

ISSUES & EVENTS

opinion—and the final assessment—changes in the course of discussion,” says Carpenter. The observatories try to compensate by giving reviewers a chance to adjust their assessments after they have seen those of others’, but at ALMA, for example, that occurs in only about 8% of cases, he says.

Although distributed peer review is new for observatories and other user facilities, computer science has been using the approach to vet conference papers for decades, says Nihar Shah, a Carnegie Mellon University computer scientist who studies peer review. “A conference may have 20 000 submissions,” he says. Shah has advised both ALMA and ESO on the process and the pros and cons of distributed peer review. He studies related topics such as the relative benefits of ranking versus rating proposals, automated assignment of reviewers, how to incentivize reviewers to write meaningful reviews, and how to spot and avoid collusion rings—when researchers maneuver to get each other as a reviewer and thus boost their chances of success.

Alison Hatt is a communications lead at Lawrence Berkeley National Labora-

tory and previously ran user programs at the lab’s Molecular Foundry and at EMSL. As an independent consultant, she interviewed a dozen user facility representatives for a study, commissioned by the Advanced Light Source at Berkeley, on peer-review practices.

Hatt recommends that facilities take a coarser-grained approach to scoring proposals and then apply “a partial lottery.” After accepting the top proposals and rejecting the worst, the ones in the middle, which can be tricky and subjective to differentiate among, could be chosen at random. Even with dual-anonymous reviews, she says, bias is not eliminated completely. “Humans do the evaluating, so it’s not really quantitative,” Hatt says. The facilities haven’t yet adopted lotteries, “but they are considering it. They are more receptive than I expected.”

Apply again, and again

So what does a researcher have to do to win time on telescopes and other user facilities? And what can they do if they don’t? Johns Hopkins’s MacGregor says she has been successful but still “doesn’t have a good understanding of what it

takes to get time on telescopes.” Her approach is to ask only for the time she’ll need and to show that her science results will have an impact beyond her own immediate research.

Burçin Mutlu-Pakdil, an assistant professor of astronomy at Dartmouth College (see the interview in *PHYSICS TODAY*, August 2024, page 24) has won time on *Hubble* and other telescopes. “I am constantly asking for time,” she says. “I write proposals every other month.” For her proposals, she says, she simulates the observations. “You have to convince the observatory that there is no risk. You need to argue that your observation has impact whether you see what you expect or not.”

Researchers who don’t win time on facilities can apply again. They can apply for less time and use those results to bolster their case for more time. In astronomy, they can mine archival data. They can apply at other facilities. They can team up with other scientists who have won time. “Working in multiple wavelengths makes me more resilient,” says MacGregor. “It’s best to have multiple projects going.”

Toni Feder

Two-year colleges play significant role in preparing physics majors

Some 13% of US physics bachelor’s degree recipients started their undergraduate studies at a two-year college. That’s according to data gathered from 3600 members of the classes of 2021 and 2022 who responded to surveys conducted by the statistical research team at the American Institute of Physics (AIP is the publisher of *PHYSICS TODAY*).

The more advanced the level of physics taken in high school, the less likely students were to have started their undergraduate studies at a two-year college: Among physics bachelors who did not take physics in high school, 40% started at a two-year college, and for those who took calculus-based advanced placement (AP) physics, that percentage drops to 4%.

The data come from an AIP physics bachelor’s degree recipient follow-up survey. For more information, see the full report at <https://ww2.aip.org/statistics/physics-bachelors-influences-and-back-grounds>.

Tonya Gary

Two-year college attendance by highest level of high school physics taken
by physics bachelors, classes of 2021 and 2022 combined

