

afresh into the common format or transformed from an existing digital format. This process need not be centrally directed and can be carried out at the level of each participating individual or organization. The technique of peer-to-peer file sharing brought to larger public use by Napster ([www.napster.com](http://www.napster.com)), can be used for searches and downloads and is useful in setting different privileges of access. This will help overcome the technological limitations that developing countries are facing in applying informatics to biodiversity<sup>4</sup>.

The emphasis here is on multiplicity of institutions and individuals holding and sharing data in a common minimum

format, rather than centralized databases that have a tendency to develop mutual incompatibility. The size of the data holding or the institution does not matter in this approach and that is likely to contribute to its success. India is in a position to promote and use peer-to-peer data sharing for biodiversity databases. If implemented successfully, this can become an international model, similar to GBIF or Species2000.

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## Significance of impact factor with regard to mathematics journals

We read with interest the note of N. C. Jain (*Curr. Sci.*, 2000, **79**, 1513–1514) on the findings of Science Citation Index (SCI). We would like to congratulate the Editor and the Editorial Board on the high impact factor of *Current Science*, though it is hardly a surprise as *Current Science* has been popular with the scientific community over the last several years.

For a journal like *Current Science* with its coverage of a wide range of scientific disciplines, the impact factor (IF) of SCI, no doubt, serves as a good indicator of its success in realizing its objectives. However, we would like to draw the attention of the readers to the fact that this IF may not have the same significance for other journals with a sharper focus, devoted to specific disciplines; this is particularly so with regard to mathematics.

The IF of SCI for a given year is the average number of times 'recent' articles from the journal were cited during that year; 'recent' here means that the article has appeared within the two preceding years. In fields where rapid obsolescence is a major factor to reckon with – and this is often no doubt the case, especially with fields of applied science – it may be reasonable to measure impact by such recent citation. But in mathematics, where 'classic' works of a Gauss, a Riemann or a Ramanujan continue to inspire current research, it is not a good gauge for quality. Titles in bibliographies in most mathematics papers, especially from prestigious journals like the *Annals of Mathematics*, *Inventiones Mathematicae*,

etc. often date back to 20 or 30 years (and occasionally even more); recent papers (dating back to not more than 2 years) make up barely 5 to 10 per cent of the references.

In many disciplines, a few dominant themes become the focus of attention of a large number of researchers, for relatively short periods; however this does not happen in mathematics. Different branches of mathematics go through a slow and steady development and these diverse streams meet time and again and spread out further. In such a context it is hardly surprising that most mathematics journals have a low SCI IF. Often the papers which get cited within a short span are those which are incomplete in one respect or the other, so that either the author, or someone within the narrow area around, is able to say something more about the topic soon after. Thus the two-year reference window is somewhat arbitrary, and especially in the specific context of mathematics, may well exaggerate the importance of work of indifferent quality. This makes it clear that the IF does not serve to make meaningful comparisons of quality between mathematics journals, nor do changes in the IF of a mathematics journal over a period of time have a serious meaning.

For the Mathematical Science Proceedings of the Indian Academy of Sciences, for example, the IFs for the five years from 1995 to 1999 were computed to be 0.154, 0.143, 0.184, 0.149 and 0.048, respectively (only the last one has been

quoted in the note by Jain cited above). During the six years from 1993 to 1998, the journal published 25, 53, 45, 31, 37 and 26 papers, respectively. The values of the IF as above therefore mean that during 1995 to 1999 the papers from the preceding two years were cited 12, 14, 14, 10 and 3 times, respectively. Seen in raw figures the information means much less than what the variation in the IF would suggest; in such a small sample, simple variations due to the specific nature of some papers (including good papers) can change the averages drastically.

Thus the IF of SCI cannot be taken seriously for a calibration of the quality of mathematics journals: we have a little doubt that professional judgments of quality will be at considerable variance with what the IF may suggest. It is not our case that, judged by other more appropriate criteria, Indian mathematics journals will come out with flying colours. Many of our journals are far from being serious competitors internationally. However, the situation is significantly better than what the IF would indicate.

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