

A decade in numbers

On the tenth anniversary of the launch of *Nature Materials*, we look back at how authors, reviewers and editors have contributed to the journal by evaluating data such as decision types and times, and the geographical share of submitted and published manuscripts.

Although ten years is a short time in a journal's life, it is certainly long enough to gain a perspective on materials science through the eyes of the journal. We have thus highlighted as part of this issue a list of papers published in *Nature Materials* that we deem are (or will become) landmarks in various sub-disciplines of materials science¹. Although these contributions will probably be instantly recognized as influential by readers, the papers are not fully representative of the broad coverage of the journal. In fact, as research involving materials encompasses parts of physics, chemistry, biology, medicine and engineering, it is difficult to put constraints on what a material is. To better convey this point, we provide on the cover of this issue a 'word cloud' of the science published in the journal. The included words are those that have appeared at least ten times in the titles of all content published in the past ten years, the size of each word being proportional to its frequency (word derivations were merged into one form, and common English words and names of disciplines were not included).

The use of word clouds could also help in identifying how different subfields arise and mature. A word cloud for the first five years of *Nature Materials* would display the words 'spintronics', 'graphene', 'catalysis' and 'battery' in a much smaller size than that on the cover, as one would anticipate². Five years from now, we expect to show one where words related to biomaterials appear more conspicuously.

A retrospective view can also offer insight into the broad community formed by our authors and reviewers. We use this occasion to analyse some intriguing data on the journal's authorship and pool of reviewers, and also on how the journal's editorial team has performed.

Nature Materials provides wide exposure to the most relevant papers from among those submitted. And submissions have steadily increased over the years. We receive 36% more original manuscripts now than we did five years ago, and in July 2012 the number of submissions was the highest in the journal's history, contributing to an average of 245 manuscripts per month

in 2012 so far (Fig. 1). From these we select those that report a sufficient degree of advance (conceptual, fundamental, methodological and/or technological) with respect to published work, and that would seem to be of high interest to our critical reviewers and broad audience. The relatively high acceptance rate after peer review (around 60%) testifies to the advantages of our selection approach.

In the past five years we have increased the number of focus issues and insights while routinely engaging with diverse research communities through attending conferences and visiting laboratories. And regardless of the amount of content that we publish and the growing number of received manuscripts, we strive to make first decisions within a week of submission. We have taken on average 6.5 days to respond to authors of rejected manuscripts, half of which were assessed within 5.3 days (Fig. 2a).

Most of our reviewers agree to provide comments on a manuscript within two to three weeks, and just over half of the

