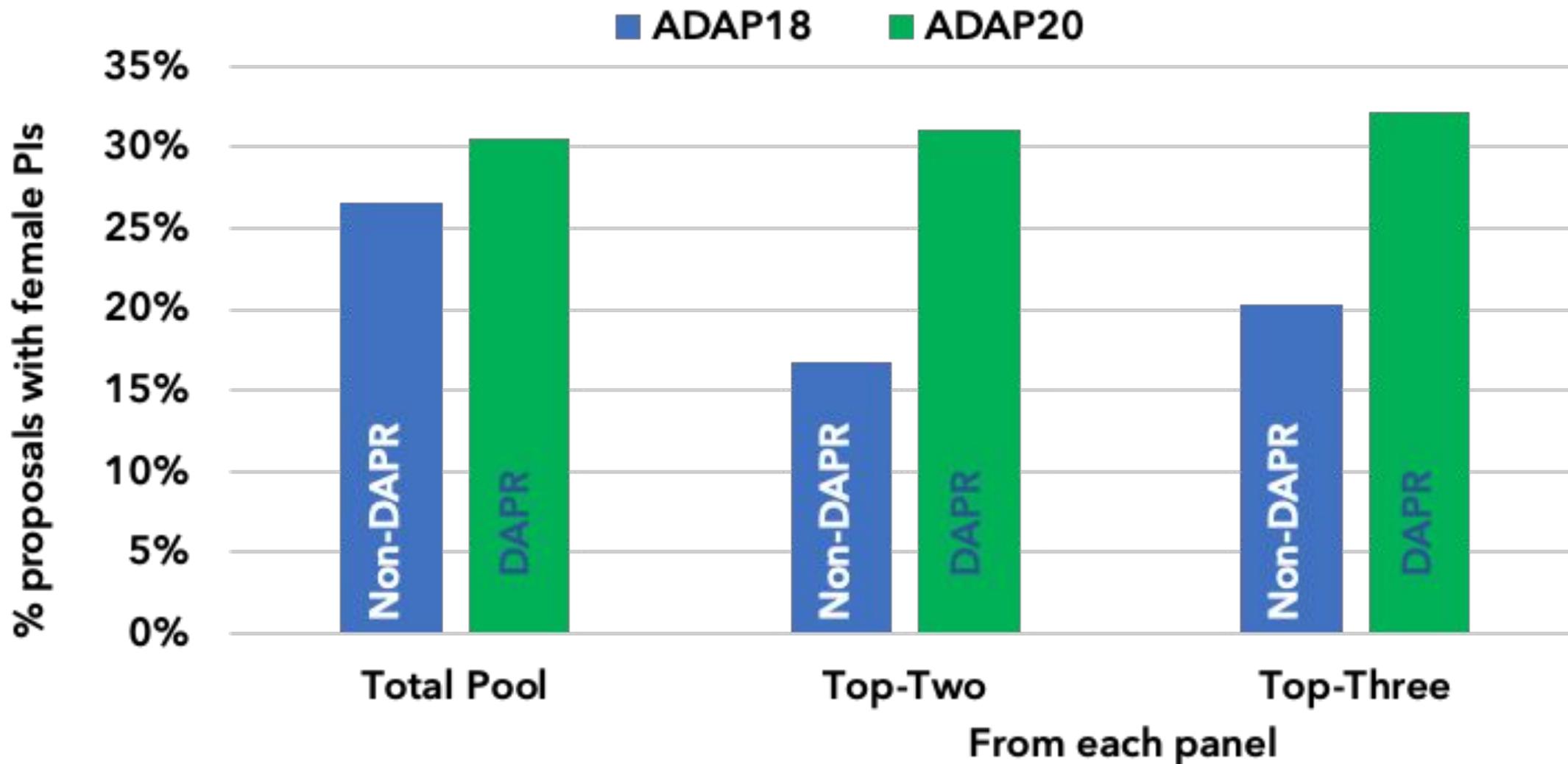
Hubble Switch to Dual-Anonymous



Hubble Switch to Dual-Anonymous



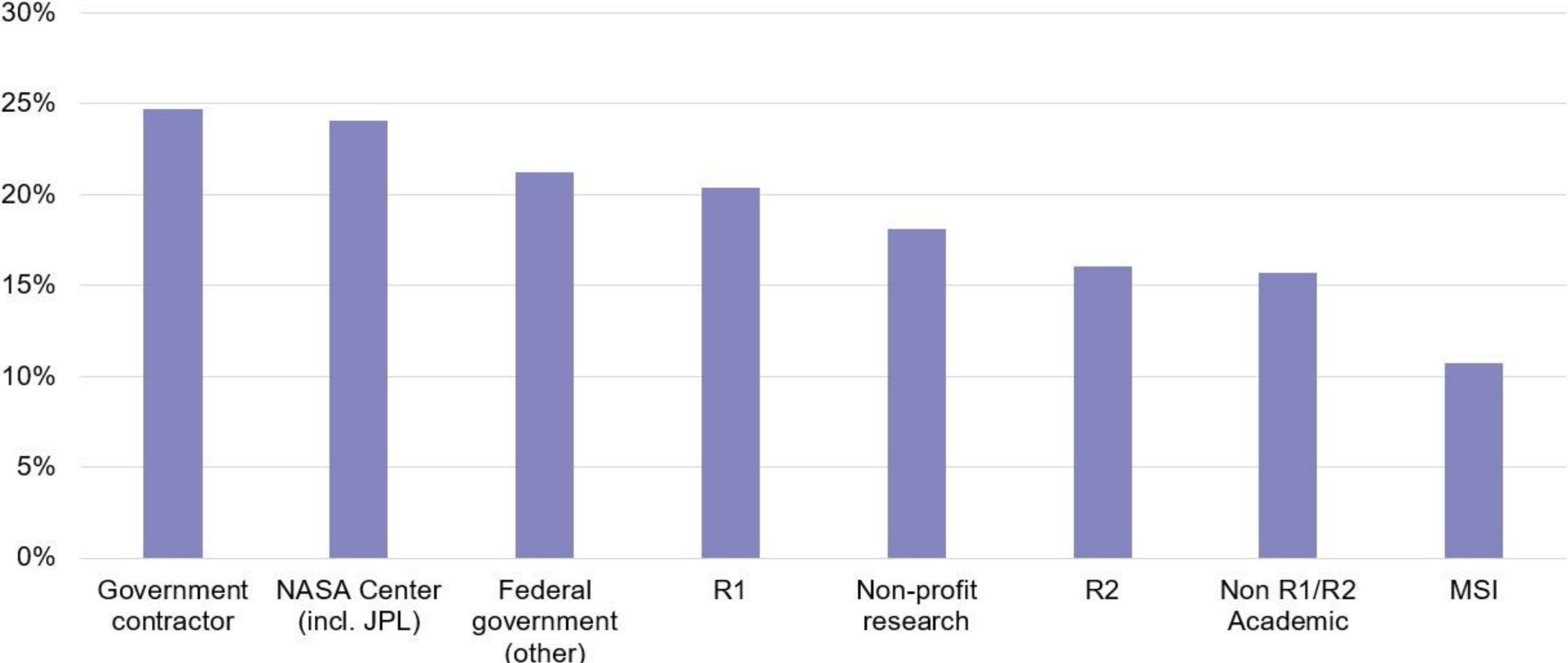
Recent Astrophysics Data Analysis Program (ADAP) Results



Gender



Success Rate by Institution Type for ROSES Programs in SMD Pilot (ADAP + Earth USPI + Habitable Worlds + Heliophysics Guest Investigator)



A key goal of dual-anonymous peer review is to level the playing field for everyone.

What is Dual-Anonymous Peer Review (DAPR)?

In dual-anonymous peer review, not only are proposers unaware of the identity of the members on the review panel, but the reviewers do not have explicit knowledge of the identities of the proposing team during the scientific evaluation of the proposal.

- The primary intent of dual-anonymous peer review is to eliminate “the team” as a topic during the scientific evaluation of a proposal, not to make it absolutely impossible to guess who might be on that team.
- We want to create a change in the tenor of discussions, away from the individuals on the proposing team, and toward the proposed science.



Dual-anonymous peer review is not completely a ‘blind’ process.

