



# ESO La Silla Observing School (2025)

## How to write a good proposal

**Monika Petr-Gotzens (ESO Garching)**

**Based on previous versions by C. Paladini, N. Patat, D. Gadotti**



# Outline

- Shall I write a proposal? A good idea to start with
- ESO proposal – general style and content – what to fill in
- The heart of a proposal: the scientific rationale+immediate objective
- The body of a proposal: targets, time justification, mode justification etc etc ...
- General tips and tricks
- Policies - Good to know
- When and how to submit - next proposal deadline



# A great idea to start



➤ How? To have ideas for a science case read a lot of papers and go to seminars!

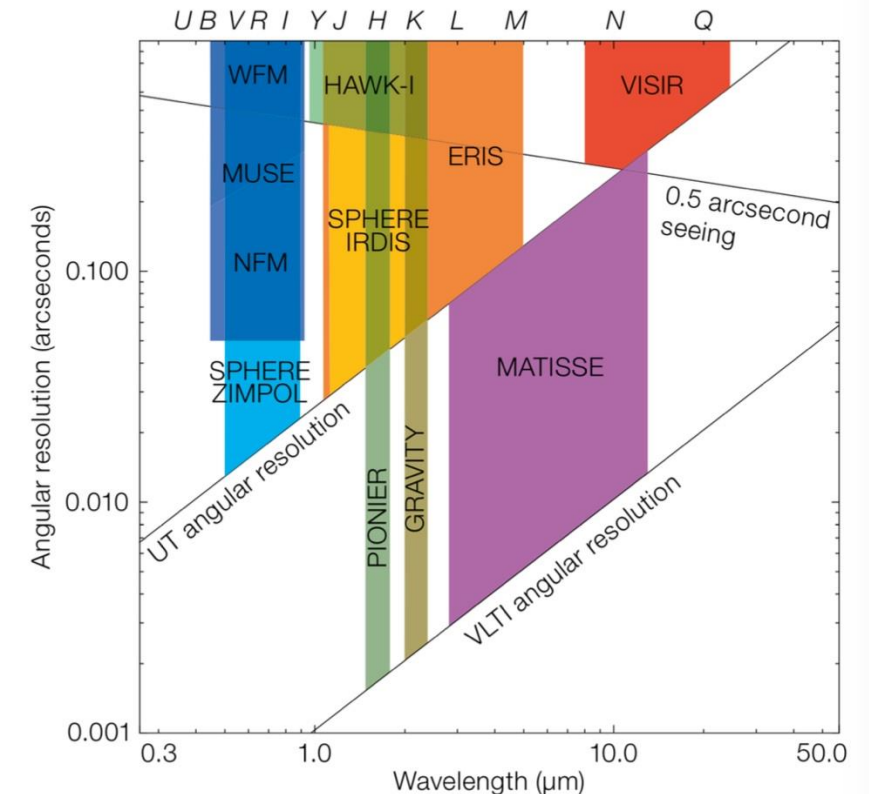
➤ Whenever you think you have a great idea, often somebody else had it already → check the literature!!

➤ Talk to your group colleagues / convince your collaborators



# A great idea to start

- Before investing a lot of time in writing:
- ## Check the feasibility first:
- target(s), which instrument?
  - Spatial/spectral resolution? rough exposure time?



