

The Narrative

Proposals & the Narrative

- At least 2/3 of proposal ideas quality as “Good to do”
- This isn’t enough : telescope time & \$\$\$ are always more limited than the supply of good ideas.
- You need to move from:
“Good to do” to “Must be done”
- This requires a really strong story, backed by a really strong argument, explained with impeccable clarity.

I. Crafting a strong story.

1. Topic X is important and interesting.
2. But.
3. This is how we will address “But.”

A proposal is best viewed as an argument that leaves the reader believing that #1 & #2 are true and that #3 is the best way forward.

Your goal with #3: Put words in the reviewer's mouth that they can parrot back to the committee.

The Narrative – For a proposal this usually centers around a question → “the problem”

*We propose for “*OBSERVATORY* observations” of Molecular cores in the Monoceros molecular cloud in order to determine if they follow a power-law mass distribution with a slope similar to the IMF.*

Q. What is the Target? And the Key Component?

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- Target: Monoceros molecular cloud
- Key Component: Observatory obs of molecular cores

What is the Story? i.e. the
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What **direct** problems/questions does the result
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“Do the cores follow the IMF or not?”

What is the Story? i.e. the “Problem/question”?

What **bigger picture** problems/questions does the **direct question** answer?

- i.e. why does the direct question MATTER?
- This is what you should be discussing in the intro of your talks.
- Ask Astro to answer the question without ChatGPT , the LPL folks to use Chat GPT.

Possible stories:

- “How do stars form?” -- too broad
- “What is the substructure within molecular clouds?”
- “Is the substructure within molecular clouds driven by compressive or solenoidal forcing?” – or what physical processes drive the formation of substructure in mol clouds?
- **“What is the origin of the IMF?”, “Is the IMF universal”**

Your proposal would be completely different depending on your choice of story !!

Generative AI

- *Prompt:* What is the big picture science question in the following: We propose for observations of Molecular cores in the Monoceros molecular cloud in order to determine if they follow a power-law mass distribution with a slope similar to the IMF.

ChatGPT:

- The **big-picture science question** behind this proposal can be framed as:
- “**Does the mass distribution of dense molecular cores—the immediate precursors to stars—directly set the stellar initial mass function (IMF), or is the IMF shaped later by star-formation processes?**”

Generative AI

- *Genesis:* The big-picture question driving this proposal is: **Does the distribution of stellar masses (the IMF) originate directly from the distribution of the gas clouds that form them?**
- In simpler terms, it is asking if the final mass of a star is "pre-determined" by the initial mass of the molecular core it was born in.

Title

- This should connect explicitly to the direct question **and** the bigger picture question or just the direct question.
- Depends on the scope of the proposal – sometimes it is more important to focus on the very big question vs the smaller (e.g. Treasury vs. Very Small proposal)

Chat GPT answers:

- “**Testing the Core Mass Function–Initial Mass Function Connection in the Monoceros Molecular Cloud**”
- “**The Mass Distribution of Molecular Cores in Monoceros: Implications for the Origin of the IMF**”
- “**Do Molecular Cores Set the IMF? A Study of the Monoceros Molecular Cloud**”

Abstract Outline

Facts

Importance of Facts

Probability of Impact

Problem → sets the narrative

The direct question

Goal – identify the “key component” that will solve the problem using a “target”

We propose to...

Strategy – to utilize/generate the key component , (Justify HST/JWST, explain utilizing the “target”)

Suitability

Importance of Solution

Impact within Sub Field

Broader Impact → sets the narrative

Out-of-subfield Impact – the Bigger Question

Narrative Examples

- Determine the narrative from the Goal Statement and some of strategy
- If you are in Astronomy – use Generative AI to help you answer the Planetary Science example.
- If you are in Planetary Science – use Generative AI to help you answer the Astronomy example.