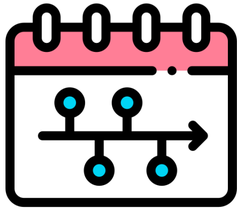
ALMA Cycle 12 Proposal Review

ALMA Cycle 12 Proposal Preparation Meeting

Proposal Handling Team
March 21, 2025

Goal of presentation

Basics of distributed peer review



Timeline and logistics

Guidelines for reviewers and best practices

Basics of distributed peer review

One member of each proposer team* commits to participate in the review process

Each reviewer reviews 10 proposals (Proposal Set) for each submitted proposal, with a maximum of **THREE** Proposal Sets

The process

- Stage 1
  - Reviewers identify conflicts of interest
  - Reviewers rank the proposals from 1 to 10 (best to weakest) and provide a comment
- Stage 2
  - Access to anonymized reviews
  - Ranks and comments can be modified

* Excluding Large Programs

Reviewer timeline for Cycle 12

April 24
Proposal deadline

1) Proposal PI designates the reviewer in Observing Tool (OT)

April 29
Expertise & conflicts

1) Reviewer specify scientific expertise in Preferences
2) Reviewer provide list of conflicts of interest in Preferences
3) Deadline to provide alternative reviewer, if necessary

May 7 - June 4
Stage 1

1) Plenary sessions May 8-13 (highly recommended)
2) Declare any conflicts of interest in assigned proposals by May 14
3) Complete reviews by June 4 @ 15 UT **(MANDATORY!)**

June 5 - June 19
Stage 2

1) Read reviews from other reviewers
2) Modify your ranks and comments as needed

Stage 1: Review assigned proposals

May 7 - June 4
Stage 1

1) Declare any conflicts of interest in assigned proposals by May 15
2) Complete reviews by June 4 @ 15 UT **(MANDATORY!)**

Proposal set

- Group of 10 proposals to review
- Assigned to the reviewer based on the reviewer selected expertise or the keywords of the reviewer's submitted proposal
- One Proposal Set is assigned for each submitted proposal on which someone was selected as the reviewer
- When the Proposal Sets are available to start the review process, all reviewers will be informed by email.

Stage 1: Review assigned proposals

May 7 - June 4
Stage 1

1) Declare any conflicts of interest in assigned proposals by May 15
2) Complete reviews by June 4 @ 15 UT **(MANDATORY!)**

Declare any additional conflicts

- *For example:* The reviewer is the PI on a proposal that is observing the same object(s) with the same goals as one of your assigned proposals

What is considered a conflict of interest?

- In general, a reviewer has a major conflict of interest when their personal or work interests would benefit if the proposal under review is accepted or rejected.

Before assigning the proposals, the PHT will identify major conflicts of interest based on:

- The PI, reviewer, or mentor of the submitted proposal is a PI or co-I of the proposal to be reviewed
- The PI, one of the co-PIs, or one of the co-Is of the proposal to be reviewed is in the conflicts-of-interest list provided by the reviewer or mentor of the submitted proposal
- If the list is not provided by the reviewer, or mentor, then the assignment algorithm constructs a list of conflicts based on the submission history of the reviewer, or the mentor.

What is considered a conflict of interest?

- In general, a reviewer has a major conflict of interest when their personal or work interests would benefit if the proposal under review is accepted or rejected.

Potential conflicts that are not identified automatically by the PHT:

- The reviewer is proposing to observe the same object with similar science objective.
- The reviewer had provided significant advice to the proposal team on the proposal even through they are not listed as and investigator
- Other reasons the reviewer believes there is a strong conflict of interest

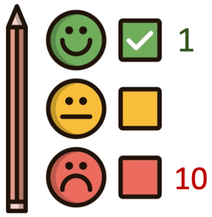
Lack of perceived expertise is not a reason to declare a conflict of interest.

Stage 1: Review assigned proposals

May 7 - June 4
Stage 1

1) Declare any conflicts of interest in assigned proposals by May 15
2) Complete reviews by June 4 @ 15 UT **(MANDATORY!)**

- Write comments that summarize the strengths and weaknesses of the proposal
- Comments will be sent to the PI verbatim.



- Rank the proposals from 1 (strongest) to 10 (weakest) based on scientific merit.

- **Proposal associated with the Designated Reviewer will be canceled if the reviews are not submitted on time!**
- Extensions will not be granted since Stage 2 starts on June 5.

The reviewer can be changed after the proposal deadline in exceptional circumstances by having the proposal PI contact the PHT via Helpdesk. The Stage 1 deadline remains the same.

Stage 2: Finalize the ranks and reviews

June 5 - June 19
Stage 2

1) Read reviews from other reviewers
2) Modify your ranks and comments as needed

Read comments from the other reviewers to see if any critical strengths or weaknesses was overlooked.

Update ranks and comments as needed.

Take advantage of Stage 2, and learn from other reviewers!
If a reviewer does not complete Stage 2, the Stage 1 ranks/comments are considered final.