Credits: ESO Messenger



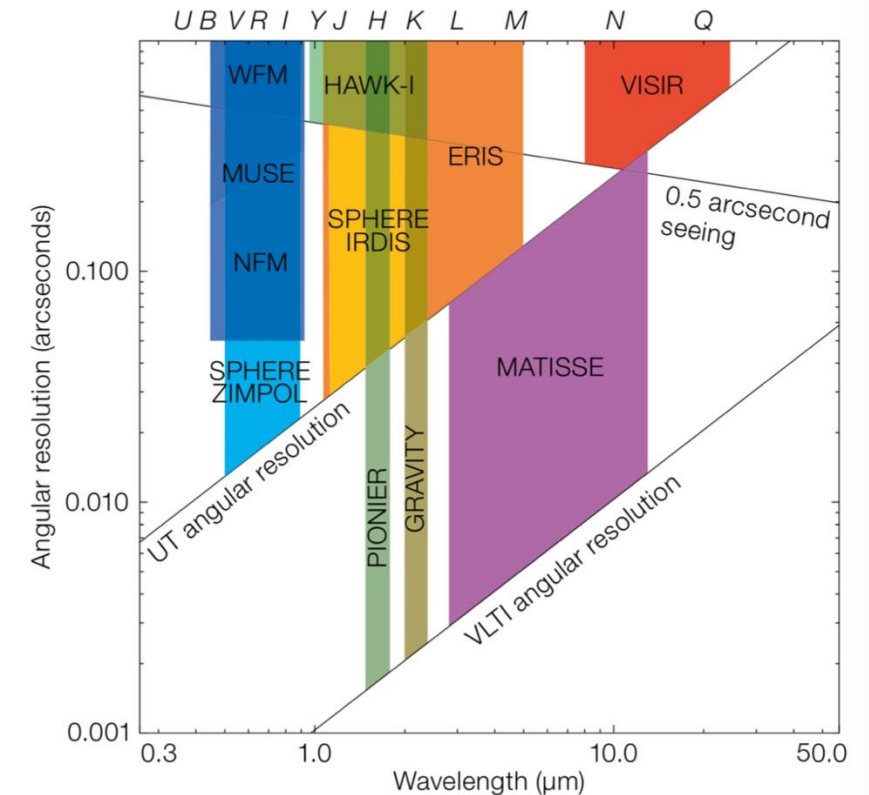
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## Check the feasibility first:

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Target(s) available  
and visible



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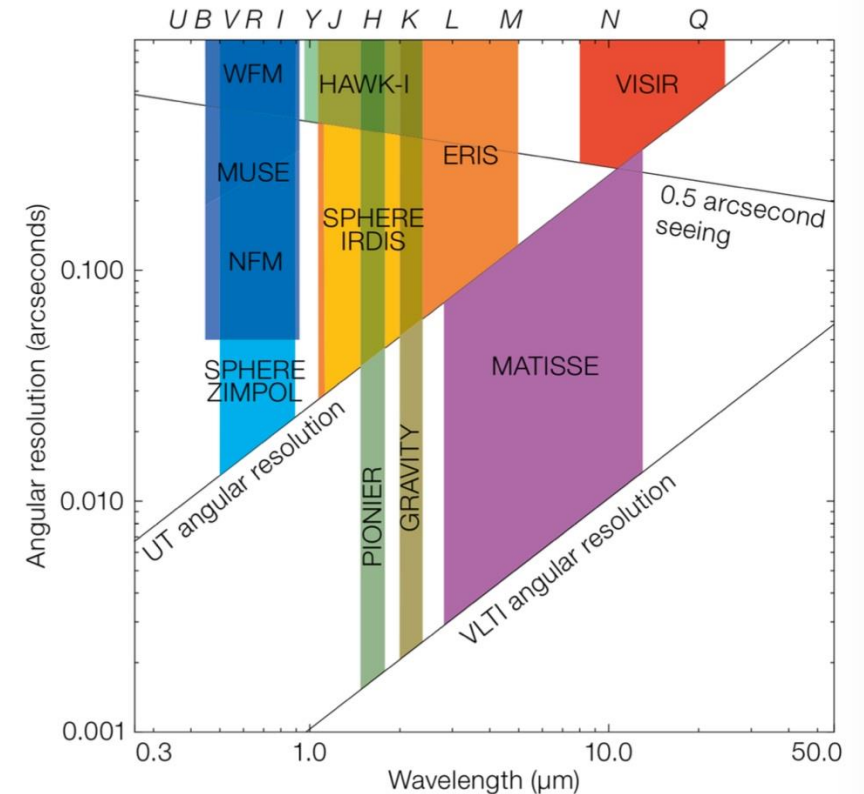
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Right instrument  
+ technique



