

Be Critical but Fair

New social media such as Facebook and Twitter have changed our lives, not only on everyday personal levels, but also professionally. The availability of data *via* the Internet makes it possible for everyone to see what others have done nearly instantaneously. While, for example, in the not-so-distant past, scientists required good memories and profound knowledge of the literature to track down plagiarism, now, it takes only seconds to find out using the Internet if certain passages have been used previously. *ACS Nano*, for example, routinely applies software to screen submitted manuscripts for similarity to published material.¹ Each potential reported case is carefully reviewed by a scientific editor and our staff before any action is taken. With us, it is the human, not the machine, who takes the action.

Such plagiarism checks have already had profound impact. In Germany, for example, several ministers were shown to have copied data from others in their Ph.D. theses without having quoted them properly (although with a range of severities). This ultimately resulted in retractions of their Ph.D. titles and their resignations from the cabinet. While these checks are helpful for maintaining high and objective scientific standards, these high-profile cases also demonstrate the ambiguous role of social media. Although academic fraud was evident in one of the above-mentioned cases, another case was in more of a gray zone and thus generated different reactions among the scientific community. In all cases, however, the respective politicians were already partly discredited in the media before the end of the investigation.

In science, we face a similar problem: the numbers of blogs, twitter messages, *etc.* in which individuals accuse others of academic fraud are steadily rising. Although one might think that this trend is generally beneficial for the purity of science, there are also obvious risks involved. Thus, in this Editorial, we outline some general behavior guidelines that we believe should be followed in such cases. In general, we need to respect our law, *in dubio pro reo*, which tells us not to condemn anyone before wrongdoing has been proven. It is easy to tweet a message like "X committed fraud and manipulated data", but how do we know that this is, in fact, true, and that instead, it was perhaps person Y who sent the tweet who just wanted to damage an unwanted competitor? We are convinced that it is important to "clean" the scientific literature from manipulated data, incorrect statements, plagiarism, *etc.* However, when these issues arise, they need to be investigated with good scientific conduct. In other words, be critical but fair. For a general outline on good scientific and ethical conduct, we refer to the ACS Publications Ethical Guidelines to Publication of Chemical Research (<http://pubs.acs.org/page/policy/ethics/index.html>).

The best way to avoid potential academic fraud is through rigorous peer review. Unfortunately, due to the overwhelming numbers of manuscripts that are published, more and more researchers are writing less thorough, less careful reviews. We counter this disturbing trend by limiting the number of manuscripts that we send to our carefully chosen referees, whose expertise is individually matched to the manuscripts they consider. When an article is published that should not have been, this can be a sign that the review process was not optimal; however, some of these manuscripts do get through even the best refereeing processes.

How should one act if one feels that something published in the literature is not correct? Again, it is unwise and unfair to start a personal campaign, without giving the accused scientist(s) a chance to comment. The suggested action now depends on the severity of the case. First, consider the least problematic cases. It sometimes happens that authors forget to quote relevant literature or mistakenly claim that they were the first to discover something.

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In the case of missing citations, we suggest personally contacting the authors to point out their omission(s), and typically authors are grateful for the corrections and pointers, and do not repeat the same such mistakes again. In order to prevent mistaken claims of novelty, we at *ACS Nano*, for example, prohibit statements such as “we show for the first time” because we expect everything we publish to be novel and we do not support specific claims of priority. Likewise, we do not publish Additions and Corrections for missing citations, as these are generally not of sufficiently broad interest to our readers.

The situation becomes more difficult in cases of suspected plagiarism or, in the most severe cases, fabrication or manipulation of data. When plagiarism or data manipulation is suspected, accusations should be reported directly to the journal in which the article is published. It is best not to make an accusation anonymously, and complaints should be made in writing with detailed explanations of the accusation. You will receive an acknowledgment from our offices of the receipt of your report. If you do not want to send the report directly to the scientific editor in charge, ACS also offers the possibility of sending the report to the ACS Publications support team, in order to avoid any possible conflict of interest (support@services.acs.org or online at help.acs.org). Such reports will be treated confidentially and investigated thoroughly. However, the investigation may take some time, as it will be taken most seriously. *ACS Nano* and other ACS Publications journals follow guidance from the Committee on Publication Ethics (COPE) when investigating potential ethical issues. If you are interested, check out COPE's guidelines² for an idea of the thorough investigation undertaken in each of these cases.

In the end, a decision will be made, ranging from notification that no cause was found to support the accusations made, corrections to a published article, retraction of the article, and/or to notifying the authors' institutions of such actions. At *ACS*

When plagiarism or data manipulation is suspected, accusations should be reported directly to the journal in which the article is published.

Nano, we take scientific fraud seriously and, as needed, retract articles and place sanctions on authors for set numbers of years, including bans on further submissions. The difference between this formalized accusation investigation and reports in blogs or on Twitter is that, during the investigation, the authors of the article under dispute have a fair chance to explain, and the decisions are made by known experts in the field. After we have made our decision, all are welcome to comment on it in any blog, even if they have different opinions; this is their privilege. We strongly suggest that such comments be made without the cloak of anonymity, using real names and affiliations, so that direct and open discussion of the work can be understood by others.

While we appreciate readers being critical and thus helping to weed out incorrect or fraudulent manuscripts, we still should not consider each publication from a competitor as being potentially wrong. A climate of mistrust will not help anyone and will only hamper honest scientists, which are the great majority of our community. Researchers make their reputations by publishing excellent data, not by being whistleblowers with mixed records of accuracy. It is easy to criticize the work of others, but it is substantially harder to achieve something by oneself. In other words, be critical, but never forget to be fair. One can be competitive, but still friends with colleagues, who naturally are also in some ways competitors. We are all humans, and we should never forget the human touches in our work.

To give you an example, we would like to share our experiences at ChinaNano 2013, a recent conference in Beijing, where we held our editors' meeting in order to honor the large and growing contributions China is making to nanoscience.³ Not only did our Editor-in-Chief, Paul Weiss, present the winners of the *ACS Nano* lectureship awards and all our editors present select the two *ACS Nano* poster award prizes (Mr. Xu Dong Chen and Mr. Jun Yin) and the *ACS Nano* grand poster award (Ms. Sisi Jia), we also had great discussions with the editors of other journals. Naturally, at *ACS Nano*, we want to present the top articles in the field, but this does not prevent us from having great fun and friendly relations with editors of other nanoscience journals. Bending our own rules here, we proudly present the “first” one-pot synthesis of a “*Small*” nanomaterial, as our colleague Charl Faul termed it. Never forget that

science is also supposed to be fun. We all want to excel, but we should not forget the human touch. Thus, please be critical, but fair.



Our friend and colleague, the Editor-in-Chief of *Small*, Dr. José Oliveira, in a newly developed one-pot synthesis at ChinaNano 2013, in Beijing.

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