National Aeronautics and
Space Administration

EXPLORE SCIENCE

NASA Dual-Anonymous Peer Review

Earth Science US Participating Investigator Program
Virtual Community Town Hall
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Slides courtesy of Daniel Evans

Astrophysics Division

- NASA’s Science Mission Directorate (SMD) is strongly committed to ensuring that the review of proposals is performed in an equitable and fair manner that reduces the impacts of any unconscious biases.
- To this end, and motivated by a successful study conducted for the Hubble Space Telescope, SMD is conducting a pilot program in ROSES-2020 to evaluate proposals using dual-anonymous peer review (DAPR).
- Under this system, 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.

Overview

WHAT IS DUAL-ANONYMOUS PEER REVIEW?

WHICH PROGRAMS ARE CONVERTING TO DUAL-ANONYMOUS PEER REVIEW?

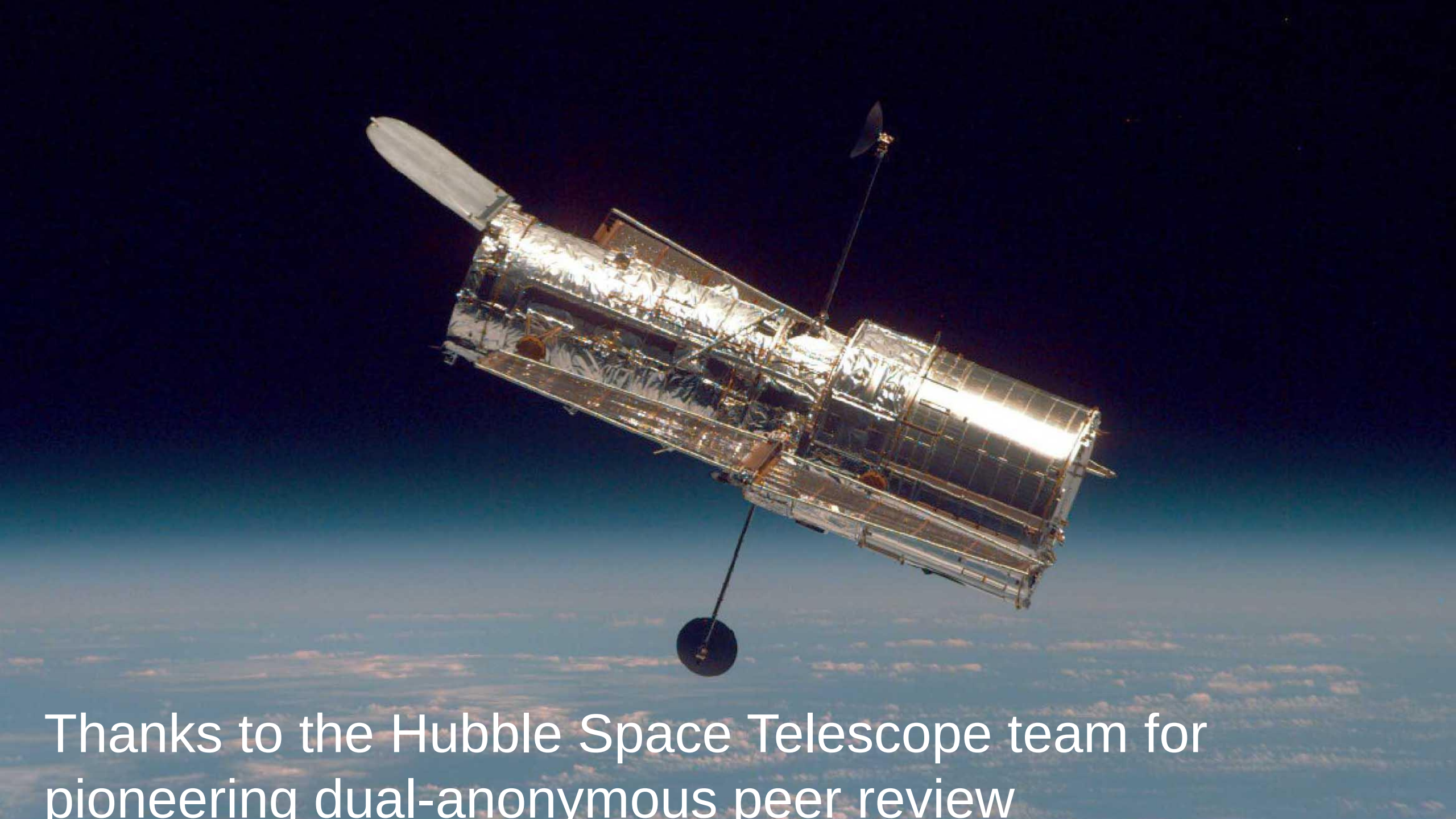
HOW DO I MAKE MY PROPOSAL COMPLIANT?