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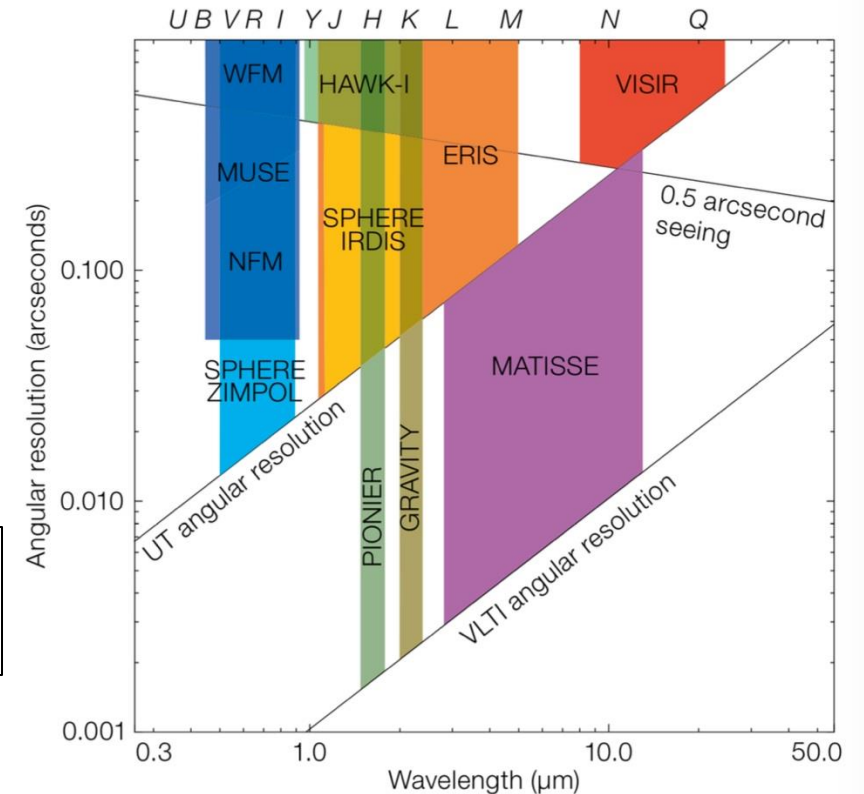
Target(s) available  
and visible



Right instrument  
+ technique



Required  
 $T_{\text{exp}} \ll \text{days weeks}$



Credits: ESO Messenger





# (ESO) proposal - general style and content



European Organisation for Astronomical Research in the Southern Hemisphere  
 Observing Programmes Office • Kari-Schwarzschild-Strasse 2 • D-85748 Garching bei München • email: obo@eso.org • Tel: +49 89 3200 6473

**DRAFT**

Cycle: P114  
 Type: Normal  
 Status: Draft  
 Printed: 19 Feb 2025

to be assigned

## APPLICATION FOR OBSERVING TIME

### IMPORTANT NOTICE

By submitting this proposal, the PI takes full responsibility for the content of the proposal, in particular with regard to the names of CoIs and the agreement to act according to the ESO policy and regulations, should observing time be granted.

test

### ABSTRACT

### SCIENTIFIC KEYWORDS

### RUNS

Run	Period	Instrument	Tel. Setup	Constraints	Mode	Type	Propr. Time	Time Constr.	Req. Time
AWARDED AND FUTURE TIME REQUESTS									
Time already awarded to this project									
- none -									
Future time requests to complete this project									
- none -									
Special Remarks									
- none -									
- no rationale -									

Time already awarded to this project  
 - none -  
 Future time requests to complete this project  
 - none -

### Special Remarks

- none -  
 - no rationale -

- test
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- Targets
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- Previous Usage
- Applicants' Publications

### TARGETS

Name	RA	Dec	Coord	Runs	Comment
- none -					

### REMARKS & JUSTIFICATIONS

#### Lunar Phase and Constraints Justification

Please justify here the requested lunar phase and other observing constraints. (Anonymized)  
 - none -

#### Time Justification

Please describe here a detailed computation of the necessary time to execute the observations, including time-critical aspects if any. Parameters used in the ETC should be mentioned so the computation can be reproduced. (Anonymized)  
 - none -

#### Telescope Justification

Please justify why the telescope requested is the best choice for this programme. (Anonymized)  
 - none -

#### Observing Mode Justification

Please justify the choice of SM, VM or dVM. (Anonymized)  
 - none -

#### Calibration Request

If you need any special calibration not included in the instrument calibration plan, please specify it here. (Anonymized)  
 - none -

