Advancing Inclusion II: Assessing Community Readiness for Inclusion Plans

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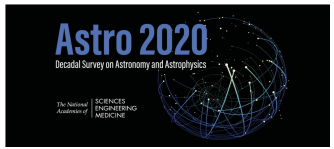
We must be deliberate about HOW we embrace and practice Diversity, **Equity** and Inclusion to advance cultural change in Astronomy and Astrophysics.

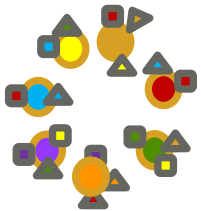


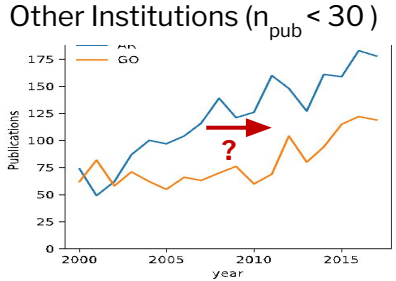
Values

Norms

Traditions

- **ACCESS IS CRUCIAL**
- **POLICIES REVIEWED**
- **RESEARCH INCLUSION VALUED AS SCIENTIFIC MERIT**





RESEARCH INCLUSION

Valued as part of how we assess scientific merit

- Policies and procedures that support mutually beneficial partnerships

Policies for the Allocation of Observing Time

- Opportunities for scientific networking and collaboration building

- Technical infrastructure that enables participation

- Provide science platform/tools training

ASTRO DATALAB

ANTARES

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ASTRO DATALAB

ANTARES

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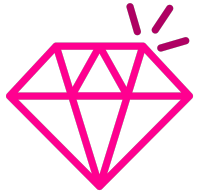
Research Inclusion Development: Toolkit of Inclusive Practice

NSF Development funding to **prepare community for research inclusion proposal requirements** (PIs and Reviewers)

- Create a toolkit of inclusive collaborative practice as a guide, seeded by current community practices (e.g., DEI governance best practice, conduct codes, communication journal clubs and mutually beneficial partnership practice, etc.)
- Provide information on the efficacy of practices (including metrics)
- Provide recommendations and guidelines for the assessment of proposed research inclusion practices in proposals
- Recommend policies for long-term observing programs to report on research inclusion metrics and activities as part of scientific review.



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NASA ROSES: ATP proposal call 2021

ROSES-21 Amendment 9: D.4 Astrophysics Theory Requirements Regarding Inclusion and Data Management Plans

The Astrophysics Theory Program (ATP) supports efforts to develop the basic theory for NASA's space astrophysics programs. The proposed work submitted for this program must both:

- Be directly relevant to space astrophysics goals by facilitating the interpretation of data from space astrophysics missions or by leading to predictions that can be tested with space astrophysics observations; and
- Consist predominantly of theoretical astrophysics studies or the development of theoretical astrophysics models.

ROSES-2021 Amendment 9 adds two new sections to D.4 ATP, changing one requirement and adding another. First, Section 1.1.3 specifies that the Data Management Plan must be located within the 15-page Scientific/Technical/Management section of the proposal. **Second section 1.1.4 adds the new requirement that anonymized proposals must include an inclusion plan of up to two pages immediately following the references and citations for the Scientific/Technical/Management section.** New text is in bold. The proposal due date remains unchanged as July 1, 2021.

On or about March 25, 2021, this Amendment to the NASA Research Announcement "Research Opportunities in Space and Earth Sciences (ROSES) 2021" (NNH21ZDA001N) will be posted on the NASA research opportunity homepage at http://solicitation.nasaprs.com/ROSES2021 and will appear on SARA's ROSES blog at:https://science.nasa.gov/researchers/sara/grant-solicitations/roses-2021/

ATP Inclusion Plans

In support of NASA's core value of Inclusion, ATP piloted the addition of a 1 to 2-page inclusion plan to the proposals to address:

1. Plans for creating and sustaining a positive and inclusive working environment for those carrying out the proposed investigation, and
2. Contributions the proposed investigation will make to the training and development of a diverse and inclusive scientific workforce.