Guidelines for reviewers and best practices

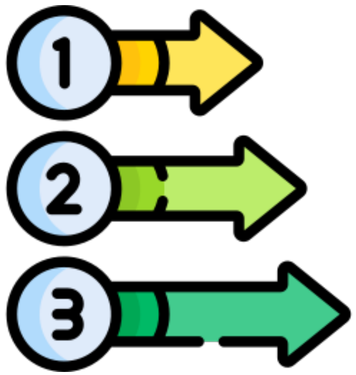
ALMA strives to conduct a fair, competitive, and transparent review process.

Reviewers play a crucial role to reach this goal.

- every rank is important to select the best proposals
- The reviews provide invaluable feedback to proposers and other reviewers

Extensive guidance available on the ALMA Science Portal (Proposing => ALMA Proposal Review).

Recommended steps for an effective review



Preparation

1. Allocate sufficient time
2. Mitigate unconscious bias
3. Understand the review criteria

Review proposals

4. Read the proposal thoroughly
5. Write constructive and clear reviews

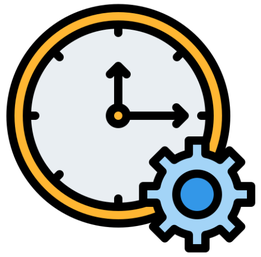
Rank proposals

6. Rank proposals against the criteria

Learn from other reviewers

7. Use Stage 2 to refine your review/ranks

Step 1: Allocate sufficient time



Allocate enough time to read the proposals and write the reviews

Reflect on your initial judgements before finalizing ranking

Re-read draft reviews to ensure clarity and accuracy

Expect to need 2-3 days to thoroughly review a Proposal Set

Step 2: Mitigating bias

Unconscious bias
- favoring or disavowing a proposal for reasons unrelated to its scientific merit, often without awareness

Common types of bias
- cultural or language bias
  - judging based on the proposer's writing style or language proficiency
- institutional bias
  - favoring proposals from prestigious institutions
- confirmation bias
  - giving undue weight to information that aligns with preconceived notions
- anchor bias
  - rely heavily on initial impression and neglect subsequent information

Why it matters
- bias undermines the fairness and integrity of the review process

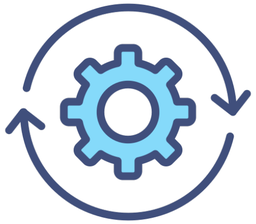
Tips to mitigate bias

- Be aware that such biases exist
  - but this alone is not sufficient
- Reviewers should take time with their reviews
- Consider alternative viewpoints
- Play devil’s advocate
- Dual anonymous
  - ALMA started dual anonymous in 2021 (Cycle 8)
  - do not try to guess the proposal team
  - If a proposal does not follow the dual-anonymous guidelines:
    - review it solely by its scientific merit
    - inform the PHT using the box "Comment to JAO" via the Reviewer Tool

Step 3: Review Criteria

Familiarize yourself with ALMA's review criteria

- overall scientific merit
- suitability of observations to achieve the goal



Apply criteria consistently across all proposals

Focus on scientific impact and the justification for the observations requested

- do not introduce additional criteria

Review criteria

Overall scientific merit

- Does the proposal clearly indicate which important, outstanding questions will be addressed?
- Will the proposed observations have a high scientific impact on this particular field and address the specific science goals of the proposal?
- Does the proposal clearly describe how the data will be analyzed in order to achieve the science goals?

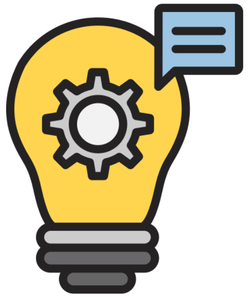
Suitability of the observations to achieve the scientific goals

- Is the choice of target (or targets) clearly described and well justified?
- Are the requested signal-to-noise ratio, angular resolution, largest angular scale, and spectral setup sufficient to achieve the science goals?
- Does the proposal justify why new observations are needed to achieve the goals?
- For Joint Proposals: Does the proposal clearly describe why observations from multiple observatories are needed?

Step 4: Read the proposal thoroughly

Carefully read all sections of the proposal

Highlight key points and take notes for easy reference during review writing



Ensure you understand the proposal’s science goals and methodology

Step 5: Write constructive and clear reviews

Cornerstone of transparency

- reviews are vital for ensuring a fair and transparent evaluation process.

Constructive feedback to proposers

- they help proposers refine future submissions and improve scientific outcomes

Share your insights with reviewers

- provides reviewers with alternative viewpoints in the Stage 2 process

Impact on proposal selection

- every rank and review contributes to identifying the most compelling science

Keys to writing quality reviews

Be objective

- the evaluation should be based solely on the scientific and technical merit of the proposal, avoiding biases or external influences

Be constructive

- provide actionable feedback to help proposers improve future submissions

Be specific

- offer detailed comments supported by examples from the proposal

Structuring a review

Jets and outflows have been shown to be a common phenomenon during the protostellar phase, but details about the exact mechanism in the type of source proposed here are not fully known.

Strengths

The proposed target is very well justified and given its proximity, will provide excellent spatial resolution to study the structure of the outflow. The observations and analysis described will shed light on the physics of jet launching and accretion, leading to a better understanding of the evolution of this type of source.

