

## Chapter 2

# The zbMATH reviewer community

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Our reviewer community is as diverse as the community of mathematicians itself, ranging from PhD students to Fields medallists. They come from nearly every country on this planet and can read dozens of languages. Nowadays, there are very few articles or monographs not written in English and hardly anything is published in languages beyond English, French, German and Russian (not forgetting Chinese), but we do have a review (in English) of an article written in Irish.

There are more than 7,000 reviewers, most of whom do their work diligently and reliably. The COVID-19 pandemic has, somewhat surprisingly, helped to attract more new reviewers and to convince many of those already on our roster to accept more material for review.

The percentage of papers that are reviewed vs. those that are just indexed with their summary, differs greatly among the mathematical fields. Typically, core subjects of pure mathematics fare much better in this respect than the physics or economics oriented applied fields. For instance, in algebraic geometry, about 55% of recent publications in zbMATH will find a reviewer, compared to less than 5% in solid and fluid mechanics, control theory or statistics. This is reflected by the structure of the reviewer community: of about 7,200 active zbMATH reviewers, most are in number theory and algebraic geometry (both 11%, while these areas make up only about 1% and 3% of the overall publications, respectively), followed by 10% of reviewers in each of the three areas of PDEs, functional analysis and operator theory (with publication shares of 6%, 1%, and 2%).

Even within a mathematical field, the percentage of reviewed papers differs. This is not a result of our assessment of the quality of the articles in question, but a clear indication of a lack of reviewers. For example, in  $C^*$ -algebra theory (MSC 46L) the review rate is only 30%, whereas MSC 46G (vector measures, infinite dimensional holomorphy and the like) sports a much higher 70%, which by no means should be mistaken to mean that one field is twice as important as the other.

It is sometimes argued that actual reviews are no longer needed these days since every paper comes with an abstract, readily available on the Internet, presenting a very short version of the introduction. However, apart from providing a more balanced synopsis of the paper, a review written by an experienced reviewer will, in addition, give some background and pointers to related literature and will highlight the main ideas, or maybe voice concerns about the validity of the arguments. (Recently, the

latter happened in the reviews of the alleged solutions of the Navier–Stokes problem or of the abc conjecture.)

One can distinguish several types of reviewers when it comes to criticism. There are, for one thing, those for whom a review is incomplete unless there is an inkling of criticism, however petty, like pointing out trivial spelling errors. There are others who prefer not to take up an assignment when criticism is unavoidable. A third type is doubtful on how to spell out shortcomings; they often ask us in advance whether it is becoming at all to be critical and, if so, how to phrase this warily in order not to offend the authors.

When speaking about the vast majority of reviewers who do their work properly, a comment is pertinent about the others. They might just plagiarise the existing abstract; usually it is then enough to remind them in a short email to play honestly. There are other cases that indicate a much deeper problem in contemporary mathematical publishing, and we'd like to share a recent experience with you. One reviewer submitted what he thought was an acceptable contribution about a paper published in a top-notch journal written by a native English speaker. The submission, however, rather had the format of a referee's report giving hints at what the author should do upon acceptance of the paper. Being vague in its formulations the report did not allude to a single concrete result in the paper, but offered the advice to (a) check the paper for grammatical mistakes, (b) add some numerical examples (the paper was on monodromy groups), and (c) add a reference to a paper of his that had appeared in a journal that is, for good reason, not covered by zbMATH. The lesson to be learned here is that such one-size-fits-all "reviews" seem to be accepted by a brand of publications occasionally termed predatory.

Finishing on a positive note, we stress that our reviewers fulfill an important task, and some of them have shared their expertise for more than 60 years! Among the longest serving reviewers one should mention Johann Jakob Burkhard and János Aczél, both having contributed for 65 years, from 1939 until 2004 and 1946 until 2011, respectively. As remarked above, the mere abstracts of articles are easily found on the Internet; but the work of a gifted reviewer provides an added value that benefits the readership at large. Therefore we hope that many new reviewers will sign up<sup>1</sup> in the future; the mathematical community will surely appreciate their commitment.

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<sup>1</sup><https://zbmath.org/become-a-reviewer>