HOW IS MY PROPOSAL GOING TO BE REVIEWED?

Motivation: What is Dual-Anonymous Peer Review?

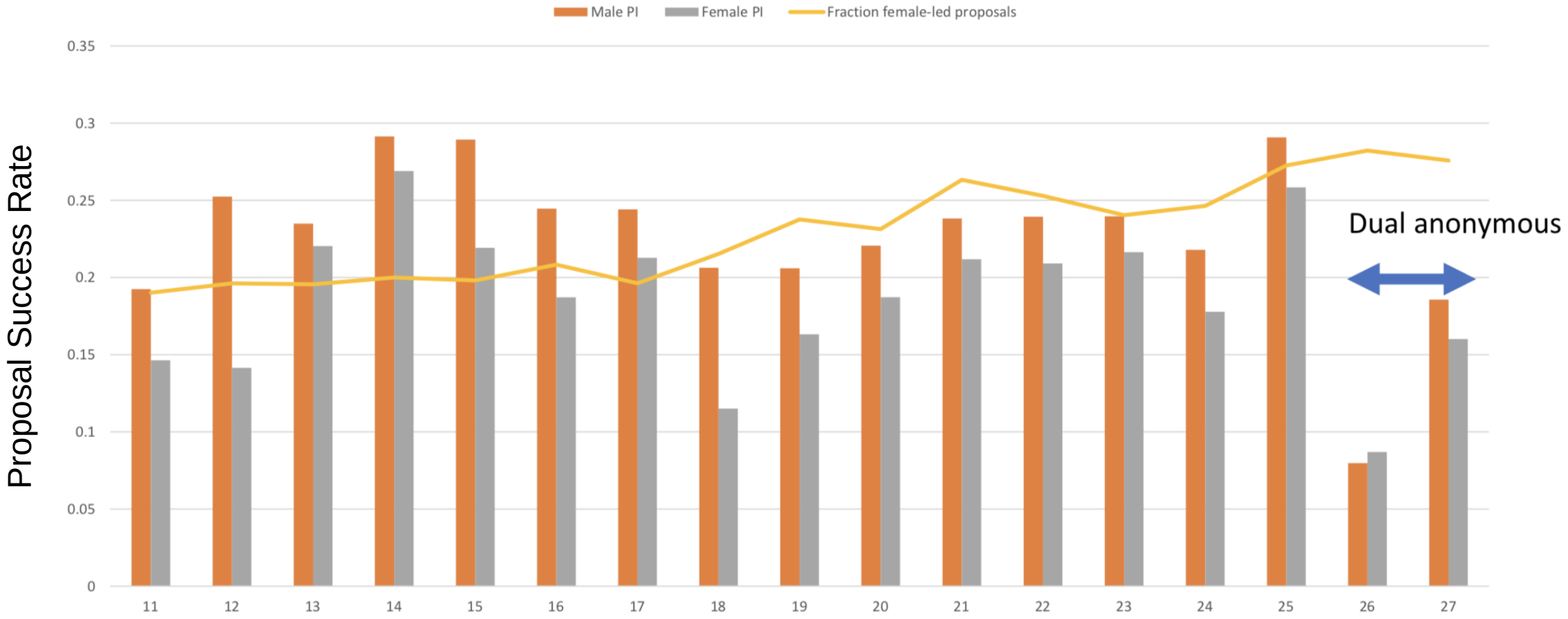
BUILDING AN EXCELLENT WORKFORCE

- PI RESOURCES WEBPAGE
- MISSION PI WORKSHOP
- PRE-REVIEWS OF MISSION PANELS
- THOMAS ZURBUCHEN NATIONAL SYMPOSIUM
- CODE OF CONDUCT FOR SMD-SPONSORED CONFERENCES