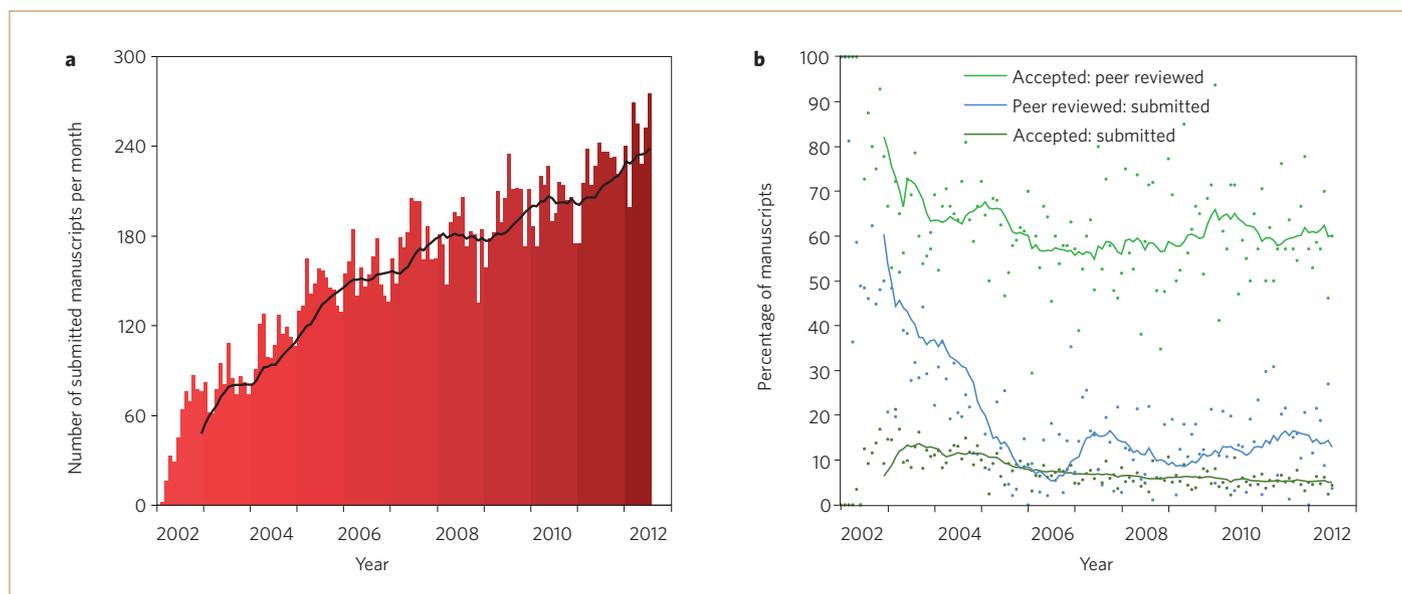


Figure 1 | Manuscript submissions and decisions. **a**, Number of original manuscripts submitted per month (monthly data, bars; 1-year moving average, line). **b**, Evolution of the percentage of peer-reviewed manuscripts and of acceptance rates (of both original manuscripts and the subset of peer-reviewed ones). The dots show monthly counts (submissions and decisions are counted in the months they took place, which partly explains the variability in the data), and the lines are moving averages over the previous 12 months.

