

Distributed Peer Review at ESO

Tereza Jerabkova & Nando Patat

Observing Programmes Office

Introducing Distributed Peer Review

- The **Distributed Peer Review** (DPR) concept is simple.
- First introduced in Astronomy by [Merrifield and Saari \(2009\)](#).
- By submitting a proposal the PI agrees to review N proposals submitted by peers during the same round of applications.
- And to have their proposal/s reviewed by N peers.
- Also, if s/he submits M proposals, s/he accepts to review $N \times M$ proposals.
- This (in principle) limits the number of submissions per PI through a self-regulating mechanism.

DPR/2

- First deployed at Gemini for their Fast Turnaround Channel. Small scale, open call ([Mortensen+ 2019](#)).
- ESO DPR experiment (P103; [Patat+ 2019](#), [Kerzendorf+ 2020](#)).
- ALMA has implemented it in Cycle #8, for all non-Large programmes ([Meyer+ 2022](#)).
- Deployed at ESO as of P110 for programmes requesting less than 16 hours^[*], ~50% of the proposals ([this link](#); Jerabkova+ 2023, in press).
- Practical instructions for reviewers can be found [here](#).

[*] *Exceptions are Calibration, ToO, Joint (XMM, ALMA), other special cases*

DPR at ESO/1

- A PI submitting 1 proposal gets 10 to review by the deadline (4 weeks).
- The proposals are distributed using a **prioritised set of keywords (3 to 5)** from the same set used in the PI profile of the User Portal.
- The PIs can delegate the reviewer role to one of the Cols.
- The reviewers [give grades \(1-5\)](#) as in the Panels.
- The reviewers declare their level of expertise w.r.t. each of the 10 assigned proposals [expert/mid/no].
- Instructions and guidelines [are provided here](#).

DPR at ESO/2

- The 10 grades are aggregated to form the final average. They are then merged (after normalization) to those of the panels.
- Each reviewer enters the feedback to the PI.
- This is not edited/checked by the Observatory.
- Reviewers failing to deliver will have their proposals automatically rejected.
- The PIs are provided with 10 independent and unabridged comments, as opposed to the single, collegial panel comment.
- The PIs are asked to provide their evaluation on the usefulness of the feedback they received [*... ****]. **If you are one of those, please do it!**

Advantages and Pros of DPR

- DPR allows junior researchers to participate to the process (20% in P110).
- DPR allows a significant increase in the number of reviews. This improves the statistical significance of the final ranking.
- DPR makes use of a much larger (x10) pool of scientists, improving the proposal-reviewer match (and the feedback).
- DPR at ESO has decreased by 50% the load on the panels, hence facilitating their work and putting them in a better condition.
- DPR manages ~20% of the total requested time. The rest is handled by the Expert Panels and Observing Programmes Committee.

Keyword and Proposal-Reviewer matching

- Multiple keywords (2 to 5) are specified in the [User Portal Profile](#) by all users who intend to submit a proposal since P105.
- Multiple keywords (2 to 5) are specified by the PIs in p1 from the same set of keywords.
- The keywords replace the vintage category/sub-category schema.
- Keywords are specified **in priority order** both in the UP and in the proposal.

Select your Scientific Expertise Keywords
Please sort keywords by your level of scientific expertise from high to low using drag'n drop

Scientific Keywords ⌵ Collapse all ⌶ Expand all

Selected Scientific Keywords	
stars: supernovae	✖ Remove
ISM: dust, extinction	✖ Remove
stars: evolution	✖ Remove
stars: gamma-ray burst	✖ Remove

Account Configuration

Change Username

Change Password

Change E-mail Address

Manage Profile

Available Scientific Keywords	
▶ PHYSICAL DATA AND PROCESSES	
▶ ASTRONOMICAL INSTRUMENTATION, METHODS AND TECHNIQUES	
▶ ASTROMETRY AND CELESTIAL MECHANICS	
▶ THE SUN	
▶ PLANETARY SYSTEMS	
▼ STARS	
< stars: abundances	
< stars: atmospheres	
< stars: chromospheres	
< Add stars: binaries	
< Add stars: black holes	
< Add stars: brown dwarfs	
< Add stars: circumstellar matter	
< Add stars: coroneae	

Keywords and future

- Keywords are used to produce knowledge vectors, from which the similarity cosine is computed.
- It is important you specify the keywords as accurately as possible to guarantee a better match (and hence a better review/feedback).
- ESO is considering an AI approach by which the proposals and the reviewers are “profiled” based on textual analysis (proposals on one side, PI publications on the other).
- If you are interested, look at the ESO Workshop “[Peer review under review](#)”.
- The fraction of DPR proposal may increase in the future (e.g. 80/20 or 50/50 in time). Discussions with the governing bodies are ongoing.

Thanks!