Proposers submit (1) an anonymized proposal, and (2) a not-anonymized “Expertise and Resource” document.

The “merit” of the proposal (assessed anonymously) will be determined separately from the (not-anonymized) qualifications of the team.

Nevertheless, the qualifications, track record, and access to unique facilities will form part of the evaluation.

Feedback from Hubble Panelists

- Proposal discussions were characterized as more collegial and efficient
- Focus was squarely on the science rather than the scientists
 - *“There was a noticeable shift in the depth of discussions as well. It was clear that reviewers had read the proposals very diligently, and that without the distraction of names and institutions, there was no recourse but to focus on the proposed science.”* (P. Natarajan, chair of the Cycle 26 TAC)
- *“Discussions at both the panel level and TAC level focused predominantly on whether the science was novel, impactful, and feasible with HST, and not on whether the proposers had the expertise to carry out the proposals.”*
- *“Several TAC members noted that they felt that the discussions at both the panel and TAC level seemed more collegial and less emotionally charged than previous TACs, perhaps because either positive or negative feelings about the people involved in the proposal were largely removed.”* (R. Somerville, chair of the Cycle 27 TAC)



How Do I Make My Proposal Compliant With Dual-Anonymous Peer Review?



**Step-1 is NOT anonymized
(submit per normal requirements).**

**Step-2 IS anonymized,
per the guidance that follows.**

Detailed Guidance



The program element text contains specific instructions on how to prepare an anonymized proposal for that program. In addition, the NSPIRES page of each program element contains a document entitled “*Guidelines for Anonymous Proposals*” describes in detail the specific requirements of anonymous proposals.



A quick-start tutorial, as well as frequently asked questions, may be found at:

<https://science.nasa.gov/researchers/dual-anonymous-peer-review>

Submission of Anonymized Proposals



Exclude names and affiliations of the proposing team, including in figures and references to personal websites.



Do not claim ownership of past work, e.g., “my previously funded work...” or “our analysis shown in Baker et al. 2012...”



Cite references in the passive third person, e.g., “Prior analysis [1] indicates that ...”.



Do describe the work proposed, e.g., “We propose to do the following...” or “We will measure the effects of...”



Include a separate not-anonymized “Expertise and Resources” document (details later on).

How Do I Reference Unpublished Work or Proprietary Results?



It may be occasionally important to cite exclusive access datasets, non-public software, unpublished data, or findings that have been presented in public before but are not citeable



Each of these may reveal (or strongly imply) the investigators on the proposal



In these instances, proposers must use language such “obtained in private communication” or “from private consultation” when referring to such potentially identifying work



Recall that the goal of dual-anonymous is to shift the tenor of the discussion, not to make it absolutely impossible to guess the team members

Institutional Access to Unique Resources

Another common situation that occurs in proposals is when a team member has institutional access to unique facilities (e.g., an observatory or laboratory) that are required to accomplish the proposed work. An anonymized proposal does not prohibit stating this fact in the Scientific/Technical/Management section of the proposal; however, the proposal must be written in a way that does not identify the team member. Here is an example:

“The team has access to an UltraTM High Resolution IRMS (isotope ratio mass spectrometry) machine, which will enable the required gas isotope measurements.”

Note: in this situation, NASA recommends that the team provide detailed supporting information to validate the claim in the “Expertise and Resources – Not Anonymized” document (see later).

Example of Anonymization

In Rogers et al. (2014), we concluded that the best explanation for the dynamics of the shockwave and the spectra from both the forward-shocked ISM and the reverse-shocked ejecta is that a Type Ia supernova exploded into a preexisting wind-blown cavity. This object is the only known example of such a phenomenon, and it thus provides a unique opportunity to illuminate the nature of Type Ia supernovae and the progenitors. If our model from Rogers et al. (2014) is correct, then the single-degenerate channel for SNe Ia production must exist. We propose here for a second epoch of observations which we will compare with our first epoch obtained in 2007 to measure the proper motion of the shock wave.

