

Ten

Looking back at a decade of *Nature Physics*.

In today's world of instant and practically limitless information, it is often easy to lose sight of historical perspective. As *Nature Physics* turns ten this month, it is worthwhile remembering that in the grand scheme of things (not only in life, but also in terms of the timescale over which the academic literature remains relevant to practising scientists) a decade is little more than a blink of the eye. For all we know, the most influential paper in our pages may be a sleeping beauty¹, waiting to be rediscovered and reappraised by future scientists decades from now.

Nevertheless, ten years is sufficiently long to gain some perspective on the changes and trends that have occurred in physics research during this time, and perhaps even draw some meaningful insights.

Nature Physics was launched against a backdrop of optimism, and a genuine sense that there was an opportunity to provide something new and refreshing for practising researchers in the field. Physicists were well aware of the benefits of the web for sharing results and information — they had already pioneered this by setting up and enthusiastically adopting the arXiv preprint server — but the physics publishing landscape was dominated by technical, albeit very prestigious, society journals and, for readers looking for a broader perspective, more informal magazines. *Nature Physics* was conceived as a publication that is both a journal and a magazine². The idea was

not only to publish, for want of a better description, the most arresting and high-quality primary research in the field of physics, but, in true *Nature* tradition, to complement this with a broad and diverse range of commissioned and editorial material. These include News & Views pieces that put recent scientific developments into context, Commentaries on policy or societal trends affecting physicists, and essays by established columnists such as Mark Buchanan.

The global financial crash in 2008 brought about more pessimistic times, with budget constraints and the ever-increasing competition for limited resources (certainly in Europe and the USA, at least) placing researchers — particularly young ones looking to make the jump from fixed-term contracts to permanent positions — under greater strain. Inevitably, scientists and their funders have become more critical of the role of journals, and the value of the service they provide. And so the physics publishing landscape in 2015 is somewhat different from that of 2005: high-quality open-access journals such as *Nature Communications* and *Physical Review X* are now firmly established, and high-quality physics journalism and commentary has thrived in new venues such as *Quanta Magazine* and *Physics*, to name only two. Nevertheless, we feel the values we espoused in 2005 continue to be as relevant today as they were then, and will continue to be important for the foreseeable future.

Of course, the success of *Nature Physics* would not be possible without the continued support and good will of the wider physics research community. Quite simply, we (and, we believe, the rest of the scientific enterprise) could not function without the trust that underpins the peer-review process, and indeed all other forms of communication among scientists. But it is also enlightening to consider how the three main (but overlapping) constituencies that we work with — namely authors, reviewers and readers — have contributed to the journal.

Our online submission system opened in March 2005, and as of September 2015 we have received a total of over 17,800 manuscript submissions, of which we have published roughly 1,300. As the plot in Fig. 1a shows, our submissions have increased year-on-year: in 2006 we averaged 75 papers a month, whereas in 2014 we averaged 200. Moreover, although we receive submissions from all over the world, these are dominated by the USA, China, Germany, Japan and the UK (Fig. 1b). The geographical distribution of the number of manuscripts we end up publishing is slightly different, with the USA, Germany, UK, France and Japan leading the pack, but perhaps more significantly, the countries with the best 'accept rate' (in other words, the number of accepted manuscripts relative to the number of submissions) are Austria, Denmark, Switzerland, the USA and the Netherlands.

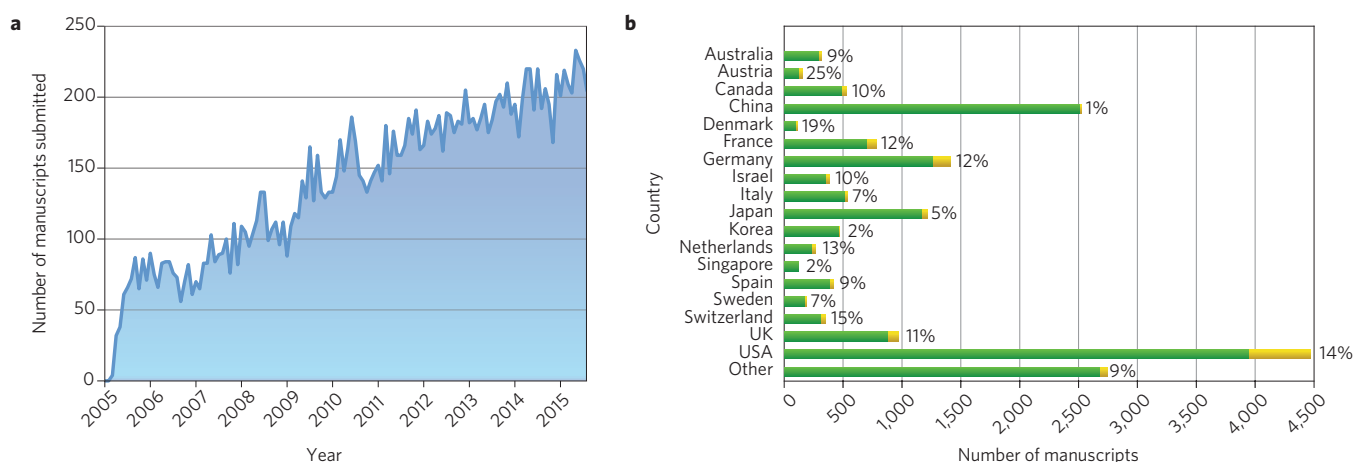


Figure 1 | Manuscripts submitted to and accepted by *Nature Physics*. **a**, Number of manuscripts submitted to *Nature Physics* each month since it was launched. **b**, Geographical distribution of submitted (green) and accepted (yellow) manuscripts, with overall accept rates quoted as percentages.

