

The Impact Factor of *Angewandte Chemie* ...

Peter Göllitz*



... **A**ppeared only in a postscript of my previous Editorial, and then it was just to note that I did not wish to write about it because it has become a plague. However, now I have to give it more prominence, because in 2013 the Impact Factor for *Angewandte Chemie* unexpectedly dropped to 11.336 after increasing annually and reaching a value of 13.734 in 2012. What has happened? Has the profile of *Angewandte Chemie* changed so drastically in such a short time? Has the quality of the articles notably decreased? Neither is true, and in view of the large number of articles published such a change is hard to explain. On contacting the company, Thomson Reuters, who determine the Impact Factor as part of their annual “Journal Citation Reports” we were informed that from 2013 only citations to *Angewandte Chemie International Edition* were to be used in calculating the Impact Factor; citations giving just the German version were no longer counted. Through this unannounced policy change, the journal will now be treated like a small group of other journals that are published in two languages (most of these are Russian–English or Chinese–English). However, there is not another journal in this category that is so widely received in its subject and beyond and is as influential as *Angewandte Chemie*. Publication in a second language does indeed increase “Impact”, not least because secondary media are more likely to pick up articles published in their native language. Naturally German language publications only tend to cite the German edition. These citations now no longer

count towards the Impact Factor. A rebuttal by our publishing house (Wiley-VCH) to Thomson Reuters could not persuade them to return to the practice they had followed up to 2012. This earlier practice, had, according to Thomson Reuters, and previously the Institute of Scientific Information, employed methods to ensure that no double counting of citations occurred when both editions of *Angewandte Chemie* were cited, that is, the previous method ensured *Angewandte Chemie* had no advantage over single-language publications. In the future we encourage everybody to cite both versions of *Angewandte Chemie*, but if only one is appropriate or allowed please cite the International Edition.

What “Impact”, what influence, what significance has *Angewandte Chemie* today? The value of 11.336 or 13.734 gives only limited information (though three decimal places suggest an exact-

ness and scientific precision that this values does not have): “Impact is relative” as I wrote in an Editorial in 2012 about the Impact Factor mania, and illustrated this point with a graphic which, in addition to the Impact Factor, showed the total number of citations and the total number of published articles, both of which are relevant in determining the Impact Factor. Figure 1 shows an actualized version for 2013.

The number of articles, in conjunction with their quality, is an important fundamental factor. *Angewandte Chemie* is owned by the Gesellschaft Deutscher Chemiker (GDCh; The German Chemical Society), and its primary objectives are to give its many readers worldwide as many of the best articles in the whole of chemistry as possible, and to give as many authors as possible a platform for work that needs to be made available rapidly to a large audience. To select the many good articles from the many, many

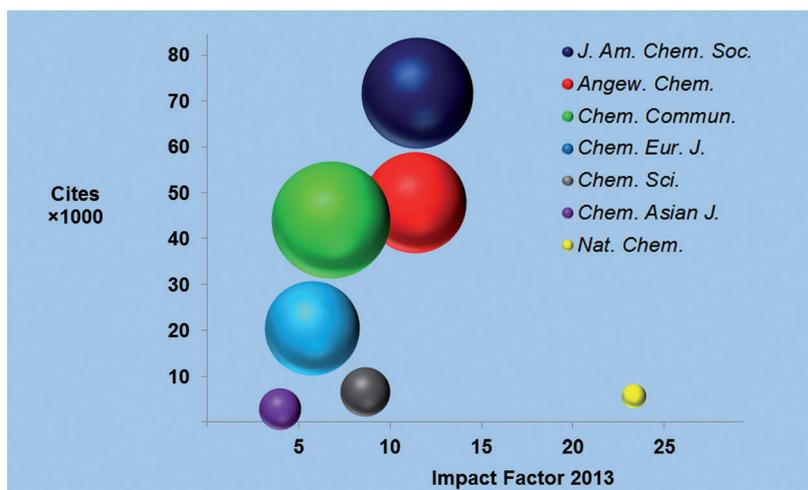


Figure 1. The y-axis shows how often the articles published in a journal in 2011 and 2012 were cited in the literature monitored by Thompson-Reuters in 2013, on the x-axis is the 2013 Impact Factor; the third dimension (size of the sphere) is the relative number of articles published by the journals in 2013; “Impact” is relative.

