

Preface

zbMATH Open – a personal introduction

When I started working on my PhD in 1977, it was the done thing to regularly spend time in the library in order to browse through the new journals and books that had arrived. Typically, I set Friday afternoon aside to go there and systematically browse through the newly delivered publications. This, together with the preprints which my supervisor (and later I myself) received, were, at least at the beginning of my career, my primary source of information.

Spending my afternoons in the library of the Institute in Erlangen, I was struck by two large bookcases. One contained an impressive array of yellow volumes, the other a similar collection of red books. These were the *Zentralblatt für Mathematik und ihre Grenzgebiete*, as its full title was then, in short the *Zentralblatt*, and its counterpart, the *Mathematical Reviews*. Whenever a new volume of either arrived, I checked the relevant sections in search of yet undiscovered articles which might be relevant to my research.

Studying the title page of *Zentralblatt*, I was struck particularly by one detail: *Zentralblatt* was edited jointly by the Heidelberg Academy of Sciences and the (East German) Akademie der Wissenschaften. This cooperation was indeed ended by East Germany in 1977, but the fact that it had existed until then came as a big surprise. And also now, in retrospect, this is very remarkable. After all, the wall had been built in 1961 and by the mid 1970s the two German states had developed very different political structures; there were virtually no areas in which they collaborated. Amazingly, the cooperation of mathematicians remained intact long into the Cold War.

As the years went by, the importance of *Zentralblatt* and *Mathematical Reviews* for my own research decreased. This was for a variety of reasons. My mathematical network had grown considerably more extensive and, consequently, I was sent many more preprints by colleagues. Also, it had become much easier to travel in order to attend conferences or collaborate with colleagues. This in turn opened up many new ways for obtaining re- and preprints and up-to-date information.

The arrival of email and then the Internet in the early 1990s made a tremendous difference. My own field of research (algebraic geometry) was among the first branches in mathematics to use the arXiv systematically for the dissemination of new mathematical literature. Naturally, this also affected my use of *Zentralblatt*; it did not become obsolete, but its role shifted. *Zentralblatt* became less important for finding out what was new, but remained very useful for tracing and evaluating mathematical literature (after all only a small part of the mathematical literature was available electronically at that time). This applied in particular to research areas which were further away from my own field of expertise.

The fact that the databases were available online meant also that it became very easy to access the information at any time and from virtually any place. Thus, the regular visits to the library to check the recent editions of journals, or to check Zentralblatt and Mathematical Reviews, all but came to an end. I must also confess that at that time I more or less lost sight of Zentralblatt for a while. Both services, Zentralblatt and Mathematical Reviews, went online at about the same time – in fact Zentralblatt was slightly earlier – but due to the close connection of the AMS with the mathematical community, in particular in the US, MathSciNet, the online database of Mathematical Reviews, was more successful in the early years of digitisation in establishing its web presence. But: zbMATH has clearly been catching up steadily and the fact that we are now open access will further accelerate this process.

I started to hear more about zbMATH, as it had been renamed by then, when Gert-Martin Greuel, whom I know well as a mathematical colleague, became Editor-in-Chief in 2012. He often talked to me about zbMATH and MathReviews and he argued very forcefully that the mathematical community can only gain from having two reviewing services available. The competition of the two services clearly helps to improve the performance of each, and thus benefits the mathematical community. At this point, I would like to emphasize that the relationship between the two databases, although they are natural competitors, has, in my experience, always been a cordial one. The joint development of the mathematics subject classification MSC 2020 is just one proof of this.

It came as a big surprise to me when FIZ Karlsruhe and Springer approached me early in 2015 to ask whether I would be prepared to take over as Editor-in-Chief of zbMATH from 2016. At that time, I was spending half a year at the IAS in Princeton, having just finished a 9-year period as Vice President for Research at Leibniz Universität Hannover. My plan after that had been to give all administrative tasks a wide berth and to concentrate purely on research. For this reason, I was at first quite reluctant to accept the offer. On the other hand, during my time as Vice President in Hannover, I had come into close contact with questions concerning the future of publishing, open access and other topics such as research data. Based on this experience I felt that the position of Editor-in-Chief would be both interesting and challenging. And I strongly believed that zbMATH should be supported and developed further. So, I finally decided to accept the offer to become Editor-in-Chief of zbMATH.

After taking up my new position, I noticed just how sophisticated a database zbMATH had become. I was also very soon confronted with crucial questions about the future direction zbMATH should take, and not least what an appropriate business model could be. We quickly came to the decision, which had already been considered by Gert-Martin Greuel, that the best way forward was to go open access. Needless to say, extra resources were required for this, and we started the long process of applying for a suitable grant in the context of the evaluation of FIZ Karlsruhe, an exercise which takes place every 7 years. With the help of many, the application was

finally successful and we were indeed able to go open access on 1st January 2021. I still believe that this is a great step forward and that this will consequently enable zbMATH Open, as it has now been renamed, to realise its full potential. There are many exciting new challenges, including the whole realm of mathematical research data, and non-textual information which zbMATH Open will have to address, and this will only be possible with the close involvement of the mathematical community. The last 90 years of its history, when Zentralblatt metamorphosed into zbMATH Open, show that we are able to adapt to new conditions and environments without losing sight of our main goal, namely that of providing high quality information on a very wide range of mathematical publications in all the different formats this may take. I strongly believe that zbMATH Open will become an even more important tool for the working mathematician in the future.

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