

STFC Astronomy Grants Panel Community Report 2021

Lyndsay Fletcher, AGP Chair

Dear Colleagues,

At the end of the 2021 Astronomy Grants Panel round I am writing to the community to summarise the round, including applications received and support awarded, some statistical, historical and procedural information, and issues ongoing and arising. I hope that you will find this useful.

Overview of the 2021 Round

The STFC Astronomy Grants Panel (AGP) assesses responsive research grant proposals in astronomy and space science covering basic research, exploitation, theory and modelling and the development of basic technology related to the programme. This year's Astronomy Grants Panel (AGP) call was the 2nd round (of 3) in the 4th cycle of Consolidated Grants (CGs).

Applications Received: Table 1 summarises applications received this year and in 2018 when this group of applicants last submitted proposals. 124 proposals were submitted in the Astronomy Observations and Theory areas (AO/AT) and 73 in the Solar Studies and Planetary areas (SS/PL), from a wide range of group sizes and geographical locations.

| Statistic | 2021 | 2018 |
|------------------------------------|------|------|
| Total number of grant applications | 36 | 38 |
| Consortium applications | 3 | 4 |
| New Applicant applications | 7 | 8 |
| Number of individual applicants | 238 | 256 |
| Number of projects * | 197 | 210 |
| Requested applicant staff years | 136 | 150 |
| Requested PDRA staff years | 582 | 600 |
| Requested technician staff years | 22 | 40 |
| Average "overbid" on PDRA+Tech † | 2.31 | 2.22 |

Table 1: Statistical information on the current round and 2018

* 198 projects were submitted and one was subsequently withdrawn.

† The average "overbid" is the ratio of requested to current PDRA and technician effort for applicants who received AGP support in 2018.

Applications Supported: The AGP were pleased to be able to recommend support for the 70 highest-ranked projects from 25 Research Organisations representing 36% of all project proposals submitted, at a total value of £10M per annum. This corresponds to 70 FTE of PDRA effort and 3.1 FTE of technical effort, as well as 12.72 FTE of applicant effort. 39% of the 238 applicants received FTE at an average level of 13.7% FTE per funded applicant (note, we award 15% to a project's PI and typically 5-10% for clear and well-justified additional PI and Co-I roles). The ratio of recommended PDRA posts in AO/AT to that of SS/PL is 0.63:0.37 which is the same as the ratio of the projects proposed to the two calls. Figure 1 shows this year's requested and awarded resources in their historical context.

Applications are assessed by the panel on a number of criteria, broadly unchanged over many years, and aligned with those required by UKRI. AGP criteria in 2021 and their weightings were: Importance of the proposed research [6]; International leadership of team and project [5]; Feasibility of the proposed work [5]; Applicant productivity [2]; Environment and Management of group, including

Impact Plan [2]; Strategic value to STFC/UKSA [2]; Urgency of the proposed work [2]. This year AGP was unable to support many projects that were assessed by the panel against the first 2 criteria as “likely to lead to substantial impact on the field” and “internationally competitive”. This is due to the slow erosion of the number of PDRA and Technician posts that can be supported in the ongoing flat-cash environment. Within the constrained AGP budget it is necessary to find a balance between PDRA/Technician posts (\approx number of projects) and the Applicant FTE needed to manage and contribute to a project effectively. The AGP has sought to preserve the number of projects supported by trimming Applicant FTE. Nonetheless in the equivalent round two cycles ago 80 PDRA/ Technician posts could be funded, compared to 73.1 now.