[*] Dr. P. Göllitz
Wiley-VCH, Weinheim (Germany)
E-mail: angewandte@wiley-vch.de

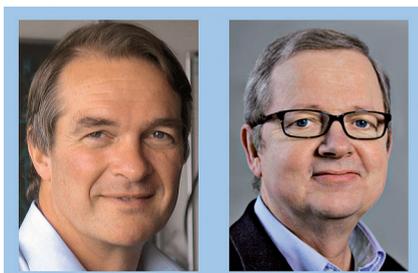


Figure 2. Wilfred van Gunsteren (left) is replaced by Jens Nørskov in the International Advisory Board.

more that are submitted is the work of the 23 chemists who make up the editorial staff and have an excellent scientific

as well as editorial training; they are supported by six assistants. The interests of the readers and fairness to the authors are the principles that guide the editors in their work, they are supported by the Editorial Board and an International Advisory Board, and naturally of course by the referees (over 5000 in 2014). The members of the Editorial Board are nominated by the GDCh board, the members of the International Advisory Board by the Editorial Board. At the end of 2014 Professor Wilfred van Gunsteren, from the ETH Zürich, will step down from the International Advisory Board when his term of office comes to an end, his

place will be taken by Professor Jens Nørskov of Stanford University (Figure 2; see also the News section in this Issue); W. van Gunsteren has supported the Editors in many ways and contributed to the journal's reputation with striking articles—just think of his Essay in the 125th Anniversary Issue “The Seven Sins in Academic Behavior in the Natural Sciences” (*Angew. Chem. Int. Ed.* 2013, pp.118–122) and his Review “Multi-Resolution Simulation of Biomolecular Systems: A Review of Methodological Issues” later in the same year (*Angew. Chem. Int. Ed.* 2013 pp. 2820–2834). J. Nørskov is already well known to *Angewandte Chemie* as an author and referee, and we are looking forward to working even more closely together. The Editors, the publishers Wiley-VCH, and the GDCh thank W. van Gunsteren for his support and J. Nørskov for his willingness to join the International Advisory Board.

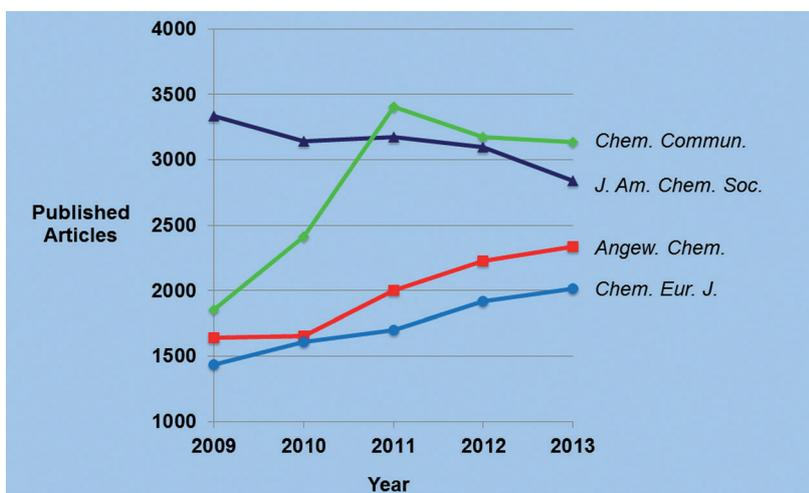


Figure 3. The development of the total number of articles published in four major journals, all of which belong to scientific societies. Chemical Communication is a journal of The Royal Society of Chemistry, the Journal of the American Chemical Society has its ownership in its name, *Angewandte Chemie* is a journal of the Gesellschaft Deutscher Chemiker (GDCh; the German Chemical Society) and *Chemistry—A European Journal* is owned by ChemPubSoc an association of 16 continental European chemical societies.

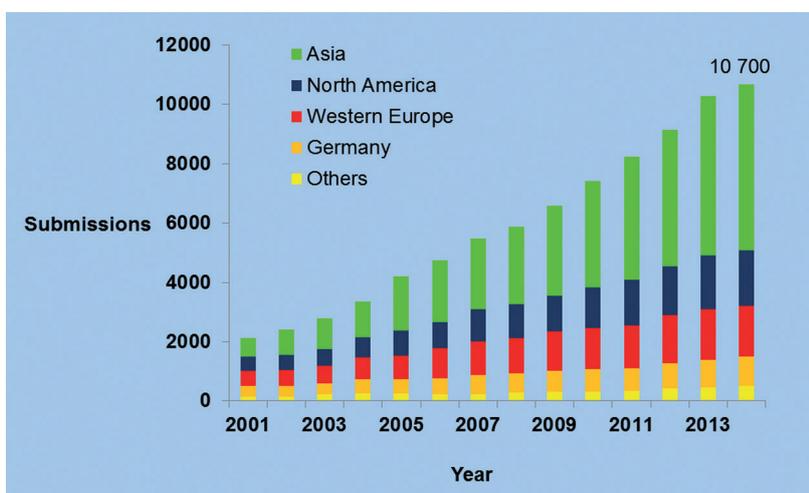


Figure 4. The region of origin of Communications submitted to *Angewandte Chemie* 2001–2014

Back to the statistics: The size of the spheres in Figure 1 indicates the number of articles published per journal in 2013, according to Thomson Reuters. The change in the number of articles published over the last five years for the four major journals, which all are owned by scientific societies, is shown in Figure 3. The increase for *Angewandte Chemie* correlates mainly with an increase in the number of published Communications, as the number of published Reviews, Minireviews, and Highlights is relatively constant and very much smaller than the number of Communications. In 2013 and 2014, the number of Communications published were 2150 and 2257, respectively, but only 70 and 64 Reviews, 43 and 31 Minireviews, and 71 and 73 Highlights, respectively. Figure 4 shows the regional origin of the Communications submitted between 2001–2014. In 2014 the number of submitted Communications increased to approximately 10700 (+4%). The 2013 rejection rate for Communications was 79%; with approximately 30% being rejected without external refereeing, either for reasons of length—the manuscripts were too long, were more like a Full Paper—or because of their content—the results were too specialized or of limited novelty and originality.