Review of ATP Inclusion Plans

1) A peer review panel **with specific DEI expertise** was convened. These panelist included scientists, sociologists and others with DEI STEM expertise.

2) The **science proposed was reviewed in a separate panel** concurrently, who review but did **not 'grade'** inclusion plans **but comments were provided**.

3) The **inclusion plan's [grades] did not affect which proposals are selected for funding** in the current competition, but the pilot will serve as an essential step to determining if and how such criteria can be included in the future.

4) The Astrophysics Division empaneled an expert DEI panel **to review the inclusion pilot and provide feedback** critical in determining how NASA proceeds in the future.

Reports from DEI expert reviewers

DEI Expert panels provided grades for the proposal inclusion plans and feedback reports addressing the following:

1. a) Does the inclusion plan adequately communicate the goal of a positive and inclusive working environment for the investigation team? Does the inclusion plan provide adequate processes for creating and sustaining a positive and inclusive working environment for the investigation team? Are these processes likely to be successful in achieving the goal?

2. b) Does the inclusion plan adequately describe the contribution of the proposed investigation to the training and development of a diverse and inclusive workforce? Does the inclusion plan provide an adequate plan for achieving the identified contribution? Is the plan likely to be successful in realizing the identified contribution?

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Report on the Review of ATP Inclusion Plans by DEI Expert and Science Expert Panels

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[1]NOIRLab

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Questions of Interest

1. How prepared is the astronomical community to draft (research) inclusion plans?

   (i.e., what does the community put together without a toolkit like the one we are developing.)

2. How prepared is the astronomical community to evaluate inclusion plans?

Sample of proposals assessed

GRADES from DEI Experts

Excellent (E)

Excellent/Very Good (E/VG)

Very Good (VG)

Very Good/Good (VG/G)

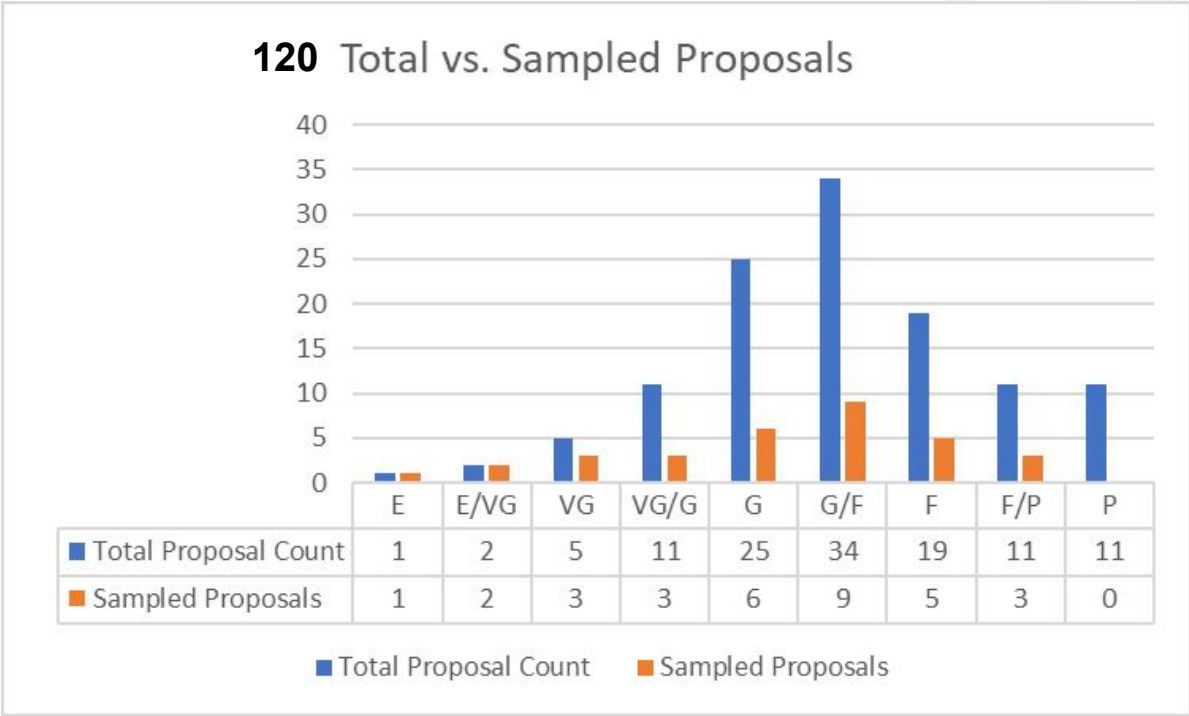
Good (G)