Here is the same text, again re-worked following the anonymizing guidelines:

Prior work [12] concluded that the best explanation for the dynamics of the shockwave and the spectra from both the forward-shocked ISM and the reverse-shocked ejecta is that a Type Ia supernova exploded into a preexisting wind-blown cavity. This object is the only known example of such a phenomenon, and it thus provides a unique opportunity to illuminate the nature of Type Ia supernovae and the progenitors. If the model from [12] is correct, then the single-degenerate channel for SNe Ia production must exist. We propose here for a second epoch of observations which we will compare with a first epoch obtained in 2007 to measure the proper motion of the shock wave.

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Remember:

If you are re-submitting a proposal or reusing text from a previous proposal, make sure to check that you:

- Do not claim ownership of past work
- Do not include the names of the personnel associated with the proposal or their organizational affiliations
- Write references in the form of a number in a square bracket, e.g. [1], which will then correspond to the full citation in the reference list
- Use third person neutral wording when citing references
- More information at:
<https://science.nasa.gov/researchers/dual-anonymous-peer-review>

“But... how is the capability of the team to execute the investigation taken into account?”

One Addition: Expertise and Resources Document

Proposers are also required to upload a separate “Expertise and Resources – Not Anonymized” document, which is not anonymized. It will be distributed to panelists for a subset of proposals (typically the top third, according to the distribution of assigned grades and the projected selection rates.)

The document must contain the following elements:

1. A list of all team members, together with their roles (e.g., PI, Co-I, collaborator).
2. Brief descriptions of the scientific and technical expertise each team member brings, emphasizing the experiences necessary to be successful in executing the proposed work.
3. A discussion of the contribution that each team member will make to the proposed investigation.
4. A discussion of specific resources (“Facilities and Equipment”, e.g., access to a laboratory, observatory, specific instrumentation, or specific samples or sites) that are required to perform the proposed investigation.
5. A summary of work effort, to include the non-anonymized table of work effort. Given that the program element requires an anonymized version of this table in the main proposal body, the table here should be identical, but with the roles now also identified with names (e.g., Sandra Cauffman – PI; Nicky Fox – Co-I-1; Lori Glaze – Co-I-2).
6. Bio sketches, if required by the solicitation (limit 2 pages for the PI, 1 page for each Co-I).
7. Statements of Current and Pending support, if required by the solicitation.
8. Letters of resource support, if required by the solicitation.

The “Guidelines for Anonymous Proposals” document includes an example.



How Will My Proposal Be Reviewed?



Flow of the Review



The anonymized scientific review takes place. All assessments are complete, grades finalized, and panel summaries written.



The “Expertise and Resources – Not Anonymized” document is distributed to panelists for a subset of proposals. Panelists assess the team and resource capability to execute the proposed investigation.

Instructions to Panelists

1. Consider proposals solely on the scientific merit of what's proposed.
2. Do not spend any time attempting to identify the PI or the team. Even if you think you know, discuss the science and not the people.
 - NASA-appointed Levelers are present in each panel room to ensure this doesn't happen.
3. Keep in mind that language can be very important in discussing proposals. Utilize the appropriately neutral pronouns (e.g., “what they propose”, or “the team has evaluated data”).

Monitoring the Panel Discussion

- NASA-appointed Levelers are present in every panel in addition to panel support staff
- Their role is to ensure that the panel discussions focus on scientific merit. Unlike the chairs, they are not listening for issues pertaining to the science, rather they are focused on the discussion itself.
- If the discussion veers to comments on the proposing team, their past work, their validity, or their identities, the leveler's job is to refocus that discussion.
- Levelers have the authority to stop the discussion on a proposal.

Discussion of “Expertise and Resources - Not Anonymized” Document

1. Scientific evaluation of the all proposals is completed.
2. The “Expertise and Resources – Not Anonymized” document is distributed to panelists for a subset of proposals (typically the top third, according to the distribution of assigned grades and the projected selection rates.)
3. Panelists assess team capability to execute proposed investigation using a three-point scale, e.g.:

Vote	Overall Team and Resources Capability	
	Uniquely qualified	The E&R document demonstrates that the team is exceptionally capable of executing the proposed work, <u>and has singular access to resources upon which the success of the investigation critically depends.</u> Appropriate allocations of team members’ time are included. A comment from the panel must be written that clearly justifies the choice of this grade.
	Qualified	The team has appropriate and complete expertise to perform the work, and appropriate allocations of their time are included. Any facilities, equipment and other resources needed are available to execute the work. <u>NASA sets the expectation that the vast majority of proposals will fall into this category.</u>
	Not qualified	The E&R document demonstrates severe deficiencies in the necessary expertise and/or resources to execute the proposed investigation. A comment from the panel must be written that clearly justifies the choice of this grade.