- AWARD TERMS AND CONDITIONS
- DUAL-ANONYMOUS PEER REVIEW
- INFORMATION SESSIONS AT CONFERENCES
- IMPLICIT BIAS TRAINING FOR ROSES PANELS
- ASTRO2020 STATE OF THE PROFESSION



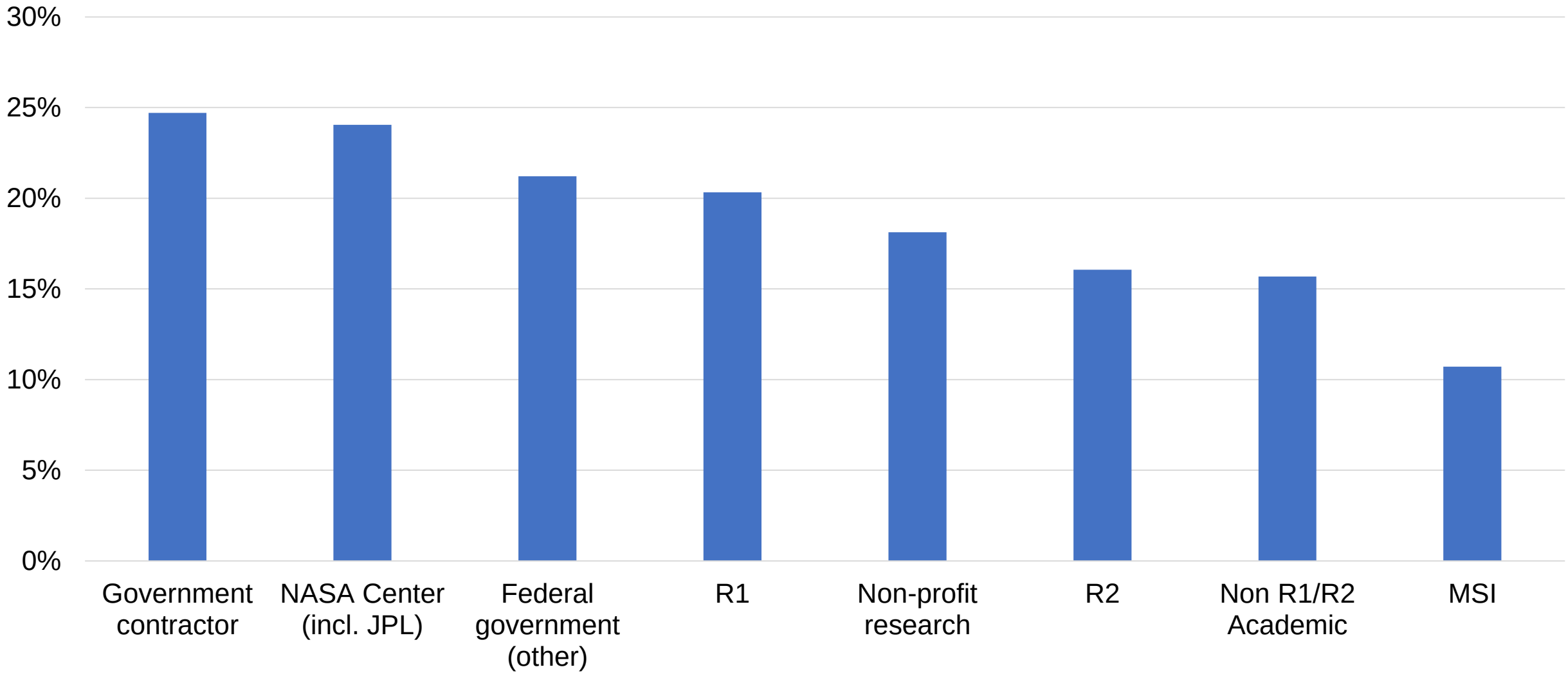
Thanks to the Hubble Space Telescope team for pioneering dual-anonymous peer review