Good/Fair (G/F)

Fair (F)

Fair/Poor (F/P)

Poor (P)



Blue: ALL proposals

Orange: Those proposals matched to science reviewer comments

Example themes addressed in Inclusion Plans

Notes:
A single proposal may employ multiple themes/subthemes.

Identification of Themes are not 'all inclusive', but represent significant examples.

Conclusion: Some themes are more frequently addressed than others. WHY?

Theme	Sub-theme	# of proposals	% of Total proposals
DEI Credentialling		64	53%
	History with DEI work	44	37%
	Institurion DEI Credentials	30	25%
	Department DEI Credntials	22	18%
Leveraging Institutional Resources		68	57%
	Bridge programs	9	8%
Fostering an inclusive Environment/Climate		84	70%
	Code of Conduct	22	18%
	Normal mentoring practice	27	23%
	Evaluation of inclusivity	12	10%
	Substantial Evaluation plans	4	3%
	Open Communication	15	13%
	Regular Meetings	23	19%
	Equitable Recruitment	13	11%
	DEI training	13	11%
Cross Institutional Partnerships		13	11%
	Credentialling	8	7%
	Leverage partnership for DEI	5	4%

DEI Credentialing and Leveraging Institutional resources are very popular

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DEI Credentialing

Definition: PIs often outline their personal history with equity and inclusion efforts.

Finding: DEI Credentialing is not associated with high or low ranking

Examples:

- Proposal W (F/P) reports the PI's history of lecturing in summer schools with diverse students.
- Proposal X (F) reports the PI's history of including undergraduate and graduate students on research projects.
- Proposal Y (VG) reports the PI had had a history mentoring women and people of color.
- Proposal Z (G/F) reports PI is committed to DEI work in APS.

Fostering Inclusive Team Environment

Fostering an inclusive Environment/Climate		84	70%
	Code of Conduct	22	18%
	Normal mentoring practice	27	23%
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	Equitable Recruitment	13	11%
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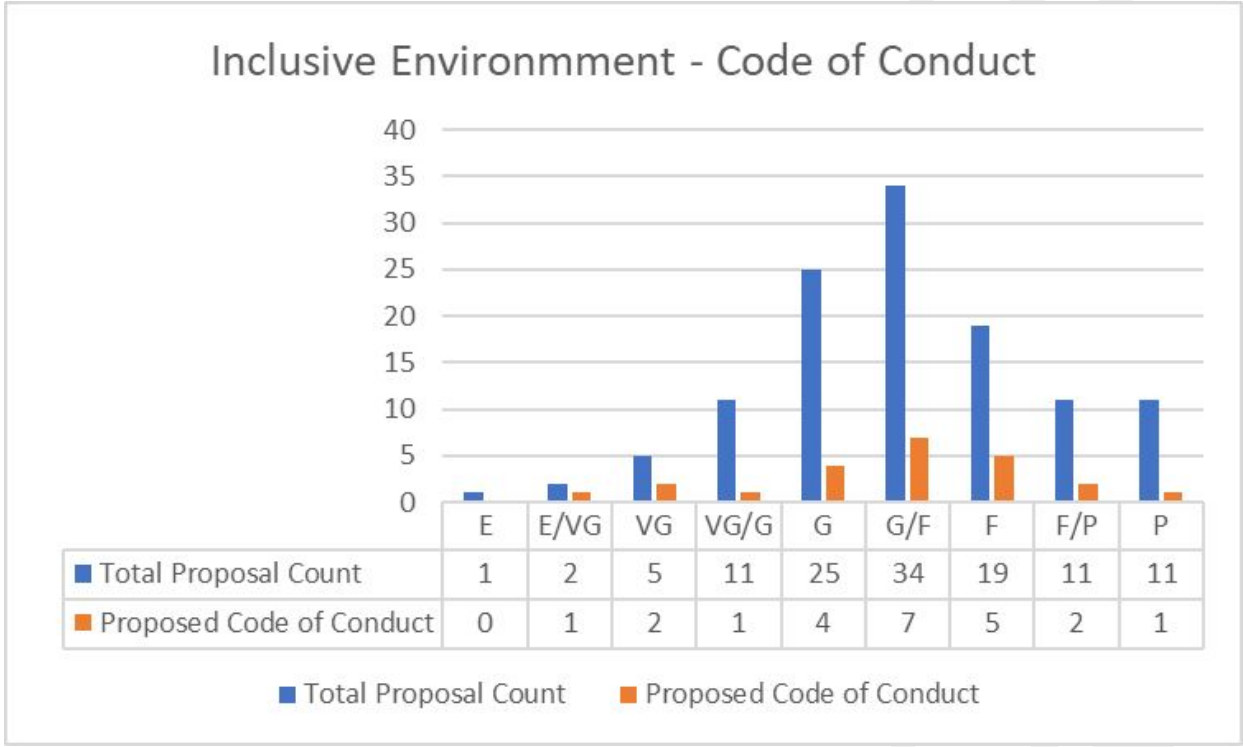
Plans for Codes of Conduct