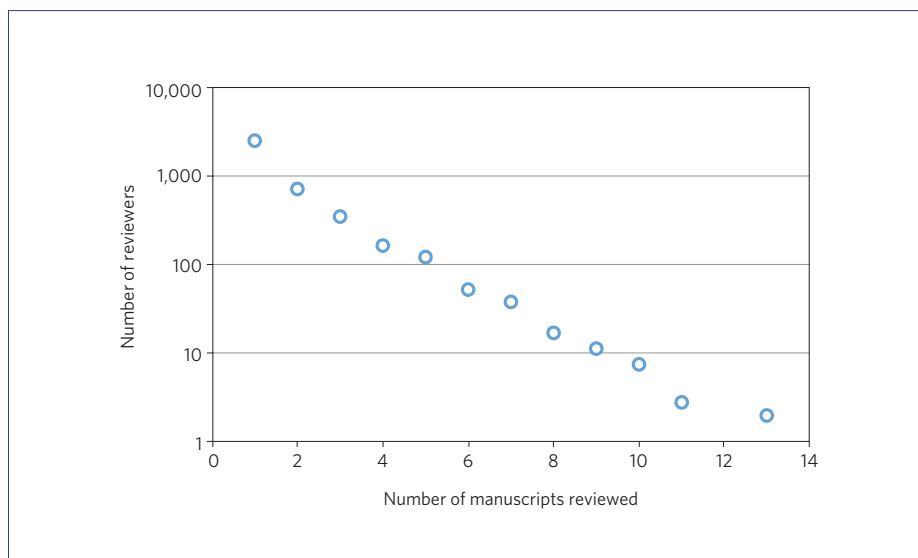


Figure 2 | Number of reviewers plotted against the number of manuscripts they have reviewed for *Nature Physics* since it was launched in 2005. Multiple rounds of review for the same manuscript are not counted.

Reviewers play a vital and largely underappreciated role in assessing the technical validity of the manuscripts we select for in-depth review. We would like to take this opportunity to thank the thousands of scientists that have kindly taken the time to review for us and put their valuable knowledge and expertise at the service of the community. Although we primarily select referees based on their expertise, perhaps unsurprisingly we find that their geographical distribution correlates somewhat with the distribution of the most prolific publishing countries. We believe this is largely a reflection of the culture of scientific excellence in these nations, but we are always looking to expand our referee pool and find the best advice we can get. An interesting illustration of this is provided by the plot in Fig. 2, which displays the number of referees we have consulted with relative to the frequency they have reviewed for us. 62% of our referees have only ever reviewed one paper for us, with the number of experts that have reviewed more papers decreasing roughly exponentially.

But what about the physics we have published, is that any good? Citations are one way to ascertain the influence of the papers that appear in our pages, and certainly in this regard we feel confident that they are more influential than a random selection of 1,300 papers from the literature — in short, we are convinced that our editorial model works. However, establishing the influence of a paper, be it through citations or the now widespread ‘altmetrics’ that measure its degree of take-up in the press and social media, is one thing, agreeing it is ‘good’ is quite another. A degree of subjectivity is inevitable here, but over the course of this year we have been revisiting some of our own favourite results from our archive as part of a special News & Views collection^{3,4}. And to mark the special occasion of our anniversary, we also asked Jorge Cham, the creator of *PhD Comics*, for his take on the most important physics results of the past decade. Turn to [page 799](#) for the results.

Of course, as much as we enjoy celebrating the papers that have appeared in

Nature Physics, they don’t exist in isolation. Rather, they are part of the far larger fabric that forms the scholarly literature. And on [page 791](#), Roberta Sinatra and colleagues cut through this fabric for us, presenting an in-depth analysis of Web of Science data spanning more than a century. We invite you to take the time to read their Perspective — some of their results and conclusions may surprise you.

Finally, it would be remiss not to look to the future. The rise of open access means the publishing industry is undergoing a period of significant change. Moreover, software developments seem to be on the cusp of fundamentally changing the way scientists collaborate, share and disseminate information. The tools that scientists currently have at their disposal for these tasks are only beginning to scratch the surface: sharing data at the point of publication looks set to become widespread (also as a result of funder mandates) and algorithms that filter, rate and disseminate scholarship as it happens look increasingly plausible⁵.

We cannot predict how exactly the academic article of the future will look. But we do know that as long as it will be humans that practice science, its narrative will continue to be important. We will therefore remain focused on being a venue for the communication of the most important physics developments of the day, while at the same time fostering the appreciation that these great works of science deserve beyond their specialist communities. □

References

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5. Priem, J. *Nature* **495**, 437–440 (2013).