#### Duplication with ESO Science Archive

If observations of the same target(s) using the same instrument(s) already exist in the ESO archive, please specify why this programme requests further observations. (Anonymized)  
 - none -

#### GTO Target Duplication Justification

If an instrument GTO team aims at the same target(s), please justify why this programme requests further observations. (Anonymized)  
 - none -

#### Background and Expertise

Short description of the background, expertise and roles of the various team members in the context of the science case discussed in the proposal. For small teams the applicants may wish to provide a sentence for the qualifications of each member, while for larger teams (e.g. in Large Programmes), only the leading roles need to be specified.  
 - none -

#### REPORT ON PREVIOUS USAGE OF ESO FACILITIES

RECENT PI/CoIs PUBLICATIONS MOST RELEVANT TO THE SUBJECT OF THIS PROPOSAL  
 - none -

#### INVESTIGATORS

Phase 1/2 Tutorial Account, ESO Garching, ESO (PI)

#### OBSERVATIONS

In the table below, the repeat factor is applied to the complete observation on that target, including its overhead.  
 ✓ The PI acknowledged that all the telescope times listed below include overheads.

<https://www.eso.org/p1demo/proposals>







# (ESO) proposal – heart: Scientific Rationale



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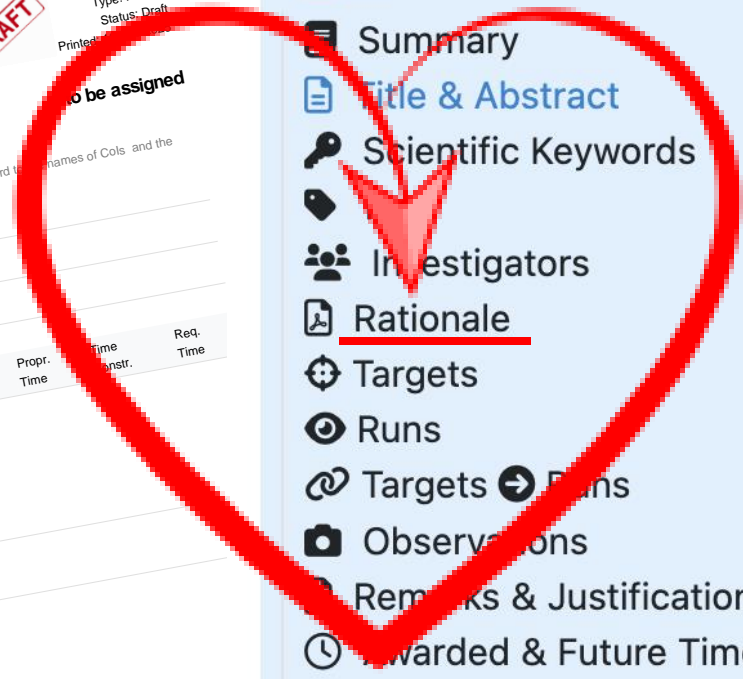
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# (ESO) proposal – heart: Scientific Rationale

This is the place where to "sell" your exciting science case

➤ Analyse your audience first! Who are the referees?

**Proposals req. < 16hrs** - distributed **peer** review (competitor PIs)

**Proposals req. > 16hrs** - review is done by **OPC/TAC panel members**

Both groups of referees indicate expertise with following keywords:

## Available Scientific Keywords

▶ COSMOLOGY

▶ GALAXIES

▶ INTERSTELLAR MEDIUM (ISM), NEBULAE

▶ PLANETARY SYSTEMS

▶ STARS

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▶ THE SUN



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Both groups of referees indicate expertise with following keywords:

**Your particular proposal may not fall within the main area of specialisation of any of the referees!!**

## Available Scientific Keywords

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- ▶ INTERSTELLAR MEDIUM (ISM), NEBULAE
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- ▶ THE SUN



# (ESO) proposal – heart: Scientific Rationale



## 1. Clearly describe the context/importance of your project and its relevance for general astrophysics. Why do we care?