Weaknesses

However, the proposal did not adequately explain how the proposed observations will test whether the observed phenomenon is a result of the particular outflow launching mechanism or other scenarios discussed in the proposal. Also, the proposal did not adequately explain why the requested number of molecular transitions are needed for the proposed excitation analysis, compared with the pros and cons of instead observing fewer or different transitions.

A brief (~ 1 sentence) summary of the proposal is OK
- however, a proposal review is NOT a summary of the proposal
- focus on evaluation

Highlight specific strengths that justify the proposal's merit

Highlight weaknesses and offer suggestions for improvement
- ensure balance of strengths/weaknesses aligns with ranking

Common pitfalls to avoid: examples

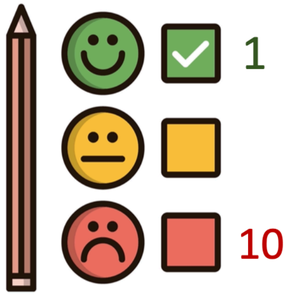
DON'T	DO
"Nice proposal."	Use complete sentences and be specific as to what is "nice": "This proposal that will help understand …"
"This proposal has little value."	Use constructive language. "The proposal could have better explained how observing…"
"Is the signal-to-noise sufficient for the science?"	State the weakness directly rather than ask vague questions. "The proposal should have demonstrated that a signal-to-noise of 5 is sufficient to discern between the two models."
"The observing strategy is poor."	Be specific on what is poor about the strategy. "Since this is a detection experiment, coarse angular resolution would be better to avoid resolving the source."
"The PI could have better justified …"	Critique the proposal and not the PI. "The proposal could have better justified …"

Other pitfalls to avoid

- Do not include statements about scheduling feasibility
  - ALMA will determine if the proposal can be scheduled
- Do not include explicit references to other proposals that you are reviewing, such as project codes

- The proposal will be difficult to schedule.
- The proposal is very similar to 2025.1.00020.S.

Step 6: Rank proposals against criteria



- Use ALMA's review criteria to rank proposals based on
  - scientific merit
  - feasibility and alignment with stated goals

- Ensure strengths/weaknesses are consistent with the rankings
  - if you give a proposal a poor ranking but indicate no weaknesses, the PI will not understand the basis for the ranking

Review all proposals following the same criteria

Resubmissions

- if the proposal is accepted. any science goals which have already been observed will be descoped by the JAO

High-risk/high-impact

- reviewers are encouraged to give full consideration to well-designed high-risk/ high-impact proposals even if there is no guarantee of a positive outcome or definite detection.
- for example, if it is uncertain if the source will be detected but the impact is high if it is, consider giving the proposal a good ranking

Proposal size

- a proposal should not be down/up graded solely based on the amount of requested observing time

Step 7: Learn from others in Stage 2!

Read the strengths and weaknesses identified by other reviewers

If other reviewers identified significant strengths or weaknesses that you missed, you can further modify your review and/or rank

More information

https://almascience.org/proposing/alma-proposal-review

- Dual-anonymous guidelines
- Description of the distributed peer review
- Detailed guidelines for the reviewers
- FAQ

Thank you!

Questions?

Dual-anonymous Guidelines

Guideline	Non-anonymized text	Anonymized version
Self-referencing a paper	“In Smith et al. (2024), we demonstrated…”	“As demonstrated in Smith et al. (2024),....” or “As demonstrated in [1],...” (where [1] corresponds to the full citation in a reference list.)
Citing your previous work	“The data from our pilot program…”	“The data from program 2024.1.02045.S …”
Citing your previous work	“Our previous disk survey…”	“The survey from Smith et al. (2018) ...”
Citing your ongoing program	“The proposed ALMA observations will be combined with our HST data…”	“The proposed ALMA observations will be combined with available HST data (private communication) ...”
Citing a program from another observatory	“We will combine these ALMA observations with the HST program led by Smith et al.”	"We will combine these ALMA observations with ongoing HST observations (private communication).”
Citing published software	“We will use our software package XXXX (Smith et al. 2024).”	“We will use the software package XXXX (Smith et al. 2024).”
Citing unpublished software	“We will use our group’s line identification package XXXX…”	“We will use a line identification package (obtained via private communication) ...”
Citing unpublished data	“Figure 1 shows the image from ALMA program 2024.1.02045.S (PI Smith).”	“Figure 1 shows the image from ALMA program 2024.1.02045.S.”
Citing papers in preparation	“Figure 1 shows the CO image from Smith et al. (in preparation).”	“Figure 1 shows the CO image (private communication).”
Resubmissions	“This is a resubmission of our ongoing grade B program 2024.1.02045.S (PI: Smith). Half of our targets have been observed, and we are resubmitting the proposal to obtain the remaining half.”	“This is a resubmission of our ongoing program. Half of the targets have been observed, and we are resubmitting the proposal to observe the remaining half.”
Private communication with individuals or project teams	“The sources all have prior ALMA observations (Smith, private communication).” or “The sources all have prior ALMA observations (private communication from the XXXX Large Program).”	“The sources all have prior ALMA observations (private communication).”