Discussion of “Expertise and Resources - Not Anonymized” Document

1. The assessment of the "Expertise and Resources" document must be based on what's written in the text.
2. In other words, do not say "Oh, [first name] is clearly qualified".

Return without Review for Non-Anonymized Proposals

NASA understands that dual-anonymous peer review represents a major shift in the evaluation of proposals, and as such there may be occasional slips in writing anonymized proposals. However, NASA reserves the right to return without review proposals that are particularly egregious in terms of the identification of the proposing team.

NASA further acknowledges that some proposed work may be so specialized that, despite attempts to anonymize the proposal, the identities of the Principal Investigator and team members are readily discernible. As long as the guidelines are followed, NASA will not return these proposals without review.



DAPR Review Experiences To Date



DAPR Experience So Far

- Only three egregious violations of anonymization guidelines, which resulted in the proposal being returned without review.
- Common (minor) pitfalls we see in proposals about 10-15% of the time:
 1. Claiming ownership of past work (e.g., "our previous analysis", "PI has an established record").
 2. Including metadata (e.g., PDF bookmarks) that reveal the name of the PI.
 3. Recycling proposals prepared prior to dual-anonymous peer review and not carefully anonymizing the text.
 4. Providing the names of investigators on the contents page.
 5. Providing the origin of travel for professional travel (e.g., conferences).
 6. Mentioning the institution name in the Budget Narrative.
 7. Including the PI or co-I names in budget tables.

From the panelists:

- Reviewer surveys indicate that DAPR discussions are more focused on the science content than non-DAPR reviews.
- Overwhelming support from reviewers to continue DAPR in future reviews.



Answers to Submitted Questions



Question: *Why did the Planetary Science Division not go with “Open” peer view?*

Answer:

→ The goal of Dual-anonymous Peer Review is to reduce implicit bias, which requires removing the identity of the proposer from consideration when evaluating the intrinsic merit of a proposal. While “Open” peer review may be useful to address other concerns or goals, it is not directly designed to address issues of implicit bias.

NASA’s implementation of DAPR is based off of the Hubble Space Telescope’s process, which suggested that by removing the identification of the proposer, inferred female PIs were selected at a rate more on par with their submission rates than in previous years.

Question: How does the dual anonymous process work with continuation proposals?

Answer:

→ From The *Guidebook for Proposers*:

2.5. Renewal Proposals

Recipients of existing awards are permitted to submit "renewal proposals" to continue an ongoing research or work effort to its next logical step in response to NOFOs that include the same NASA program objectives. However, to ensure equitable treatment of all submitted proposals, NASA does not extend any special consideration or preference to such renewal proposals. Therefore, NASA will consider all proposals received in response to a NOFO as new proposals and will review them impartially.

Proposals submitted under a DAPR program are, like with other programs, reviewed as new proposals and reviewed as such. Therefore, they should not refer to the previously funded work in the anonymized portion of the proposal. They can refer to previous work in the "Expertise & Resources – Not Anonymized" document.

Question: *How do we refer to relevant previous work without outing ourselves?*

Answer:

→ You are free to refer to the work itself, you just cannot claim ownership of it and should discuss it without attribution, using the appropriate reference style.

For unpublished previous work, NASA recommends writing “previous work” instead of “our previous work”; or using “obtained in private communication”.

Question: *How we describe the use of analytical labs to be sure the reviewers don't figure it out ...[where]...the work will be done?*

&

Dual anonymous makes sense when everyone is proposing to use the same equipment. How can it work in an open proposal call?