- make your science understandable and avoid jargon
- expressions in your field may not be used in others, avoid acronyms which may not be clear to everybody (what was  $\epsilon$  Eri Ba again?)  $H_0$  may be understood by most,  $w'$  needs explanation
- if you need acronyms or special terms explain them



# (ESO) proposal – heart: Scientific Rationale



## 2. Clearly explain what is/are the important open question(s)? What will we learn by answering them? (no more than 3 questions)

- make sure any recent related results are emphasised in a way that can be understood by your peers regardless of their expertise!
- There is no time for referees to check the literature!
- avoid complicated language, use simple and correct English (ask (senior/native) colleagues for help)



# (ESO) proposal – heart: Scientific Rationale



## 3. What are you proposing to address the open issues?

- Present the observations to address the previous question(s)
- Need to convince your peers your idea is good, it will lead somewhere, and it should be pursued
- Be explicit, do not assume that the referee will work out what you mean
- If the referee does not understand what you say you have lost
- Clearly describe the sample/target selection
- Present your strategy for data reduction and interpretation
- Also discuss the implications of a negative result
- Point out the expertise of your team



# (ESO) proposal – heart: Scientific Rationale



Description + Immediate Objective  
2 pages including figures!



PANIC!

- Keep it simple and concise!
- Choose the most interesting-catchy-cool result you expect
- Choose 1-2 nice, representative, simple figures

**FOCUS!**



# (ESO) proposal - body

**Write a consistent proposal !**

- Justify the request for telescope resources (time/instrument/conditions)
- Exposure times and target sample have to match your science case, use the ETC

ESO Exposure Time Calculators		
Facility	Imaging	Spectroscopy
La Silla	EFOSC2    SUSI	EFOSC2    HARPS
	WFI	NIRPS
Paranal UT1	FORS2 (old ETC)	FORS2 (old ETC)
	FORS2 (new ETC)	
		LIVES

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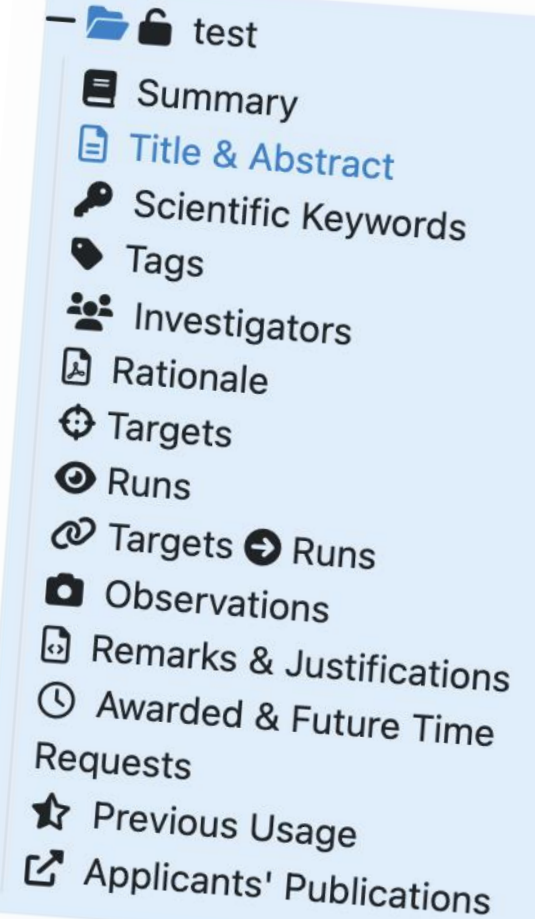




# (ESO) proposal - body

**Write a consistent proposal !**

- Demonstrate what you propose is feasible!
- If you have just one target clearly argue why that one is a “picture changer”
- Do not underestimate this part of the proposal - although much more ‘technical’ it takes time!
- Referees are good in identifying any inconsistencies



test

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# (ESO) proposal – the abstract