Overall Statistics



Gender

Success Rate by Institution Type for ROSES Programs in this Pilot (%)



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

What is Dual-Anonymous Peer Review?

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.
- This creates a shift in the tenor of discussions, away from the individuals, and towards a discussion of the scientific merit of a proposal.

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.

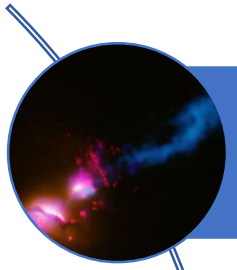
Nevertheless, the qualifications, track record and access to unique facilities <u>will</u> form part of the evaluation.

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)

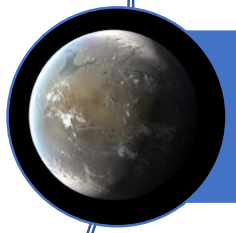
Which Programs Are Converting to Dual-Anonymous Peer Review?

ROSES-20 Pilot

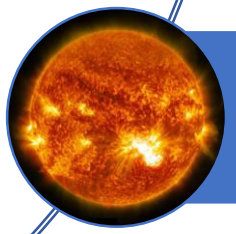


Astrophysics Data Analysis (ADAP)

Earth Science US Principal Investigator



Habitable Worlds (only Step-2 proposals will be anonymized)



Heliophysics Guest Investigator (Step-1 and Step-2 Proposals will be anonymized)

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

Detailed Guidance

1 NSPIRES PROGRAM PAGE

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.

2 SMD RESOURCES

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

1. Exclude names and affiliations of the proposing team, including in figures and references to personal websites.
2. Do not claim ownership of past work, e.g., “my previously funded work...” or “our analysis shown in Baker et al. 2012...”
3. Cite references in the passive third person, e.g., “Prior analysis [1] indicates that …”.
4. Do describe the work proposed, e.g., “We propose to do the following...” or “We will measure the effects of...”
5. Include a separate not anonymized “Expertise and Resources” document (details later on).

How Do I Reference Unpublished Work?
How Do I Reference 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 telescope time on the W. M. Keck Observatory, which will enable spectroscopic follow-up of the galaxies in the sample."*

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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Q. 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.

Other Requirements (see “Guidelines for Anonymous Proposals”)

Item	Requirement
Submission	All proposals are submitted through NSPIRES or grants.gov.
References	References should be in the [1], [2] format.
Proposal length	Refer to the solicitation, but note that one additional page is allotted for the Proposal Summary. Depending on the solicitation, up to two additional pages may be allotted for the Data Management Plan.
Proposal Summary	Enter as part of the NSPIRES cover page and as a separate page in the main body of the uploaded proposal PDF file.
Bio Sketches	The program element will specify whether Bio Sketches must be included in the separate “Expertise and Resources - Not Anonymized” document; or alternatively whether Bio Sketches must not be submitted at all.
Current and Pending support	Refer to the solicitation.
Budget narrative	Include in main proposal document in an anonymized format.
Summary of work effort, including Table of Work Effort	Include in an anonymized fashion (e.g., PI; Co-I-1; Co-I-2) in the main proposal document, and in non-anonymized fashion in the separate “Expertise and Resources – Not Anonymized” document.
Facilities and Equipment	Do not include in main proposal document. A shortened version of this information is gathered in the separate “Expertise and Resources - Not Anonymized” document.
Letters of Resource Support	Place in the separate “Expertise and Resources - Not Anonymized” document.
Data Management Plan	Include in main proposal document in an anonymized format. Depending on the solicitation, up to two additional pages may be allotted for the Data Management Plan. Data Management Plans will be assessed as part of the Intrinsic Merit criterion.
High End Computing request	Submit non-anonymized PDF HEC form as document type “Appendix” in NSPIRES.
Separate “Expertise and Resources - Not Anonymized” document	Submit as document type “Appendix” in NSPIRES. This document provides a list of all team members, their roles, expertise, and contributions to the work. The document should also discuss any specific resources that are key to completing the proposed work, as well as a summary of work effort. Statements of Current and Pending Support must also be included if required by the solicitation. Letters of support from, e.g., facilities or archives must be included in this section, if required by the solicitation.