Answer:

- The anonymized proposal has no prohibition on discussing these aspects, merely that they be discussed without attribution to a particular investigator or group.
- The proposal can refer to having access to specialized equipment/ instrumentation/ facilities.
- If specific instrumentation/ technical capabilities are required, the panel will flag that and will be able to verify this when they consult the “Expertise and Resources – Not Anonymized” document.
- The panel will perform a full analysis of the “Expertise and Resources – Not Anonymized” document and vote on using a three-point scale (uniquely qualified; qualified; not qualified).
- Remember that the goal of dual-anonymous peer review is to not make it completely impossible to guess the identities of the investigators, but to shift the focus of the discussion away from the individuals and toward the proposed science.

Question: *A scientist's track record is an excellent indicator of future research output. Shouldn't this be part of the evaluation?*

Answer:

- Proposers should be able to make their case through their description of their proposed work that they have the necessary skills to achieve success.
- The track records of the proposing team will be addressed in the “Expertise and Resources – Not Anonymized” document and voted on using a three-point scale (uniquely qualified; qualified; not qualified).
- Again, remember that the goal of dual-anonymous peer review is to not make it completely impossible to guess the identities of the investigators, but to shift the focus of the discussion away from the individuals and toward the proposed science.

Question: *How do we evaluate a proposal without knowing a proposer's track history? (paraphrase)*

Answer:

→ Past programs have evaluated proposers purely on their track record, but that is not currently the case.

→ To date, no highly rated proposals have been submitted by a team where they were not deemed at minimum "Qualified" during the "Expertise & Resources – Not Anonymized" document reveal. This is out of over 500 proposals submitted to NASA SMD.

Question: *How should we handle proprietary/restricted access resources? The example given in the DAPR guide was not very convincing ("obtained in private communication" or "from private consultation")*

Answer:

- Please use the guidance given, and the panel will flag that and will be able to verify this when they consult the "Expertise and Resources – Not Anonymized" document.
- Remember that the goal of dual-anonymous peer review is to not make it completely impossible to guess the identities of the investigators, but to shift the focus of the discussion away from the individuals and toward the proposed science.
- If proposers follow DAPR guidelines, their proposal will not be returned without review.

Question: *If we are seeking to fund/use a specific observatory (where the set of PI/s are known) can we no longer reference that observatory?*

Answer:

→ An anonymized proposal does not prohibit stating this fact in the Scientific/Technical/Management section of the proposal; however, the proposal must be written in a way that does not identify the team member. *Here is an example:*

“The team has access to telescope time on the W. M. Keck Observatory, which will enable spectroscopic follow-up of the galaxies in the sample.”

→ In this situation, NASA strongly recommends that the team provide detailed supporting information to validate the claim in the “Expertise and Resources - Not Anonymized” document, that is not anonymized.

→ Remember that the goal of dual-anonymous peer review is to not make it completely impossible to guess the identities of the investigators, but to shift the focus of the discussion away from the individuals and toward the proposed science.

Question: *How will the institutional and management sections be dealt with?*

Answer:

- The Scientific/Technical/Management portion of the proposal is to be written in an anonymized format.
- The Summary of Work Effort, including the Table of Work Effort must be included in anonymized fashion (e.g., PI; Co-I-1; Co-I-2) in both the main proposal document, in the place indicated by the Guidebook for Proposers, and in non-anonymized fashion in the separate "Expertise and Resources – Not Anonymized" document.
- As usual for ROSES, proposals should include a redacted budget, i.e., one with the costs of things but not salary, fringe or overhead but no names of persons or organizations. Similarly, the proposal should include a budget narrative that may discuss the financial support for the PI, Co-Is, etc., but it must not identify the names or institutions of these individuals.
- The Facilities and Equipment section must not be included in the main proposal document submitted in response to a program element that employs dual-anonymous peer review. Instead, a shortened version of this information (including Letters of Resource Support) will be gathered in the separate "Expertise and Resources - Not Anonymized" document.



Final Remarks



Plan adequately, and please feel free to contact your Program Officer:

- Discovery Data Analysis Program
Doris.Daou-1@nasa.gov
- Lunar Data Analysis Program
Shoshana.Z.Weider@nasa.gov
- Cassini and New Frontiers Data Analysis Programs
Henry.Throop@nasa.gov
- Exoplanet Research Program
Megan.C.Ansdell@nasa.gov
- Delia Santiago-Materese (DAPR inquiries)
Delia.Santiago-Materese@nasa.gov

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EXPLORE
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