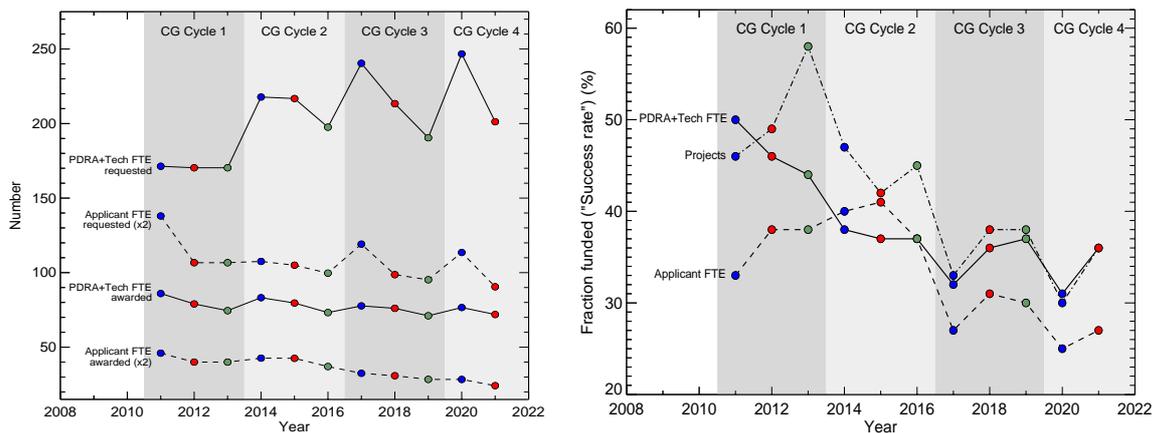


Figure 1 Left: The evolution of requested PDRA+Technical and Applicant FTE, and awarded PDRA + Technical and Applicant FTE, since the start of the CG scheme. Each colour denotes (mostly) the same set of ROs and Applicants. Right: The ‘success rates’ of the CG scheme over time according to the fraction of Projects funded, Applicant FTE funded, and PDRA+Tech FTE funded. In both panels the colours denote the same set of ROs and Applicants.

Gender Balance and Other Diversity Information: Each year we explore possible biases in AGP’s decision-making. We aim first for diversity in panel composition. This year the panel composition overall was almost 50% women (6/10 in AO/AT, 3/8 in SS/PL and 1/3 in the Technology Expertise panel). Three of the four sub-panel chairs, and the AGP Chair, are women. However, recognising that everyone can be subject to the same unconscious biases we continue to raise awareness of this in our pre-meeting panel presentation.

In 2021 of the 238 Applicants, 5 did not disclose their gender in their Je-S user profile¹. Of the remaining 233 applicants, 18% were female, as were 19% of the 92 funded applicants. Looking at project leadership, 20% of the submitted projects were female-led, and 16% of the 70 funded projects. The fraction of female and lead applicants receiving funding is consistent, within statistical errors, with the fraction of female applicants, but overall there is a slightly lower success rate for female project leads than in the previous 3 rounds. We will keep these statistics under review.

The Je-S system records diversity information other than gender, but this is not mandatory and not filled out so systematically by Applicants. We encourage all potential Applicants to do this in the future so that other diversity strands can be similarly monitored. *We emphasise that no personal information on applicants from their Je-S profile is visible to any panel member, including the Chairs, at any point in the process, including after the round has concluded*

Commentary

The 2021 AGP process differed from the 2020 process in 2 ways. In 2021, with a better understanding of how long discussion takes in an online format, the panel were able to discuss the

¹ The Je-S user profile records gender as “Male / Female / Not disclosed”.

upper 65% of projects (around 35% of projects can typically be funded) compared to in 2020 when only those projects between the 82.5th and 47.5th percentile were discussed (with those above the 82.5th percentile automatically being funded). The 2020 Chair's report describes in detail the pre-panel anonymised project ranking, sifting and recall, and its robustness and it is not repeated here. In addition, detailed panel feedback could again be provided for all projects.

The AGP is pleased to be able to recommend support for the most highly ranked of the projects it receives. However, demand substantially outstrips available resources, and many excellent projects cannot be funded, leading to disappointment for the majority of the UK astronomy community. The fundamental ongoing problem is the insufficient level of funding available in the astronomy area for exploitation and blue-skies technical development. This is due to i) the combination of a flat-cash settlement and inflation (now rising again, having been low and falling since 2017); ii) the ever-increasing costs of academic, PDRA and technical and support staff, and overheads (estates and indirects) charged by universities, iii) the development of ever more complex and capable facilities, in which STFC/UKSA have invested, that demand PDRA support for exploitation; and iv) an ongoing, albeit now slow growth (which may have turned over this year) in the applicant community as seen in Figure 2.