When comparing the Impact Factors of Journals, one parameter is very important: The number of published manuscripts has a significant influence, as the following model calculation for two “dummy” journals demonstrates. Journal 1 publishes 100 manuscripts per year, Journal 2, 2000. Assume then that in Journal 1 in the two years that are relevant for the Impact Factor, 200 articles are published, of these 20 (10%) are cited 100 times. All the other 180 articles are only cited once each, this gives an Impact Factor numerator of $20 \times 100 + 180 = 2180$ citations. 2180 citations divided by 200 articles gives an Impact-Factor of 10.9—which sounds pretty good. Journal 2 published 4000 articles in the same two years, of these only 1%, that is, 40 are cited 100 times. The remaining 3960 were again each cited once. The calculation this time gives $40 \times 100 + 3960 = 7960$; divided by 4000, gives an Impact Factor of only 1.99! So, is Journal 1, with 20 highly cited articles, or Journal 2 with 40, the better Journal (all the other articles were cited one time each)? Do the Impact Factors of 10.9 and 1.99 here say anything about the quality of the journal? If in 2010 und 2011 *Angewandte Chemie* had only published the approximately 250 Communication and 25 Reviews that were cited most in 2012—it would give 12 very fine issues per year and an Impact Factor of over 40 (based on the data published by Thomson-Reuters).

It has been said that Impact Factors should not be used to evaluate individual articles, but they are also of little value in determining the quality of journals, as shown by these calculations. In addition, the size of scientific communities and their publication and citing practices also influence the Impact Factors of journals. Bibliometric experts can use citation analysis to answer specific questions, scientists should carry out good research, and editors and publishers should publish good journals!

Table 1: Top Ten Articles in *Angewandte Chemie* based on Altmetrics Score (since its introduction in mid 2014).

Title, shortened	Corresponding Author	Altmetrics-Score
Anthracimycin, a Potent Anthrax Antibiotic	William Fenical	172
Absolute Configuration of Beer's Bitter Compounds	Werner Kaminsky	164
Electrochemically Mediated Seawater Desalination	Richard M. Crooks, Ulrich Tallarek	164
Occurrence of the Synthetic Analgesic Tramadol in an African Medicinal Plant	Germain Sotoing Taiwe, Michel de Waard	155
Organ Repair, Hemostasis, and In Vivo Bonding of Medical Devices	Ludwik Leibler, Didier Letourneur	144
Acoustic Propulsion of Nanorod Motors Inside Living Cells	Tony Jun Huang, Thomas E. Mallouk	126
Molecular Ionization from Carbon Nanotube Paper	Thalappil Pradeep	115
Optically Transparent Water Oxidation Catalysts	Benjamin J. Wiley	115
A Toxic RNA Catalyzes the In Cellulo Synthesis of Its Own Inhibitor	Matthew D. Disney	114
Separating Para and Ortho Water	Jochen Küpper	112

In the postscript that I mentioned at the beginning, I warned of the dangers facing science of alternative statistics at the article level, which some have touted as compensating the deficiencies of the

Do we want a world of permanent scoring? Or do we require authorities that act as a filter?

Impact Factor. Since around the middle of 2013 Wiley (and Wiley-VCH) has introduced Altmetrics for all journals. Altmetrics is a company that has developed software that registers in real time the mentions of published articles in Facebook and Twitter, in Blogs, and all forms of popular media. Above the abstract of an article in Wiley Online Library is a rainbow colored circle and next to it a value, the “Altmetrics Score”: If there is no number then the article has not been mentioned, values over 10 are regarded as good over 100—of which there are already around 20 for *Angewandte Chemie*—as excellent; the Top Ten Altmetrics articles in *Angewandte Chemie* are listed in Table 1. Naturally this score is also not an indicator of quality, but that the topic

covered is generating interest (for whatever reason); articles for which a press release has been issued usually have a higher score—but not every article, regardless of its scientific quality, lends itself to a press release.

Shortly before his tragically early death (in June 2014) Frank Schirmmacher, a Co-Editor of the German national daily newspaper *Frankfurter Allgemeinen Zeitung*, who gave an impressive talk at the *Angewandte Chemie* 125th Anniversary Symposium in Berlin, in March 2013, asked in an interview, “Do we want a world of permanent scoring?” Scientists have become used to the most-cited/most-downloaded/most-mentioned lists and even allow their reading practices to be guided by them. It is simpler to follow “Like It” recommendations than to do the browsing yourself. “Or do we require authorities that act as a filter?” asked Schirmmacher in the same Interview. *Angewandte Chemie* is such a filter, and will be in 2015.



Peter Göllitz