How Will My Proposal Be Reviewed?

Flow of the Review

1 SCIENCE REVIEW

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

2 EXPERTISE ASSESSMENT

The “Expertise and Resources – Not Anonymized” document is distributed to panelists for a subset of proposals (typically the top third). 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.) PMEFs are also distributed to the review panels, if the program requires them.
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, and has singular access to resources upon which the success of the investigation critically depends. 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. NASA sets the expectation that the vast majority of proposals will fall into this category.
	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 <u>must be based on what's written in the text.</u>
2. In other words, do not say "Oh, [first name] is clearly qualified".

Some Answers to Questions

Q. If the identify of the "proposing teams and institutions" is shrouded in secrecy, how then are proposing teams and institutions to discuss their track-record, ongoing work, complementary endeavors, institutional assets? For example, if an institution has been working closely with NASA for 40+ years on one specific topic (say, radar over ice), wouldn't all the programmatic, institutional, and PI experience that goes with that be [lost from the review process]?

Answer:

- The anonymized proposal has no prohibition on discussing these aspects, merely that they be discussed without attribution to a particular investigator or group.
- In situations such as this, we recommend writing “previous work” instead of “our previous work”; or using “obtained in private communication”.
- Proposers should be able to make their case through their description of their proposed program of observations and analysis that they have the necessary skills to achieve success; if specific skills 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 provide 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.

Q. Why change the system across all SMD?

- A key goal of dual-anonymous peer review is to level the playing field for <u>everyone</u>.
- Remember that this is a pilot study for four programs out of over 100 SMD ROSES elements.

Q. Assuming that the institution also has to be anonymous, how do reviewers determine if there are sufficient institutional resources to do the research?

Q. Researchers who perform laboratory work often have access to unique, custom-built facilities. How can their proposals ever be truly anonymous?

Q. How does the proposing team's ability to accomplish the research get evaluated? The importance differs based on type of task.

Q. For USPI continuation proposals, how are previous accomplishments described?

Answer:

- It is entirely appropriate that the context and motivation of the research be addressed, as well as unique methodologies, references, etc.
- The main difference is that these aspects should be discussed without attribution to a particular investigator or group in the main body of the proposal.
- In situations such as this, we recommend writing “previous work” instead of “our previous work”; or using “obtained in private communication”.
- Similarly, 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).
- 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.

Q. What do you expect the unintended consequences of this action to be? Does this really serve the meritocracy?

- Experience with the Hubble Space Telescope dual-anonymous process indicates that there are few unintended consequences.
- However, NASA is proactively taking steps to ensure:
  - The SMD programs in the pilot lend themselves to dual-anonymous peer review.
  - Proposers have sufficient information and guidance to adequately anonymize their proposals.
  - Review panels are sufficiently briefed about dual-anonymous peer review.
  - The duration of each panel is not significantly increased.
  - Conflicts of interest are identified ahead of time and not during the review.
  - High-risk/high-impact proposals are not disproportionally affected (new SMD blue-ribbon panel).

Final Remarks

Return without Review for Unanonymized 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 discernable. As long as the guidelines are followed, NASA will not return these proposals without review.

Plan adequately, and please feel free to contact me:

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