

Paper Writing Tips

Anna Dignan

Why should I care about writing a good paper?

- ★ Increase the odds your paper will get accepted
- ★ Leave a good impression on your readers
- ★ Goes hand-in-hand with reading papers
- ★ Share knowledge with the community!

Step 0: Design your project with the paper in mind.

- ★ What is the broader context? Why is your work novel and essential?
- ★ What key figures and tables do you want to include?
- ★ Do you need to revise your methods? Take more data?
- ★ Some suggest writing a little every day.

Step 1: Draft a title, abstract, and outline.

- ★ **Title and abstract are the most read parts!!!**
- ★ Keep title as short as possible with as many keywords as possible.
- ★ Include those figures and tables!
- ★ Abstract: context, aims, methods, results, and conclusions.
- ★ Hourglass structure: broad, specific, broad.

Step 2: Write!

- ★ **Just write! Don't worry about making it "good."**
- ★ Start with easier sections (sample, data, methods).
- ★ Methods should be thorough enough so that anyone can verify and reproduce your results.
- ★ Leave the harder sections for last (discussion).
- ★ Good structure: what you're going to write and why → write it → summarize.
- ★ Figures and tables should be self-contained and able to tell the story alone.

Step 3: Edit, edit, edit!

- ★ **Simplicity is the ultimate sophistication.**
- ★ Active past tense is default; present tense for definitions or referring to figures and tables.
- ★ Leave “we/I” out of it.
- ★ Strong topic sentences (“bottom line on top”) + echo and transition words!
- ★ Consult technical writing guides.
- ★ Stop editing once you’ve hit a deadline or diminishing returns.

Step 4: Get feedback.

- ★ Send it to your advisor, coauthors, collaborators, etc.
- ★ Give a talk on the paper.
- ★ Some collaborations have a mailing list and opt-in authorship system.
- ★ Set a deadline for feedback that is one week before the date by which you want to submit.
- ★ Keep coauthors updated throughout the process!

Attached is a final **draft** of a **paper** on which I have identified you as a coauthor. This **paper** presents new 90 GHz GBT continuum imaging of star-forming regions in nearby galaxies. We combine these new data with 3, 15, and 33 GHz VLA continuum imaging of the same regions to decompose the radio spectra into its emission components and calculate thermal fractions at 33 GHz. We investigated three different ways of performing this spectral decomposition and thermal fraction calculations.

I plan to submit the **paper** by **December 6**. If you would like to be included in the author list, please provide any feedback before this date and add your name, affiliation, ORCID ID, and any acknowledgements/grant numbers.

The **paper** is attached to this email as a PDF, and here is the link to the Overleaf: **MailScanner has detected a possible fraud attempt from "urlddefense.us" claiming to be MailScanner has**

Step 5: Revise (more editing!).

- ★ COST: Content, Organization, Style, Technical.
 - C: Are necessary parts there? Are parts there necessary? Is it clear and accurate?
 - O: Is it easy to find info you're interested in? Do sections build on each other? Avoid repetition!
 - S: Concise? Acronyms defined? Terminology consistent?
 - I: Typos? Bad grammar? Correct formatting?

When you incorporate all the feedback from every critique.



A cautionary tale...

Dear Anna Dignan:

We are in the process of ingesting data from your article "The Star Formation in Radio Survey: Adding 90 GHz Data to 3–33 GHz Observations of Star-forming Regions in Nearby Galaxies" ([2025ApJ...988..216D](#)) into the NASA/IPAC Extragalactic Database (NED).

The following information is needed for us to process your article:

Coordinates in Table 2 seem to be jumbled compared to the named galaxy. For example:

NGC 4594 20 34 52.32 +60 09 14.00 - coords are for NGC 6946

NGC 4625 22 37 04.10 +34 24 56.00 - coords are for NGC 7331

NGC 6946 14 05 01.30 +53 39 44.00 - coords are for NGC 5474

NGC 7331 12 42 08.10 +32 32 29.400 - coords are for NGC 4631

Table 2 is difficult to process as published. Please provide a corrected, column-aligned text file. Refer to Sec 3.1 of the [Best Practices for Data Publication in the Astronomical Literature](#) for the recommendations on how tabular data should be reported.

We are putting the ingest process for this article on hold, awaiting your reply. Thank you in advance for helping us integrate your data into NED as accurately and timely as possible.

Sincerely,

Marion Schmitz
for the NED team

Step 5: Pick a journal for your paper.

- ★ Is it within the journal's aims and scope? Is it significant enough?
- ★ See previous discussion re: authorship.
- ★ Collect all necessary information from coauthors (affiliations and grant #s!).
- ★ Follow their formatting and style guidelines (i.e. <https://journals.aas.org/manuscript-preparation/>).
- ★ Don't take it personally if it is rejected.
- ★ Post it on arXiv once it is accepted.

Step 6: Celebrate!!!



A screenshot of a Facebook post by Anna Dignan. The post features a circular profile picture of a woman with dark hair and glasses. To the right of the picture is the name 'Anna Dignan' with a verified badge and the text '• You'. Below the name is the bio 'Astronomy Graduate Student at ...' and the text '8mo • Edited •' followed by a globe icon. In the top right corner of the post area, there are three dots. The main text of the post is a paragraph celebrating the publication of a paper. Below the text is a blue hyperlink. At the bottom of the post is another paragraph providing details about the paper's creation.

Anna Dignan ✓ • You
Astronomy Graduate Student at ...
8mo • Edited • 🌐

I am pleased to announce that my **FIRST** first-author paper, "The Star Formation in Radio Survey: Adding 90 GHz Data to 3–33 GHz Observations of Star-forming Regions in Nearby Galaxies," has been officially published!

<https://lnkd.in/ecB39MWk>

"Born" on July 25, 2025, at 5:05 AM, it is 18 pages long and contains 6 Figures and 6 Tables, as well as two Figure Sets. This concludes the work I did as a post-baccalaureate student at NRAO and during my first year of graduate school. I can't wait to share the next paper with everyone!

Sources

<https://pmc.ncbi.nlm.nih.gov/articles/PMC3907284/>

<https://arxiv.org/abs/2110.05503>

<https://www.northwestern.edu/climb/resources/written-communication/>

UVA PhD Plus Fellowship & Grant Writing Series 2025