**It is more important than you might think**

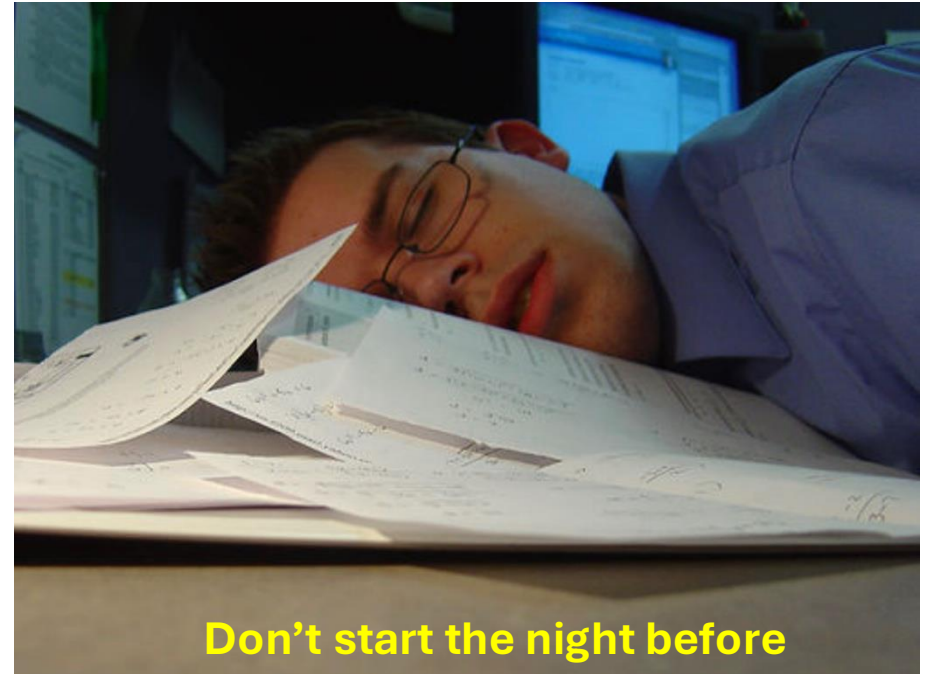
- This is the one paragraph that is guaranteed to be read by everybody
- You must be able to summarise the excitement in one paragraph
- Revisit your abstract several times during the writing and improve it
- The abstract has to contain the punch line



# (ESO) proposals – Some tips and tricks



- Do **not start the night before** the deadline – very bad idea
- Instead, plan well and distribute your proposal draft to your co-Is latest a week before the deadline
- Consider if your science can be done in **THIN CLOUDS** conditions – do not over-constrain!
- Suitable for an “All weather programme”?



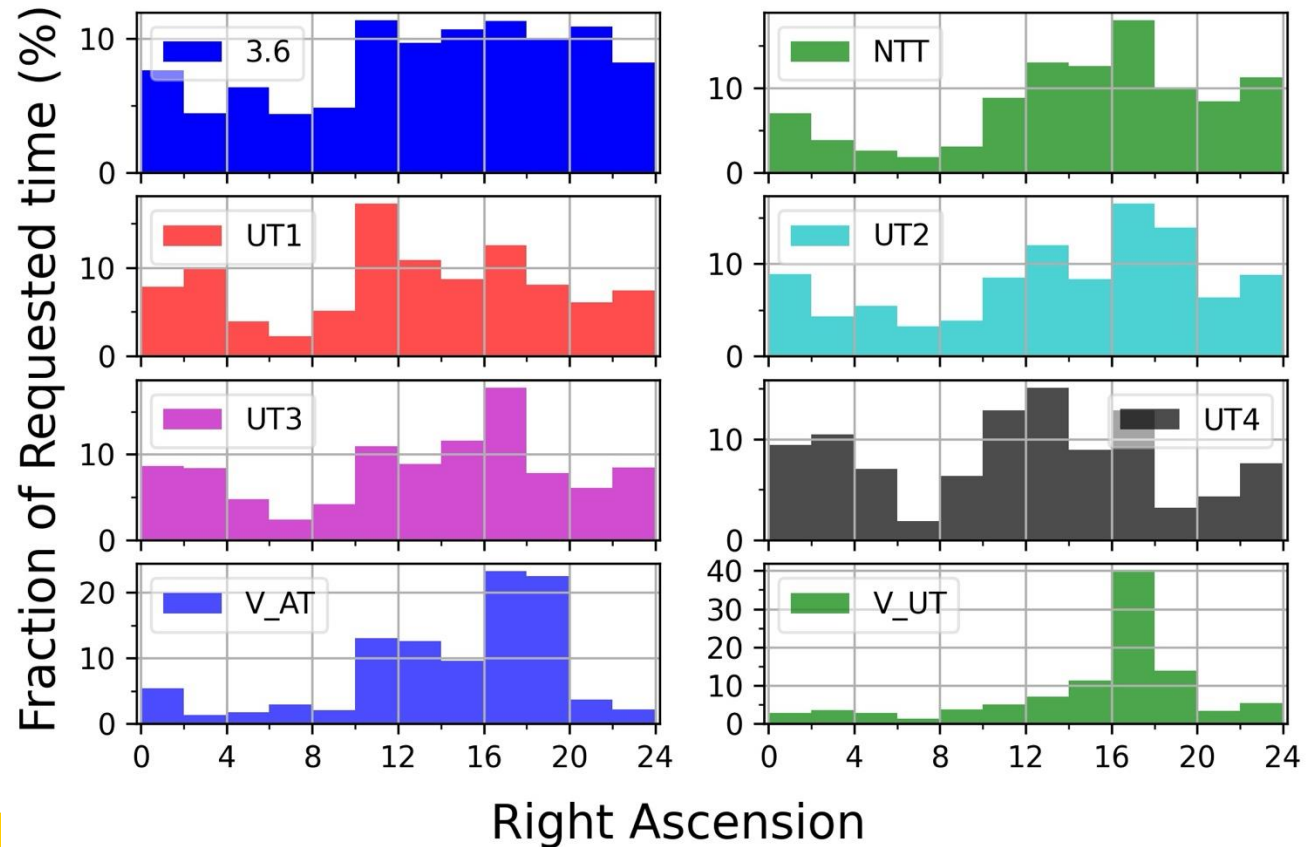
# (ESO) proposals – Some tips and tricks