Findings: Adopting a formal Code of Conduct to guide team meetings and interactions is one of the most common strategies for creating an inclusive team environment..

Commonality and difference in reviews: Both science and expert inclusion panels noted that the planned Code of Conduct in one (VG) proposal is a strength to fostering an inclusive environment.

However the DEI expert panel also wrote that the proposal did not adequately explain *how* a Code of Conduct would create a more inclusive environment.

Conclusion: Code of Conduct plans vary in quality of proposed execution and cover the full range of scores given by expert inclusion panels.



Mentoring

- A common strategy for fostering an inclusive team environment included plans to mentor students or postdocs
- 27 out of 84 proposals (23%) put forth some sort of mentoring plan as a strategy to foster an inclusive environment

Finding: Most of these were “normal mentoring practices” that would be expected of PI/student relationships even when an inclusion proposal was not required (such as helping them publish, expecting them to attend conferences, etc).

Conclusion: What the numbers around mentoring or codes of conduct show is that, without guidance, proposers will take the path of least resistance. They will propose easy plans, which are not necessarily conducive to increasing equity or inclusion.

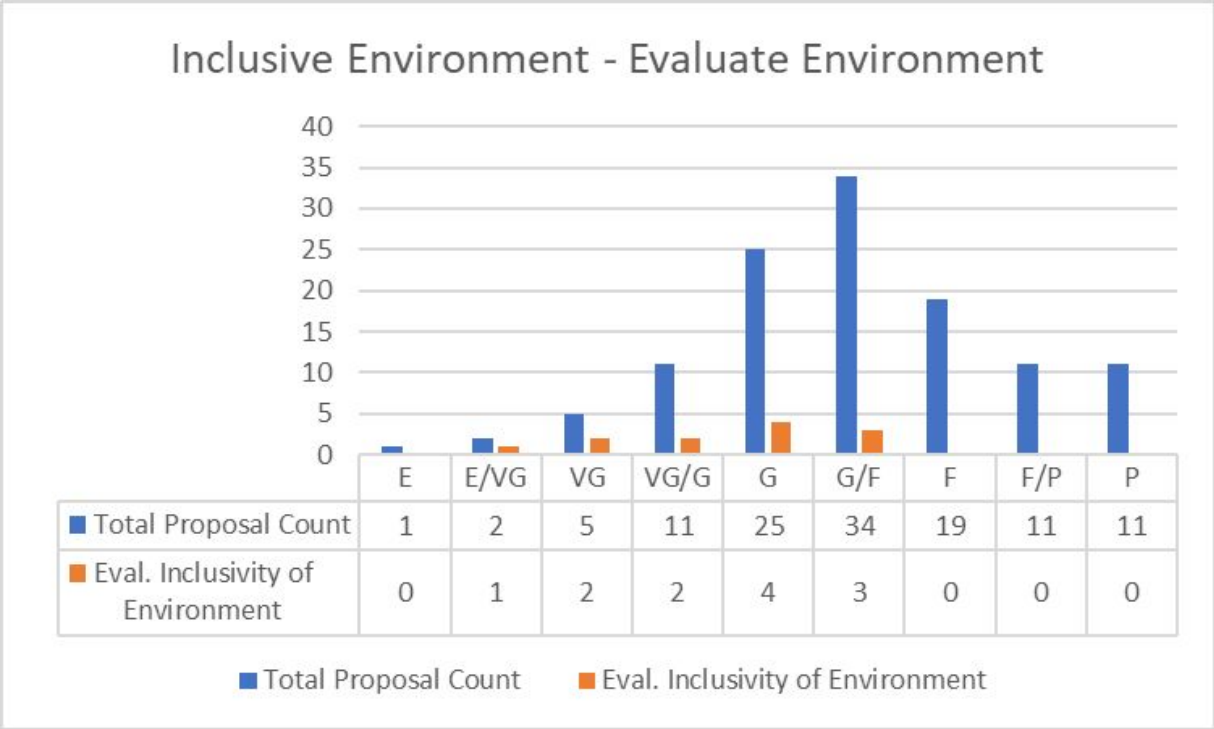
Plans to Evaluate the Environment

Finding: The lowest ranked proposals tend to lack plans for these kinds of evaluations.

However only 4/12 are actually substantial plans (meaning, they detailed how evaluation would happen rather than just stating evaluation would take place)

Conclusion: Fewer proposals tried to enact evaluations this suggests that it is difficult to enact a proper evaluation of a project or program. Neither DEI expert reviewers nor Science panel reviewers automatically interpreted evaluations as adequate.

However, that evaluation plans still show a more narrow range of rankings than those that only proposed to adopt a code of conduct.



	E	E/VG	VG	VG/G	G	G/F	F	F/P	P
Total Proposal Count	1	2	5	11	25	34	19	11	11
Eval. Inclusivity of Environment	0	1	2	2	4	3	0	0	0

Cross Institutional Partnerships

Cross Institutional Partnerships		13	11%
	Credentialling	8	7%
	Leverage partnership for DEI	5	4%

CIPs have the potential to be very impactful for inclusion.

However, few proposals attempt to leverage these partnerships, likely because it is difficult to do the work correctly and in a meaningful way.

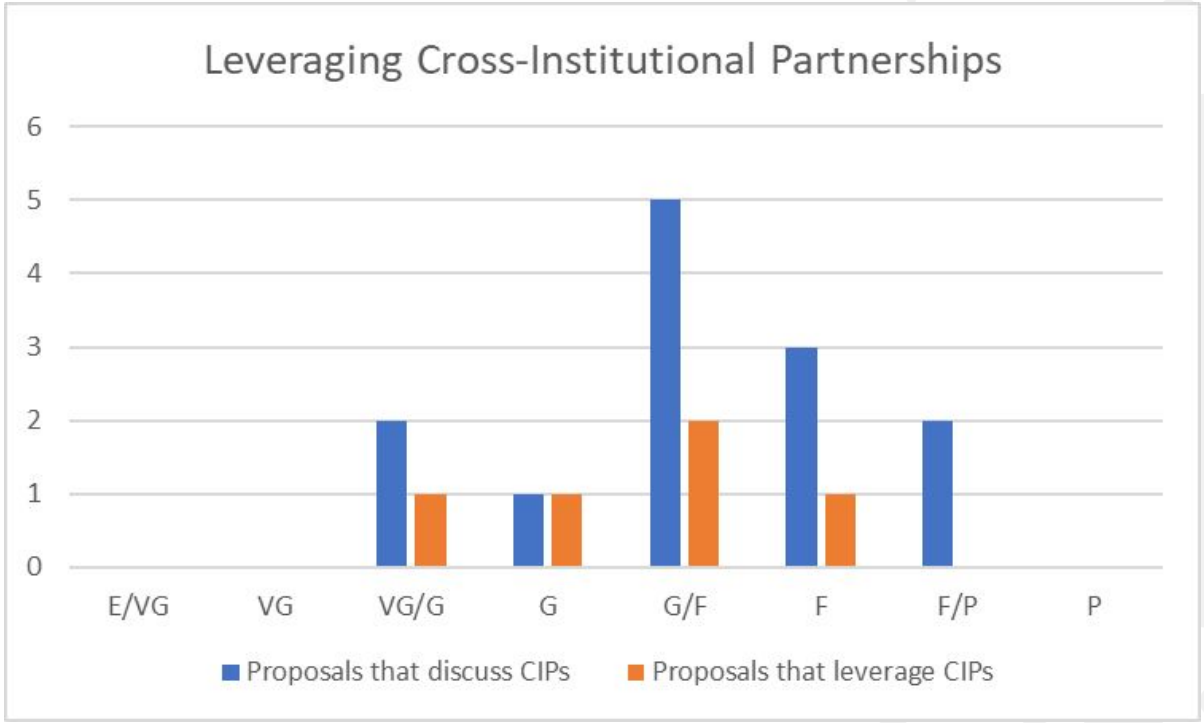
[A goal of our Toolkit of Collaborative Practice is to help PIs better understand good practices for building and leveraging cross institutional partnerships to support DEI.]

