

Tips for writing a strong ALMA proposal

Xing "Walker" Lu (ALMA postdoc, NAOJ)

March 22, 2021



Based on:

- Personal experience:
 - 7 accepted (2A, 1B, 4C), 10 rejected.
 - Technical secretary for cycle 5/7 proposal panel review meetings.
- Talks in previous meetings, given by Patricio Sanhueza, Nick Indriolo, Tomoya Hirota, Masao Saito, et al. (https://alma-intweb.mtk.nao.ac.jp/~eaarc/2020/ProposalPreparation_Cycle8/ProgramPPW8.html; https://alma-intweb.mtk.nao.ac.jp/~saigo/EAARC/ALMA_TM2018/program.html)
- Other interesting talks (can be found by googling):
 - "Writing compelling proposals", Jill Rathborne (CSIRO)
 - "How to write a (potentially successful) observing proposal", Jörn Wilms (ECAP)
 - "Writing a Successful Proposal", Dimitri Gadotti & Nando Patat (ESO)
 - "How to write a strong observational proposal", Zhiyu Zhang (NJU)

A few "common senses"

- Read the call for proposals and the Proposers' Guide carefully (especially for **new capabilities** in Cycle 8; **distributed review vs. panel review**).
- Start the preparation as early as possible.
- Always check the technical feasibility.
 - Declination range? (not too north; not too high elevation)
 - Configuration schedule? (**no C-9/10 longbaseline** in this cycle)
- Always check the proposal style requirements
 - Page limits, font size, **dual anonymous**, etc.

How to write a **Strong** ALMA proposal?



(but note that **Strong** \neq **Proposal Accepted**,
and **Proposal Accepted** \neq **Data Acquired**.)

See Hirota-san's slides)

English proficiency

- A coherence story, with clear and simple language, is sufficient (and better).
- Make sure there are not too many typos and grammar issues (use spell check; tools like Grammarly).
- Do not use jargon, undefined acronyms, etc.
- Try to avoid cliché or exaggeration (e.g., missing link, ground breaking, Rosetta Stone, Holy Grail, ...)
- If possible, ask a native speaker friend to read through the proposal and give feedback.

(See Nick Indriolo's slides last year for some great tips)

Structure (example)

- What is the general **background** of this field?
- What are the **open questions** (three at most) in this field?
Why are these questions important?
- **Why ALMA is necessary** (instead of NOEMA/SMA or single dishes, or archival data) to answer these questions?
- **How the targets are selected?** Is the sample size big enough?
- **What analyses will be done** once you get the data?
(Compare with any models/simulations? Use any dedicated tools? How to deal with null results?)
- How do these analyses **answer the questions**?

Technical justification

- Rule of thumb: justify everything.
- Reviewers may easily pick problems from this part to reject some scientifically strong proposals (the need for XXX is not clearly justified...).
- For example: Why this band? Why this angular resolution(s)? Why this spectral resolution? Why this sensitivity? Why ACA/Total Power?

Re-submission

- Think over reviewers' comments from the last submission, and improve the proposal (and let the reviewers know this, e.g., highlight this in the abstract).
- Try to include recent progress (e.g., from partially delivered data; from other telescopes).
- Double check the instrument setup and technical justification
 - Some setups may be changed (e.g., new capabilities in Cycle 8; no C-9/10 configurations).
 - The same sensitivity may be achievable with much less time thanks to more antennas or refined T_{sys} .

Think like a reviewer

- Reviewers will try their best to find weaknesses and reject proposals:
 - "Any unanswered question is immediately considered a weakness. Do NOT give the reviewers easy-to-identify weaknesses!" — Nick
- Not all reviewers in the panel know your field, so make the proposal understandable and put your science into context.
- Reviewers are human, so be nice to them (see next slide).

Think like a reviewer

- A nice-looking proposal is always helpful (on the basis of good science).
- Polish the plots, do not just cut and paste from your papers.
 - Details (e.g., contours) should be clear enough.
 - Use arrows and labels to guide reviewers' eyes.
 - Always have scale bars for sky maps.
 - Clear and concise caption.
 - Use color-blind/bw-printer friendly color maps (bad example: rainbow).

Think like a reviewer

- Make the text as short as possible while including everything needed.
- Do not try to trick the reviewers
 - ✗ Use very small page margins to squeeze in more text.
 - ✗ Use very small font sizes for figure/table captions and references.
 - ✗ Put scientific justification that cannot fit into 4 pages to other spaces (e.g., duplicate justification, technical justification).
- Reviewers may get irritated... (after reading ~x10 proposals while being stuck at home)

Good luck!

- In case of no luck, no need to worry—
 - The same proposal can get accepted or rejected in different cycles (because of different reviewers?).
 - ALMA archive, many interesting data.
 - ACA-standalone Supplemental Call in September 2021.
 - Director Discretionary Time (DDT) opportunities.
 - Other telescopes (SMA, NOEMA, Nobeyama, JCMT, ASTE, IRAM 30m, ...).