

ESO's Peer Review Panel Achieves Gender Balance

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Gender equality, diversity and inclusion are very high on ESO's agenda, and the organisation has undertaken a number of initiatives in these areas over the past decade (Primas, 2019). The reasons behind these actions are not limited to addressing the issue internally; ESO also aims to raise awareness, with the aim of setting high standards that will motivate members of the scientific community, and hopefully beyond. A diverse and inclusive environment constitutes the most favourable terrain for the growth of ideas, creativity, and the development of original projects — key drivers of success.

Although gender balance is not the only ingredient for ensuring diversity, it is certainly an area which can be closely monitored, and relatively simple corrective actions taken. Several large astronomical facilities, including the Hubble Space Telescope (HST), ESO and the Atacama Large Millimeter/submillimeter Array, have closely scrutinised the processes used by the peer review committees that allocate time. While investigating possible biases (Reid, 2014; Patat, 2016; Carpenter, 2020), these studies have consistently revealed the presence of systematics — at face value female scientists are less successful at getting telescope time. Although the problem is complicated by a number of factors, for instance, the difference between the average scientific seniority profiles in female (F) and male (M) samples, it is clear that the matter cannot be dismissed.

One of the issues resides right at the source, in the lack of gender balance present in the scientific communities that these organisations serve. In the case of ESO users, the overall female:male ratio is about 30:70 (Patat, 2016). One consequence is that, for instance, the gender composition of committees taking deci-

sions on scientific matters is itself unbalanced.

The challenges associated with achieving gender balance intensify when one looks at the more senior levels. The fact that there are fewer scientists at more advanced career levels (see, for instance, Primas, 2019) can generate a negative feedback loop; senior female researchers experience more pressure to serve on committees, and at some point have to start limiting the numbers of requests they are able to accept, thus inadvertently and for purely structural reasons this increases the imbalance.

At ESO it is possible to see the impact of this during the recruitment of the referees serving on the Observing Programmes Committee (OPC), which is composed of 78 panelists. On average, every semester ESO needs to replace 32 members (~ 40%), selecting from the nominations provided by the Users Committee and taking into account a number of constraints. Ensuring good gender balance in the OPC has always been difficult, both because of the imbalance in the community and because of the higher rejection rate from female candidates.

This notwithstanding, the Observing Programmes Office (OPO) proactively addresses this issue during the recruitment of referees for peer review, aiming to increase diversity and representation on the panels. The result of this continuing effort is presented in Figure 1, which shows the fraction of female referees over the last eight years, during which 553 referees from 30 different countries reviewed about 14 000 proposals. As of Period 99, the overall female fraction has been consistently larger than the 30% value which is representative of ESO's

community. That fraction has continued to grow, and the 50% level was reached in Period 105. To the best of our knowledge, this is the first time this has happened in ESO's history. Lower values are attained in the composition of the OPC-proper (orange line in Figure 1), which includes only the panel chairs. This reflects the difficulty one faces in recruiting female scientists at the more senior levels and for smaller committees, where one or two rejections during recruitment can have a disproportionately large impact.

The systematic trend seen in Figure 1 is reassuring but it is certainly not sufficient to guarantee equality and inclusion over the long term. Other measures under consideration or being actively deployed include raising awareness about unconscious bias in peer review panels, obfuscating information on proposing teams and introducing a dual-anonymous peer review. The recent change requiring the user community to add gender information to User Portal profiles¹ will help ESO to closely monitor the effectiveness of these and other measures.

References

Carpenter, J. 2020, *PASP*, 132, 4503
 Patat, F. 2016, *The Messenger*, 165, 2
 Primas, F. 2019, *Nature Astronomy*, 3, 1075
 Reid, I. N. 2014, *PASP*, 126, 923

Links

¹ Announcement requesting users to provide additional information in their ESO User Portal profiles: <https://eso.org/sci/publications/announcements/sciann17266.html>

Figure 1. The change in the gender balance on the Observing Programmes Committee and panels over Periods 90–105 (2012–2019).