➤ If you can, choose your targets wisely, i.e. in a less demanded RA range

## RA distribution in odd periods (109 - 113)

Last updated: 2024-07-29 09:58:58.524114 by OPOSTAT



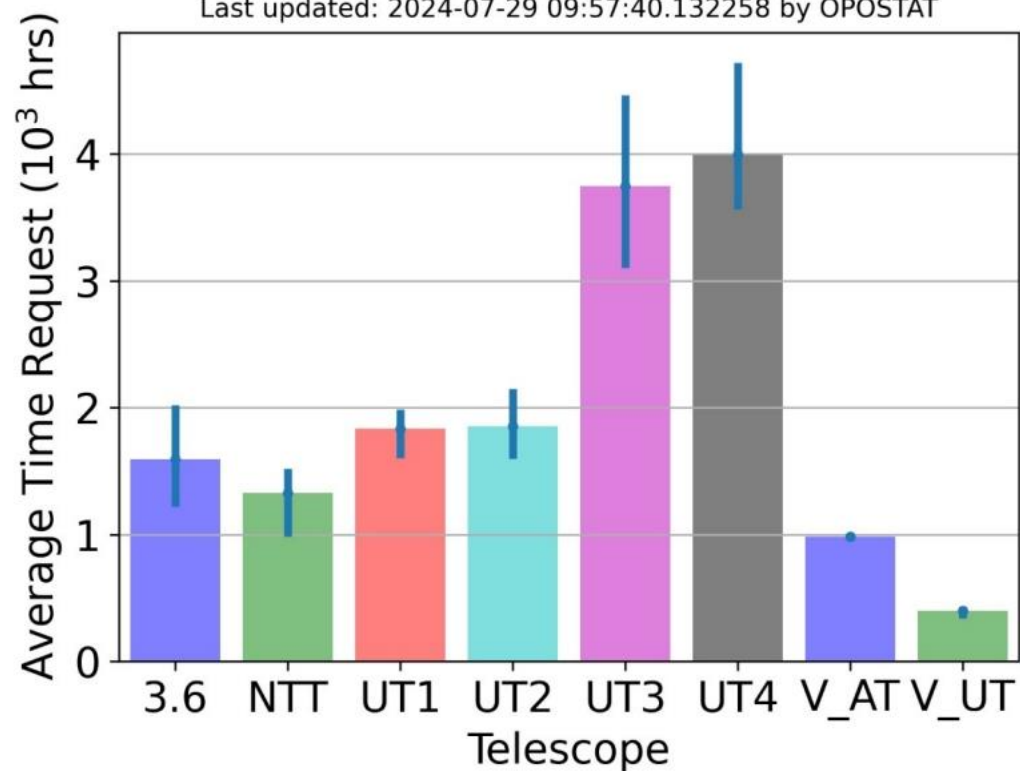
# (ESO) proposals – Some tips and tricks



