

Making an impact?

Every year, the publication by the Institute of Scientific Information (ISI) of the previous year's impact factors (IFs) for scientific journals generate some excitement and anguish within both editorial offices and the scientific community. The first IF for *Nature Materials* has just been released — 10.778 for the year 2003.

Based on this figure, *Nature Materials* is not only ranked number one among primary materials science journals but also across all the primary research journals in physics and chemistry. This undoubtedly reflects the increasing vitality and central importance of materials research in the physical sciences, but we emphasize that IFs require caution in their use and interpretation.

How are these numbers calculated and do they tell us anything meaningful? The IF is one of the indices that ISI calculates from its extensive database of citation information collected from over 7,000 journals. IFs are the average number of citations per paper in a given year, and are calculated on the basis of the previous two years' worth of a particular journal's publications. For *Nature Materials*, launched in September 2002, our first IF only takes into account the papers published between September and December 2002.

These figures are related not only to the perceived impact of the papers published, but also to many other factors such as the timing and types of articles published, the size of the readership, the international character of the journal, and the speed with which a field is developing. Two types of paper contribute most to the calculation of a high impact factor — original research papers that report significant or conceptually novel results, and reviews that encapsulate entire bodies of previously reported research, both of which are published by *Nature Materials*.

In an age of increasing concern about spin and hype associated with trendy topics such as the so-called 'nano/bio' revolution, it should be recognized that the bulk of scientific progress takes place beyond the headlines. Without rigorous follow-up and publication in specialist and archival journals, research that is merely attention-grabbing is stillborn. Publication in high-impact journals such as *Nature Materials* should therefore serve not as the ultimate destination of great research but as the beginning — the 5% of inspiration that precedes the 95% of perspiration that is the source of real scientific progress.

There is no doubt that bibliometric data can provide some insight into the perceived quality of scientific work, but unfortunately IFs are increasingly and wrongly used to evaluate academic performance, and can have a significant weight on funding and recruitment decisions. Authors are therefore painfully aware of the importance of publishing in journals with a high IF. This is based on the assumption that the number of citations a paper receives reflects its importance, and that a journal's IF mirrors the scientific impact of the articles published.

But, inter-journal comparisons as presently practised are at best tenuous, and decision-makers should be fully aware that IFs have shortcomings and can only provide a simplistic assessment of scientific merit.

Ultimately, good science will be recognized wherever it is published. The latest ISI citation report confirms that some of this is being published within the covers of *Nature Materials*, and we are proud to be associated with such world-class research. But for us too, this recognition serves not as end in itself but as a solid foundation from which to continue to publish papers that inform, stimulate and drive progress in the broad field of materials research.

Beyond publishing important research, we are more than ever dedicated to help strengthen the cohesion of the field and enhance its profile and visibility with policy makers and the wider public. We therefore thank the community for making us your own voice, and actively encourage our readers to use our pages as a forum to promote research, education and innovation in materials science.

2003 ISI BIBLIOMETRIC DATA FOR HIGH-IMPACT PHYSICAL SCIENCES PRIMARY JOURNALS. THE IMPACT FACTOR MEASURES THE AVERAGE NUMBER OF CITATIONS PER PAPER IN A YEAR BASED ON ARTICLES PUBLISHED IN THE PREVIOUS TWO YEARS. THE IMMEDIACY INDEX MEASURES HOW QUICKLY ARTICLES ARE CITED ON AVERAGE WITHIN THE SAME YEAR.