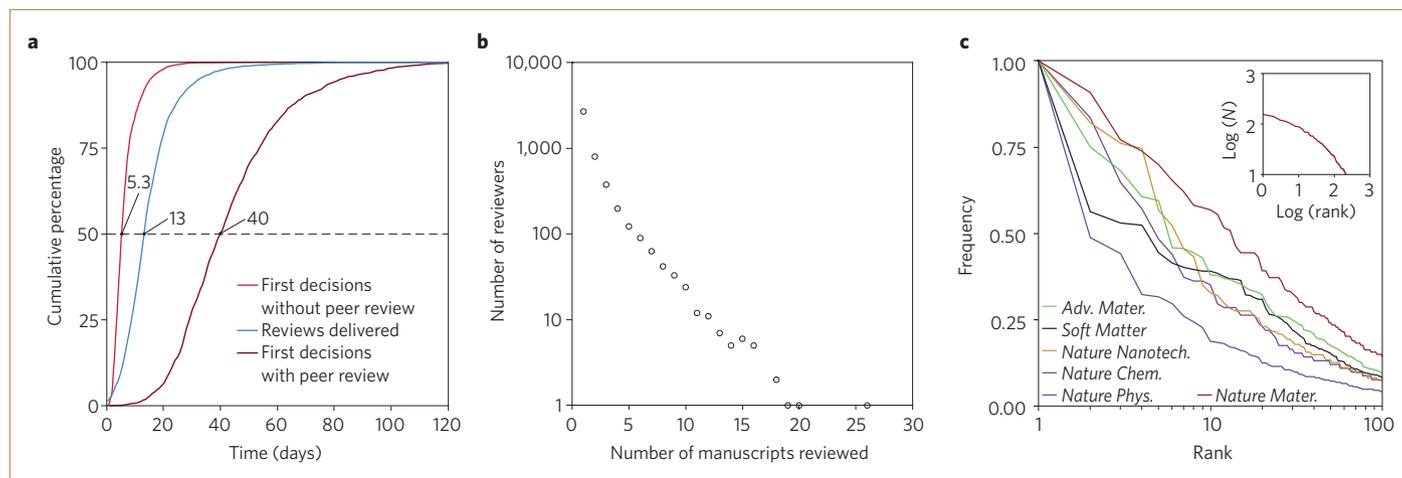


Figure 2 | First-decision and peer-review time spans, distribution of reviewer workload, and frequency distribution of the most common words in titles. **a**, Cumulative percentage of original manuscripts versus the number of days (including weekends and holidays) it took to send a first decision (with or without external review) from the time when a manuscript was submitted. The panel also shows the cumulative percentage of delivered reviews versus reviewing time. Median values are indicated. **b**, The number of reviewers versus the number of reviewed manuscripts (multiple reviewing of the same manuscript does not add to the count) approximately follows an exponential distribution. **c**, Relative frequency of occurrence (frequency of the most repeated word = 1) of the most repeated words (word derivations merged into one form; common words and names of disciplines not considered) that appeared in titles of publications from the indicated journals in the past ten years (or if not available, since the journal's launch). Words are ranked by decreasing frequency. The inset shows a log-log plot of the number of occurrences in *Nature Materials* titles (*N*) of the 222 words featured on the cover of this issue¹.

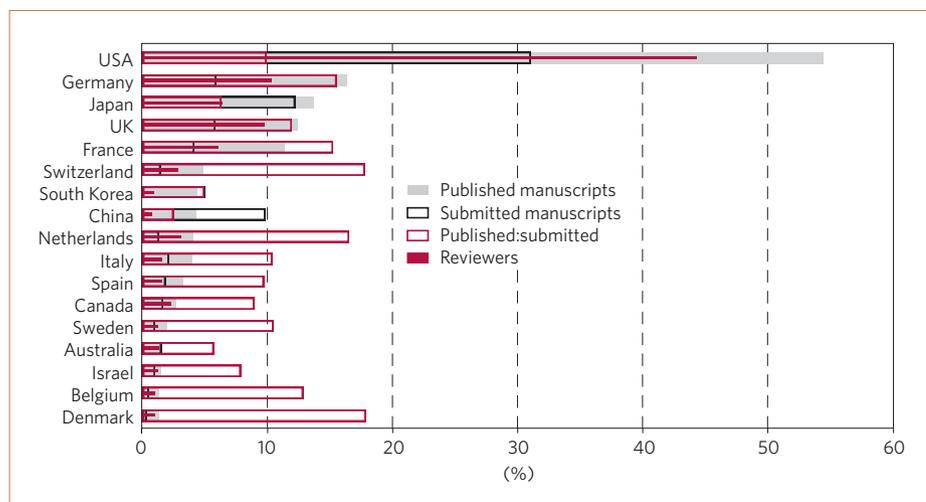


Figure 3 | Geographical distribution of authors and reviewers. Percentage of published, submitted and ratio of published to submitted manuscripts for countries whose share of the published papers is at least 1% (roughly 60% of the published papers come from international collaborations, so total percentages are larger than 100%). The figure also shows each country's share of reviewers.

reviews in the past 10 years were received within that time (Fig. 2a), a commendable number in this busy world. After a first round of review, decisions were on average sent to authors 44 days after submission. Interestingly, among the just over 4,500 reviewers that have helped us in the past decade, about 60% have reviewed one manuscript, and the number that reviewed more than three exponentially decreases with increasing number of reviewed manuscripts (Fig. 2b). It is also revealing

that, in comparison to a selection of peer journals, for *Nature Materials* the decay in frequency of the 100 most recurrent words that have appeared in the titles of the journal's articles is less pronounced (Fig. 2c), which suggests a more uniform representation of sub-disciplines in this journal. Curiously, the 222 words of the word cloud on the cover do not follow the Zipfian power-law distribution (which would correspond to a straight line in a log-log plot) that characterizes word

frequency in natural languages and also Wikipedia³ (Fig. 2c, inset).

Although we receive manuscripts from tens of countries, 17 of them have contributed to most of the journal's authorship over the past decade (Fig. 3). The variability of a country's effective acceptance rate (indicated by the empty red bars) is telling, with 13 countries surpassing the 7.4% average acceptance ratio for the journal. Notably, the geographical distribution of reviewers correlates with that of submitted manuscripts with the exception of Asian countries, for which the abundance of common names can create difficulties in the identification of individual potential reviewers. The upcoming launch of the Open Researcher and Contributor ID (ORCID) scheme promises a solution to this problem⁴.

With the welcomed increase in open-access awareness and mandates^{5,6}, next decade's numbers may change. In any case, for as long as our authors, reviewers and readers wish to support *Nature Materials*, we will continue to widely disseminate the most relevant and scientifically remarkable research on materials, in the broadest meaning of the word⁷. □

References

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