- If you can, chose your targets wisely, i.e. in a less demanded RA range
- ... or different telescope

### Telescope demand in odd periods (109-113)

Last updated: 2024-07-29 09:57:40.132258 by OPOSTAT



# ESO proposals – Good to know

## Proposal Anonymization

- As of P107 ESO adopts the Dual-Anonymous Peer Review.
- Purpose is to have the review focusing on science, not on the team.
- Proposals **MUST** comply to the anonymization guidelines: [Dual-Anonymous Guidelines](#).
- **Anonymizing your proposal takes time and effort!**
- Anonymization must be applied to Title/Abstract/Scientific Rationale/Time justification/...
- Sections that are not anonymous and will not be shown to the reviewers. There you can/have-to be explicit:
  - Previous usages of the ESO facilities
  - Publication list
  - Background & Expertise
  - Team composition (in alphabetical order)



# ESO proposals – Good to know



## Use of AI - ChatGPT

- If Artificial Intelligence services are used to help write a proposal, the PI remains responsible for the content of the proposal and ensuring the text is properly referenced according to normal scientific standards.

## A non-ESO member state proposal

- A proposal is designated as Non-Member State proposal if more than 2/3 of the applicants are from institutes not affiliated with an ESO Member State/the Host State (Chile)/PartnerShip States

## Support for proposal writing

- ESO encourages unexperienced users to ask for support from ESO scientists with relevant scientific expertise. Requests for support should be sent to [science\\_p1support@eso.org](mailto:science_p1support@eso.org) at least three weeks before the proposal submission deadline!!



# ESO proposals – Good to know



## Scheduling/Time allocation is done by a tool

- The review of OPC members and peer reviewers leads to a proposal grading. The actual allocation of time is done by the scheduling tool, following the grading.
- This means relaxed constraints on seeing/Moon/Sky **can** help to get time!

## Check out the Call for Proposals (CfP)

- CfP (next P116) will have all necessary info – read it and follow the links
- So far, two calls for proposals per year. **From Oct 2025 on (P117) there is only a yearly cycle.** Fast Track Channel proposals with staggered deadlines throughout the year will be introduced simultaneously.



ESO CALL FOR PROPOSALS  
P116





# Summary: what makes a proposal successful



- **Exciting science case**
  - clearly outlining the knowledge gain for contemporary astrophysics
- **A novel idea**
  - Unusual method, new idea and/or approach, unique observation
- **Clear language**
  - Presentation of an exciting and self-consistent story, which is interesting for many people
  - Information to the point
- **Consistent story**
  - The proposal is complete and provides all information
  - Quantitative arguments for the amount of requested time





# ESO proposals – Next opportunity

<https://www.eso.org/sci/observing/phase1/p116/proposalsopen.html>

## Call for Proposals

ESO invites proposals for observations at ESO telescopes during Period 116.

The deadline for Period 116 (1 October 2025 – 30 April 2026) is:

**20 March 2025**

(12:00 noon, Central European Time)

The conditions and policies for proposing for observations are outlined and linked in the **Period 116 Call for Proposals** document.

Announced 3 hours ago

- Proposals are submitted via the **p1** proposal preparation tool.
- See the **Late Breaking News** for information that become available after the release of the Call for Proposals.
- Information for proposal preparation, technical information, foreseen changes can be found in the **Useful links for Period 116** webpage.
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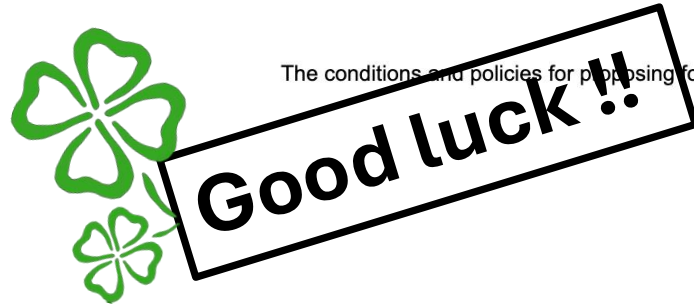
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