Cross Institutional Partnerships

Findings: Few proposers discuss CIPs even though they could potentially be impactful to creating inclusive environments.

The blue histogram indicates proposals that only mention such partnerships, whereas the orange histogram shows those 5/13 proposals that leveraged cross-institutional partnerships as part of DEI.

Conclusion: A team did not automatically do well just because they attempted to leverage cross institutional partnerships. There are teams out there attempting to do the right thing, but not uniformly doing a good job with it.



Leveraging CIPs

Examples of Leveraging CIPs:

- A (G/F) proposal commits to recruiting the students that will work on the project from a minority-serving institution via a Bridge program.

- A proposal (VG/G) plans to leverage the fact that the project spans multiple institutions for mentorship by requiring that students on the project have an external mentor at one of the other institutions.

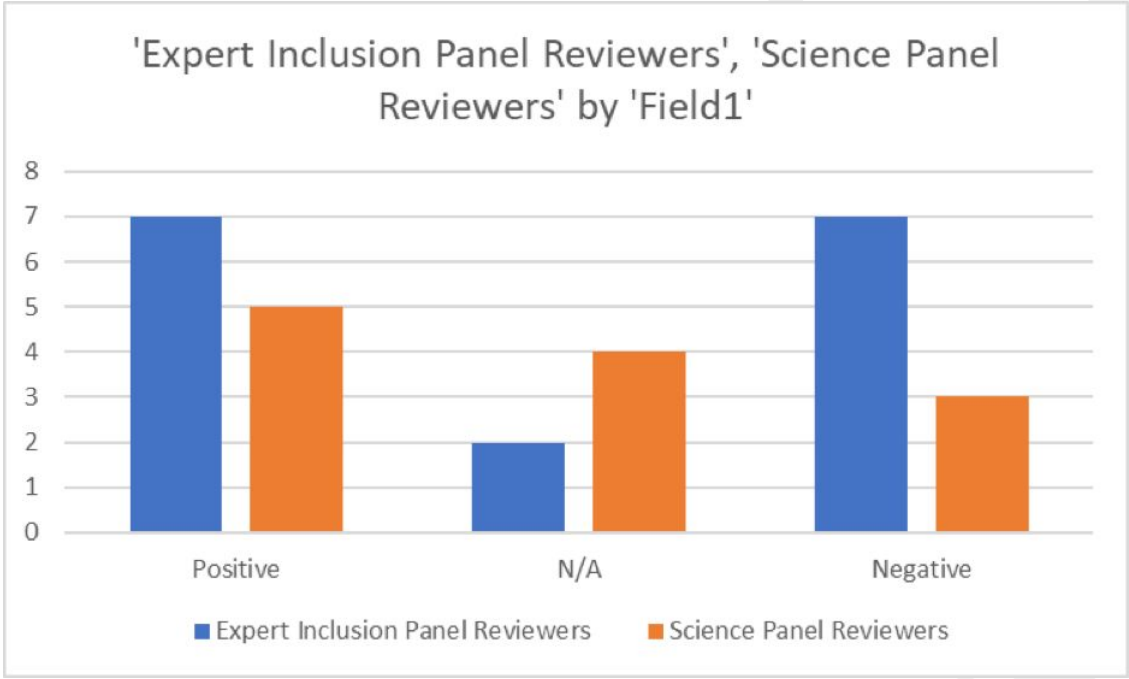
- A (G) proposal reports that the proposed project is part of a multi-institution collaboration that includes a HBCU and is affiliated with the PAARE program, writing that “funding the research proposed here will provide opportunities for underrepresented minorities to collaborate with the project.”