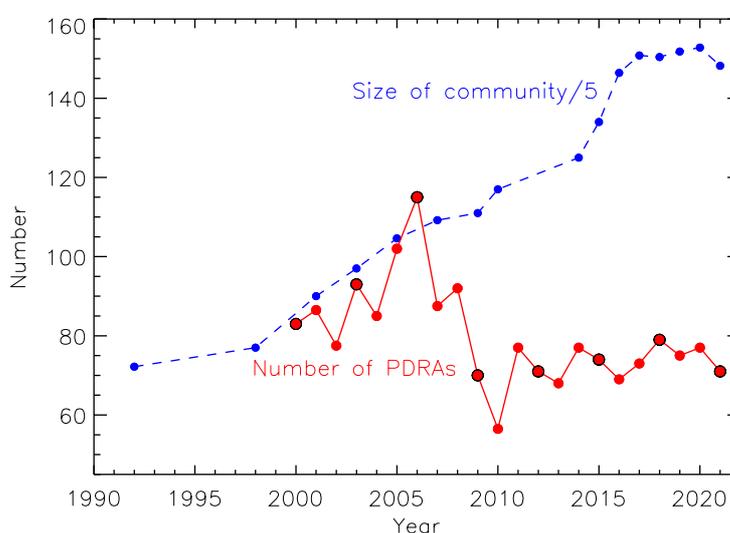


Figure 2. The long-term evolution of PDRA support provided by STFC/PPARC astronomy grants, compared to the growth of the UK's academic astronomy research community as measured by applications to AGP schemes. The PDRA numbers represent the number of posts awarded in each round (so the average number of PDRAs in post is three times as large) and do not include Technician posts. Until 2010, the number of potential applicants is based on returns made to the STFC Education and Training committee and since 2013 it is derived from the total number on grant applicants in the CG rounds. It includes academic-equivalent senior fellows as well as academic staff. Note that the size of the community has been divided by 5 for comparison with the PDRA awards, with roughly a third applying in each round. The previous submission years for the current round are identified by black circles

The current success rate, equivalent to an average award per applicant of a 3-year RA every decade, will not change while the conditions above remain and so we continue to press the case for an increase in the exploitation budget, not least to begin to address many years of 'flat-cash' support.

Since Cycle 3 the level of applicant time we are able to recommend has decreased slowly, and we reiterate two particularly serious problems arising from this:

- (i) fEC support has failed in its intended aim of replacing the old dual-funding system. The mean level of recommended applicant time per funded applicant this round is 13.7% FTE (since around 40% of all applicants receive funding in each round, this is equivalent to 5.5% FTE per applicant). For most academic staff in the astronomy area these awards are their sole fEC support from a UKRI body.

- (ii) Many universities use funded applicant time as shown in the Grant Award Letter from STFC as an indicator of whether someone is 'research active', which has serious implications for career development and promotion. From the AGP's point of view, this assumption is very misguided: the AGP typically judges the overwhelming majority of applicants to be research active (based on the evidence of recent track record), and internationally competitive researchers fail to obtain resource simply because of the limited funds available.

The effects of the low level of AGP funding compared to community demand have in the past been mitigated to some extent by success in attracting ERC grants and other EU support. In January 2021 the UK Government agreed to associate to Horizon Europe, meaning that UK applicants can both lead and participate in most EU-funded programmes (though the agreement is, at the time of writing, still to be formalised). The AGP had anticipated that Brexit might lead to an increase in Applicant numbers from 2021 onwards, but that has not so far materialised, and it is to be hoped that UK-based Applicants to EU programmes will continue their traditional high levels of success.

In Conclusion

As in previous rounds, the AGP is unable to support many excellent projects due to lack of funding. Our concerns with this, including those related to the functioning of full economic costing, have again been highlighted to STFC's Science Board and Executive. We understand that UKRI has made a strong case for uplift in the recent spending review, and we wait to see if that has any direct benefits. AGP members are also engaged with the on-going review of Consolidated Grants and the consideration of alternatives that might be better suited to the needs of the Astronomy community, for example allowing an applicant the freedom to submit a proposal when their case is at its strongest rather than being tied in to the current 3-year CG cycle. We will keep the community engaged as this develops, but of course having more resource to allocate is a fundamental aspect of any improvement

This has been another hard year for many of us, balancing professional and personal commitments in difficult circumstances. I hope that these will soon recede, not least so that we can all meet in person again. However, one outcome of the AGP process being held online for the second time is that the strengths of both online and in-person Panel meeting formats are now very clear to Panel members, Chairs and Office staff – particularly those who have participated in both. I hope we can embed the best of both in our continuing activities, thereby increasing the efficiency and reducing the financial and CO₂ costs of the AGP.

Finally, thank you to all who participated in the 2021 AGP process, first among these the AGP Panel members who carry a substantial responsibility, are required to make very difficult decisions, and who work very hard on behalf of the UK community to ensure a fair and robust process. I am very grateful to Prof. Mark Sullivan who took over as Chair at short notice last year and kept me right as Deputy this year. I am also very thankful to our over 700 reviewers for their vital input. Last but not least, the Panel and the wider community are indebted to the extremely dedicated and efficient STFC office team who provide exemplary support to the Panel and the community, often under intense time pressure, and with unfailing professionalism and commitment.

Lyndsay Fletcher
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