DEI Expert vs Science Panel reviewers

A comparison of cross-institutional partnership (CIP) reviews.

Plotted are instances when a review noted CIP as both a strength and/or a weakness. N/A represents instances in which a proposal discussed a cross-institutional partnership, but the panel reviewers didn't mention it as either a strength or a weakness in the review.

Finding: Science reviewers comment on these CIPs with less frequency, perhaps suggesting some inexperience with the theme. However, when a critique is made, the types of comments seem to track those of the inclusion expert panels fairly well.



DEI Expert vs Science Panel reviewers

- We had anticipated greater differences between the science and expert inclusion panel reviews, but the **science panel reviewers often matched the overall sentiments expressed** in reviews provided **by the DEI expert panel**.

  However, **each group honed in on different elements** of the proposal to question and critique, with the DEI expert panel probing questions and concerns with more detail.

  For instance, while both science and expert inclusion reviewers celebrated proposals that leveraged institutional resources for DEI goals, **the expert inclusion reviewers sought more clarity on how institutional resources would be leveraged** or connected to the project.

- The expert inclusion panel reviews were typically more detailed in both their evaluations of proposal strengths and weaknesses than the reviews provided by the science panels.

  However, science panels were not asked to score Inclusion plans (only provide comment) and, as is the case for proposers, were told that these plans would not influence funding in this cycle.

We plan a publication analysing the comparison of the full set of 120 science panel comments by the end of this year.

Summary

- Proposed inclusion plans were mostly **marginal or inadequate** as assessed by DEI expert panels
- PIs tended to propose **plans that were easiest to execute**
- PIs **rarely tackle the most difficult issues** surrounding the themes we covered, such as evaluating the inclusivity of the environment
- **Many themes** - like credentialing or cross-institutional partnerships - were **not connected to high or low rankings** by DEI expert panel reviewers
- **Science panel reviewers often matched the overall sentiments** expressed in reviews **provided by the DEI expert panel**, however with different emphasis in comments.

Conclusions and recommendations

- This analysis demonstrates the need in the astronomy community for resources or training to help PIs understand what makes for a Very Good or Excellent proposal.
- These findings suggest that without guidance, the astronomy and astrophysics community is not, generally, prepared to think about what making significant change with respect to research inclusion means for their own work. The community needs guidance to better identify and craft plans that will achieve the goals of NASA's core value of inclusion.
- We also note that we had anticipated greater differences between the science and expert inclusion panel reviews, but the science panel reviewers often matched the overall sentiments expressed in reviews provided by the DEI expert panel.

Further commentary

- However, segregation of the review of inclusion plans into expert panels is not likely to achieve this goal in the near term. Normalization of the best practices around inclusion will require that the full community embraces these goals as part of the culture of astronomy and astrophysics.
- The use of rubrics and guidance will be important to bringing the Astrophysics community along in their fuller understanding of the issues, concerns and best practices of making inclusion part of their research work.
- DEI experts must continue to be consulted in building rubrics, giving guidance and serving on panels, i.e. DEI expert scientists. Workshop training opportunities for science reviewers that demonstrate what they should be looking for in the inclusion plans could also be helpful.

THANK YOU